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Why Many People May Not Need Aspirin Today

Starting in the 1970s, a number of published studies found that people who regularly took aspirin had reduced risk of heart attack and other vascular disorders.\(^1\)\(^-\)\(^4\)

As evidence mounted, the FDA approved low-dose aspirin in 1998 to treat high-risk patients, including those who had already suffered a heart attack or ischemic stroke.

Tacit approval to take low-dose aspirin daily was also given for healthy adults concerned about occlusive vascular disorders.

One of aspirin's beneficial effects is to prevent blood platelets from clumping and blocking blood flow,\(^5\)\(^,\)\(^6\) including inside a coronary or cerebral artery.

Back in the early years when aspirin demonstrated efficacy, the typical Americans' behavior patterns put them at high risk for abnormal platelet clumping, which in turn caused soaring numbers of heart attacks and strokes.\(^7\)

In the period of 1980 to 2014, however, death rates from cardiovascular disease incrementally plummeted by 50%.\(^8\)

This improvement coincides with better control of blood pressure and lipids, and a decrease in smoking tobacco,\(^5\)\(^,\)\(^6\) along with changing dietary practices and improved cardiovascular procedures and interventions.

Overlooked by the mainstream is an almost 20-fold increase in the use of dietary supplements, many of which have many similar effects as aspirin in protecting the cardiovascular system.\(^9\)

Recent studies are finding that aspirin is not reducing heart attack/stroke risk in today's healthier American population compared to earlier decades.\(^5\)\(^,\)\(^6\) Aspirin is still proving effective in certain high-risk groups, as will be described in this editorial.\(^5\)\(^,\)\(^10\)

So the debate swirling in medical settings is whether otherwise healthy Americans should continue taking low-dose aspirin.

Our analysis reveals that adults at low risk of cardiovascular disease who control their risk factors, including protecting against abnormal platelet clumping, may not need daily low-dose aspirin. This editorial describes our rationale.
If we travel back to the 1950s-1970s era, a typical American man or woman might, after waking up, eat a breakfast consisting of bacon, eggs, and buttered toast, with sugar and/or cream-laden coffee. Many would also light up a cigarette. The morning hours are when blood platelets are most “sticky.” Mornings are also when most sudden heart attacks were occurring in those decades.11

Consumption of polyphenol-rich fruits, vegetables, and dietary supplements in this 1950s-1970s period was low.

Systolic blood pressure over 150 mmHg was quite normal, and many people had high cholesterol levels, sometimes exceeding 300 mg/dL.

Add together the above five paragraphs and you may see why sudden-death heart attacks surged to epidemic levels during the 1950s-1970s period. Typical breakfast foods consumed in that time period increased abnormal platelet aggregation (clumping), smoking caused more platelet clumping, and few anti-platelet-clumping foods or nutrients were consumed.

So, when studies published in the prior decades identified regular aspirin users as having reduced heart attack rates, there was a biological explanation for this, since aspirin markedly lowered the platelet clumping that was encouraged by typical lifestyles during this era.

What Has Changed Today?

Even a cursory look at health behavior patterns in the 1950s-1970s compared to recent years reveals startling changes.

There have been huge reductions in average blood pressure readings and lipid numbers.12,14,15 These two factors alone dramatically reduce platelet clumping (thrombotic) risks.16,17

Dietary practices among health-conscious individuals reduce or eliminate breakfast foods like bacon, ham, and fried eggs that contribute to platelet aggregation.

Specifically, health-conscious individuals have become aware that ingestion of saturated fats (and certain other fats like trans-fats) is a culprit behind platelet aggregation and subsequent coronary heart attacks and ischemic strokes.

Tobacco usage has plummeted, while intake of nutrients that protect against platelet aggregation has soared.

Stated succinctly, there is no comparison between the vascular health status of the typical American in the 1950s-1970s and the same indices in more recent decades. Plummeting incidences of heart attacks and strokes caused by abnormal platelet aggregation attest to this.

So, while aspirin saved many lives in the past, it may not have this same effect today. That’s because there is far less abnormal platelet clumping and thus less coronary or cerebral artery blockage (occlusion) happening.5,6

“In 1965, 45% of Americans smoked, today it’s only 15%… That’s the lowest percentage ever recorded.”*

*Smithsonian.com based on Centers for Disease Control and Prevention 2015 report.19
Foods and Nutrients with Anti-Platelet Properties

**Olive Oil**
Phenolic-rich olive oil preparations have demonstrated decreases in the production of proinflammatory and prothrombotic factors in human studies. In a study in healthy men, olive oil’s oleocanthal content was correlated with its ability to inhibit platelet aggregation.

**Tea**
Tea consumption has protective effects on cardiovascular health. Purified green tea polyphenols, such as EGCG, reduce platelet aggregation in isolated human platelets.

**Quercetin**
Quercetin has demonstrated success inhibiting platelet aggregation. Single doses of quercetin glucosides, the naturally occurring form of quercetin (150 or 300 mg), from food sources and higher quality dietary supplements, were able to significantly inhibit collagen-induced platelet aggregation in one small human study.

**Fish Oil**
Several human studies observed the antithrombotic activities of fish oil. Consumption of fish oil decreases platelet activation and aggregation. In type II diabetic patients, the pooled data from three human trials demonstrated a reduction in platelet aggregation.

**Curcumin**
Human trials reveal the effects of curcumin on reducing lipid peroxidation and plasma fibrinogen, both factors in the progression of atherosclerosis. Another mechanism by which curcumin inhibits platelet aggregation is through dampening expression of P-selectin, an adhesion molecule expressed on both activated endothelial cells and platelets that mediates aggregation between these two cell types. P-selectin also recruits leukocytes to the forming thrombus.

**Pine Bark Extract**
An extract rich in polyphenols with anti-inflammatory and free-radical scavenging properties, has been found to stabilize vascular collagen and prevent blood clots. In *in vitro* research, pine bark extract reduced cytokine-related expression of adhesion molecules by endothelial cells, thereby reducing the likelihood of blood cell aggregation, in response to inflammatory signaling.

**Pomegranate**
Two weeks of pomegranate juice consumption (50mL/day) reduced platelet aggregation by 11% in a small study of 13 healthy individuals. In a human clinical trial, pomegranate juice consumption was shown to improve a measure of thrombotic risk in as little as six hours after consumption.
It helps explain why recent studies seeking to demonstrate the effect of aspirin on heart attack prevention in healthy people have largely failed to do so.28-32

Today’s radically altered health behavior patterns drastically reduce platelet stickiness. Further reducing platelet aggregation with aspirin may not add additional benefit to healthy people, as recent studies indicate.5,6

Blood Pressure and Platelet Aggregation

With each heartbeat, blood is pushed through your arteries into microscopic capillaries and then out through veins for return to your heart.

Elevated systolic blood pressure increases mechanical stress that compromises the integrity of the inner arterial wall called the endothelium. This can lead to a pro-inflammatory and pro-thrombotic state that is an underlying cause of heart attack or ischemic stroke.

Blood pressure guidelines in earlier years allowed levels that were too high. Back in those days medications to treat hypertension were not particularly effective compared to more recent decades.34

Lipids and Blood Pressure

In the early 1980s, the standard reference ranges for LDL cholesterol and triglycerides were too high. These antiquated reference ranges put many people at risk for coronary artery occlusion and subsequent heart attack (myocardial infarction) in earlier decades.
Elevated lipids accelerate atherosclerotic processes. This increases the risk of platelets aggregating around unstable arterial plaque and causing coronary and cerebral artery blockages.

Huge declines in average lipid levels beginning in the late 1980s provide further rationale for why aspirin is not demonstrating similar beneficial effects in more recent studies.

Back in the previous period (1950s-1970s) little was done in blockages.

The reasons cited by the American Heart Association, and many more provided in this editorial, indicate why otherwise healthy American adults may no longer need low-dose aspirin for primary heart attack prevention.

Who Should Take Aspirin?

The term “primary prevention” applies to the use of low-dose aspirin in seemingly healthy individuals who have elevated risk factors for coronary heart attack and ischemic stroke.

The box on the next page describes patient groups who should be taking low-dose aspirin for primary prevention, i.e., before they suffer a thrombotic heart attack or stroke.

The term “secondary prevention” applies to people who already suffer angina and/or severe coronary blockage, or are survivors of a heart attack, transient ischemia attack, ischemic stroke or other occlusive arterial disease.

For this group of individuals with preexisting vascular disease, aspirin is clearly established for secondary prevention, i.e., preventing another cardiovascular event.

The debate going on now is what to recommend to normal, aging people with borderline vascular risks.

Alternative practitioners have long claimed the anti-platelet effects of healthy diets, exercise, and nutrient extracts that exhibit aspirin-like properties are more than sufficient.

The bottom line is that there are no clear-cut answers for otherwise healthy, aging people.

What Should You Do?

For many readers of this magazine, daily low-dose aspirin may be a reasonable option, but there is no real “typical” reader of this magazine.

I’m sometimes surprised that those who support our healthy longevity projects do not always optimize their own cardiovascular health.

What’s important to understand is that there are several mechanisms by which an abnormal clot can form inside a blood vessel.

By consuming a healthy diet, taking a spectrum of anti-platelet nutrients, and avoiding other platelet clumping factors, thrombotic risks are likely to be significantly reduced, and the published medical literature supports this.
Current Conventional “Primary Prevention” Guidelines for Daily Low-Dose Aspirin

Primary prevention in cardiovascular disease is defined as reducing the risk of having an initial cardiovascular event, like a heart attack (myocardial infarct) or stroke (cerebrovascular accident).

In comparison, secondary prevention is defined as reducing the risk of having a second, or subsequent, cardiovascular event.

Low-dose (75-100 mg daily) aspirin use for secondary prevention is well established. However, based upon several new, high-quality clinical studies (randomized, placebo-controlled, direct intervention trials), the use of aspirin for generalized primary prevention has been revised. These revisions reflect the differences between patient populations today in comparison with the past – for example, patients today achieve better blood pressure control, have better cholesterol profiles, and use less tobacco than comparable patients in the past, especially 30-plus years ago.

According to the 2019 Guidelines for Primary Prevention of Cardiovascular Disease from the American College of Cardiology (ACC) and the American Heart Association (AHA), current recommendations on the use of aspirin for primary prevention stipulate:

- Low-dose aspirin (75-100 mg orally daily) may be considered for primary prevention of cardiovascular disease in high-risk adults (e.g., patients at high risk of a cardiovascular event, like type II diabetes patients as well as those patients with multiple cardiovascular risk factors such as poor blood pressure control, active tobacco use, and elevated LDL cholesterol) aged 40-70 years, not at increased bleeding risk;
- Low-dose aspirin should not be administered on a routine, generalized basis for primary prevention of cardiovascular disease among otherwise healthy adults >70 years, not at high cardiovascular risk;
- Low-dose aspirin should not be administered for primary prevention among adults at any age who are at increased bleeding risk.

For longer life,

William Falloon, Co-Founder
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P.S. For an in-depth review of different approaches to reduce a hypercoagulability condition and/or abnormal platelet aggregation please visit our blood-clot prevention protocol at: LifeExtension.com/thrombosis

References


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**Reduced Secondhand Smoke Exposure Slashes Thrombotic Cardiovascular Risks**

Most of you may recall being chronically exposed to other people’s *cigarette smoke* in the workplace, around recreation areas, while traveling, and at home.

Here is what the Surgeon General and the Institute of Medicine write about the cardiovascular dangers of secondhand smoke:37-42

- Exposure to secondhand smoke has immediate adverse effects on the cardiovascular system and can cause coronary heart disease and stroke.
- Secondhand smoke causes nearly 34,000 premature deaths from heart disease each year in the United States among nonsmokers.
- Nonsmokers who are exposed to secondhand smoke at home or at work increase their risk of developing heart disease by 25%–30%.
- Secondhand smoke increases the risk for stroke by 20%–30%.
- Secondhand smoke exposure causes more than 8,000 deaths from stroke annually.
- Breathing secondhand smoke can have immediate adverse effects on your blood and blood vessels, increasing the risk of having a heart attack.
- Breathing secondhand smoke interferes with the normal functioning of the heart, blood, and vascular systems in ways that increase the risk of having a heart attack.
- Even brief exposure to secondhand smoke can damage the lining of blood vessels and cause your blood platelets to become stickier. These changes can cause a deadly heart attack.

Over the past 25 years, public health initiatives have resulted in huge reductions in *secondhand smoke* exposure, which further lowers thrombotic heart attack and ischemic stroke risk.

These data help further explain why studies in *early* years showed reduced heart attack risk in aspirin users.

In today’s relatively *secondhand-smoke-free* world, the potent anti-thrombotic effects of daily aspirin are not always going to show reduced heart attack risk because this major environmental threat has been largely eliminated.
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Reference

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Omega-3 Intake and Lower Risk of Mortality During 16 Years of Follow-Up

A study reported in the *Journal of Internal Medicine* reveals a lower risk of dying from any cause during a 16-year follow-up period among men and women who had a high intake of fish or omega-3 fatty acids.*

The investigation included 240,729 men and 180,580 women who were National Institutes of Health (NIH) and American Association of Retired Persons (AARP) enrollees in the NIH-AARP Diet and Health Study between 1995 and 1996. Questionnaires concerning lifestyle and diet were completed by the participants upon enrollment. Through 2011, 54,230 deaths occurred among the men, and 30,882 deaths occurred among the women.

For men whose intake of omega-3 fatty acids placed them among the highest 20%, the risk of mortality from any cause was 11% lower than the risk experienced by men whose intake was among the lowest 20%. Similarly, women who were among the top 20% of omega-3 consumers had a 10% lower risk.

Editor’s Note: When the risk of death from specific diseases was analyzed, men who had the highest intake of omega-3s experienced a 15% lower risk of dying from cardiovascular disease, and for women in the top group, the risk was 18% lower. Greater omega-3 fatty acid intake was significantly associated with a lower risk of mortality due to respiratory disease and Alzheimer’s disease in men and women, and with a lower risk of chronic liver disease and cancer in men.

Benefits from Quercetin, Dasatinib in Pulmonary Fibrosis

Results of a pilot study reported in *EBioMedicine* indicate benefits from the senolytic compounds quercetin and dasatinib in patients with idiopathic pulmonary fibrosis, a progressive disease that causes scarring of the lungs. Senolytics are compounds that target senescent, damaged cells, that resist destruction, and damage the cells that surround them.*

After finding positive results for treatment with the quercetin/dasatinib combination in a mouse model of idiopathic pulmonary fibrosis, researchers at the University of Texas Health San Antonio proceeded to evaluate the effects of the compounds in 14 older people. These individuals had been diagnosed with mild to moderate cases of the disease.

Participants received the senolytics for three consecutive days weekly, for three weeks. Blood chemistry, assays of senescence-associated proteins secreted by senescent cells, symptoms, and markers of physical function were assessed before and after treatment.

At the end of the trial, most of the participants showed mild improvement in physical function. The authors noted that “although statistically significant and clinically meaningful, [they] need to be verified in larger controlled trials.”

*Editor’s Note:* “No drug therapies, including the available antifibrotic drugs, have ever been shown to stabilize, let alone improve, an IPF (idiopathic pulmonary fibrosis) patient’s six-minute walk distance,” commented coauthor Anoop M. Nambiar, MD. “But in this pilot study of DQ (dasatinib/quercetin), participants’ six-minute walk distance improved an average of 21.5 meters (70.5 feet).”

Pomegranate, Berry Metabolite May Help Inflammatory Bowel Disease

A report published in *Nature Communications* suggests a benefit from urolithin A, a metabolite derived from pomegranate and berries, in the prevention and treatment of inflammatory bowel disease that includes Crohn’s disease and ulcerative colitis.* These diseases are characterized by inflammation due to gut leakage of toxins.

In rodent studies, researchers found that administration of urolithin A, or its synthetic analog, protected against and reduced colonic inflammation in acute and chronic colitis.

A series of experiments demonstrated that these molecules decreased gut permeability by increasing the expression of tight junction proteins that are lost in inflammatory bowel disease.

Commented co-senior author, Dr. Praveen Vemula, of the Institute for Stem Cell Biology and Regenerative Medicine:

“Restoring the gut barrier and reducing the inflammation using a small molecule will provide a better therapeutic output in the treatment of IBDs (inflammatory bowel diseases).”

*Editor’s Note:* “Urolithin A, a major microbial metabolite derived from polyphenolics of berries and pomegranate fruits displays anti-inflammatory, antioxidative, and anti-aging activities,” the authors wrote. “Here, we show that urolithin A and its potent synthetic analog significantly enhance gut barrier function and inhibit unwarranted inflammation.”

Lower Risk of Multiple Sclerosis with Omega-3 Supplements

A study presented at the American Academy of Neurology’s 70th Annual Meeting found a lower risk of multiple sclerosis among individuals who consumed daily fish oil supplements, in addition to eating fish one to three times per month, compared to those whose intake was low.*

The study included 1,153 subjects, among whom approximately one-half had been diagnosed with multiple sclerosis or clinically isolated syndrome (an initial multiple sclerosis episode lasting at least 24 hours). Reported intake of fish was defined as high among those who consumed one to three servings per month plus daily fish oil, or one serving of fish weekly. Low intake was characterized as less than one serving per month and no fish oil supplementation.

High consumption of fish and fish oil was associated with a 45% lower risk of multiple sclerosis or clinically isolated syndrome, in comparison with a low intake.

Editor’s Note: The researchers determined that two of 13 genetic variations in a human gene cluster that regulates fatty acid levels were associated with lower risk of multiple sclerosis.

Folate Intake May Need a Boost During Summer Months

The Journal of Photochemistry and Photobiology B: Biology published findings from researchers in Málaga, Spain of reductions in serum levels of the B vitamin folate in association with higher amounts of ultraviolet light exposure. “We have revealed that cycles repeat annually,” explained coauthor José Aguilera, of the University of Málaga. “The percentage of low values increases in summer.”*

Analysis of 118,831 serum blood samples collected from patients hospitalized in Málaga revealed a decrease in average folate values in all seasons compared to winter. Folate deficiency risk during summer was 37% higher than the risk experienced during winter.

Subjects who had an initial folate measurement obtained during winter followed by a second test during summer were more than three times likelier to show the development of deficiency compared to those whose first test was during summer and second test was in winter.

Editor’s Note: “A change in dietary habits – or the prescription of fortified food or supplements if dietary intervention is not effective – would help prevent folate deficiency,” the authors suggest.

Life Extension® Study Finds Intermittent Fasting Suppresses Holiday Weight Gain

Weight gain during the six-week period between Thanksgiving and New Year is a significant contributor to annual weight gain. If repeated every holiday season, this can result in cumulative weight increases over time. Obesity is a risk factor for numerous chronic diseases and an increased risk of mortality.

Life Extension conducted a study to determine if intermittent fasting could suppress harmful holiday weight gain.*

Published in the Journal of Nutritional Science, this pilot, randomized controlled study including 22 people, was conducted during the 52 days starting just prior to Thanksgiving and ending right after the New Year.

Ten people followed their regular diet and served as the control group, and 12 people participated in the nutrition program (which consisted of cycling between two fasting days followed by five days of their regular diet). The fasting days consisted of 730 calories per day of a balanced shake plus dietary supplements.

At the end of the 52 days, the control group did not experience a significant change in body weight, but they did experience harmful metabolic changes, including an increase in fasting insulin, LDL cholesterol, total cholesterol, and updated homeostasis model assessment (HOMA2), an indication of lower insulin sensitivity, which is suggestive of greater insulin resistance.

However, the nutritional program group experienced significant weight loss, a 13% increase in beneficial HDL cholesterol, and a 22.8% decrease in triglycerides. There were also significant differences between the two groups in changes in insulin levels, the total-to-HDL cholesterol ratio, and HOMA2.

These findings suggest that intermittent fasting could help prevent weight gain and promote metabolic health during the winter holiday season.

Editor’s Note: Ingredients in the supplements in the nutrition program included EPA and DHA, sesame lignans, olive fruit and leaf extract, plant-based polyphenols, saturated fats, nuts, and olive extract (to mimic the Mediterranean diet), soluble fibers (xylooligosaccharides), Italian Borlotto variety of white kidney bean (Phaseolus vulgaris), saffron, clove bud and maqui berry extracts, curcumin, coenzyme Q10-ubiquinol and shilajit, Gynostemma pentaphyllum extract, and hesperidin.

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Fall Asleep **FASTER**

and

Stay Asleep **LONGER**
The Centers for Disease Control and Prevention estimates that about 35% of adults get less sleep than they should.¹

That’s part of the reason sleeping pills are so popular. But they come with serious drawbacks, including risk for physical dependence, accidents, and eventual tolerance that renders them ineffective.

Several plant-derived extracts have been found to safely help promote healthy sleep.

Scientists have created a combination of three such extracts: lemon balm, honokiol (a compound found in the magnolia tree), and apigenin (an ingredient found in chamomile).

Together, they work on multiple sleep centers in the brain to help restore healthy sleep patterns.

One study of people with mild-to-moderate anxiety disorders and sleep disturbances showed 85% of subjects that supplemented with lemon balm extract achieved full remission for insomnia and 70% of the subjects had complete relief of anxiety symptoms.²

Preclinical and clinical studies and gene expression analysis show that these ingredients can help people fall asleep more easily and improve sleep quality, leading to restorative and health-promoting rest.²-⁵
Newer sleeping pills, such as Ambien® and Lunesta®, work by interacting with GABA receptors in the brain to produce sedative, anti-anxiety effects. Though they have a slightly lower risk for addiction, regular use can still lead to dependence. And many users of these drugs complain about a “zombie” effect the following day, which can cause poor mental performance, and risk for injuries such as falls.17,18

The newest class of sleep aids, orexin receptor antagonists, takes a different approach than the above-mentioned drugs that enhance GABA signaling. The orexin system in the brain controls wakefulness. Therefore, orexin receptor antagonists enhance sleep. Users of orexin receptor antagonists are subject to a “hangover” effect and the potential for physical dependence, like they are with most potent sleep aids.19

A Healthier Alternative

Lemon balm is an herb in the mint family that enhances GABA neurotransmitter activity in the brain, but by a different mechanism than benzodiazepines and other sleeping pills. The compounds in lemon balm, including rosmarinic acid, have been found to inhibit the enzyme that normally degrades GABA.4 This keeps GABA levels higher, to support a sleep-promoting and anxiety-reducing effect.

The magnolia tree is the source of a compound called honokiol. Research has shown that honokiol interacts with the receptor for GABA. Through this interaction, it boosts the activity of GABA to aid sleep.5
The flowering herb **chamomile** has long been used as a natural sleep aid. Part of this effect may also be attributed to its GABA-enhancing activity. But chamomile and its active components, particularly the nutrient **apigenin**, may act by additional mechanisms to further promote sleep.\(^{20}\)

Computer-based gene expression analysis found that apigenin’s profile resembles an **orexin receptor antagonist**, and therefore may be working in a similar fashion.\(^3\) Orexin, made in the wake centers of the brain, is a compound that promotes wakefulness. A blocker of orexin, which apigenin may be, reduces wakefulness and promotes sleep.\(^{21,22}\)

**Medical Research on Herbal Sleep Aids**

Scientists have uncovered evidence that lemon balm, honokiol, and chamomile can improve sleep. Since they act by overlapping and unique mechanisms, a formulation combining all three can help restore healthy sleep patterns.

**LEMON BALM EXTRACT**

In one study, investigators recruited people with mild-to-moderate anxiety disorders and sleep disturbances.\(^2\) Subjects were given a **lemon balm extract** for 15 days, then assessed by rating scales for anxiety and depression that included sleep quality.

At the end of the study, **all** the subjects were considered to have had a positive response to the supplementation, with **85%** seeing a **full remission of their insomnia** and the remaining **15%** being much improved.

In terms of anxiety symptoms, **70%** of subjects who responded to the product were considered in complete remission and another **25%** experienced significant improvement.

Another study of lemon balm evaluated patients with heart disease who had trouble sleeping, along with high levels of depression, anxiety, and stress.\(^{23}\) These subjects were randomized to receive either a **lemon balm** supplement or a placebo for eight weeks.

The patients taking lemon balm had significantly reduced scores for depression, anxiety, and stress. They also took less time to fall asleep and had an increase in total sleep duration.
Mice experienced withdrawal symptoms when diazepam (Valium®) was stopped. It was found that honokiol did not reduce symptoms of anxiety to a similar level as the drug. But while diazepam decreased muscle motor activity and tone, and impaired memory, honokiol did not. Mice experienced withdrawal symptoms when diazepam was stopped. The animals taking honokiol did not, indicating its use is not likely to lead to physical dependence.

CHAMOMILE EXTRACT

Chamomile is a popular herb often used as a tea to promote sleep and relaxation. In a rat study, chamomile was shown to improve sleep onset and had a mild hypnotic effect (much like benzodiazepines). In one clinical study, chamomile showed encouraging beneficial effects on daytime functioning in people with sleep problems.

Researchers believe that the active components present in chamomile, apigenin in particular, are responsible for its effects.

Insufficient Sleep Impacts Health

Lack of sleep isn’t just an annoyance. It leads to serious problems for health and quality of life. Inadequate sleep can have a harsh impact on cognitive function, causing slowed thinking, impaired attention, and inaccuracies that lead to loss of productivity during the day. It can also be downright dangerous. One study found that sleep deprivation led to poorer performance on cognitive and motor tasks comparable to a level of alcohol intoxication that would make it illegal to drive.

Another study found that construction workers suffering from poor sleep were at greater risk for injuries at the workplace. And it’s been estimated that as many as 6,000 deaths due to car accidents per year have drowsy driving to blame.

Sleep disorders affect long-term brain function as well. Repeated nights of inadequate sleep are associated with risk for mild cognitive impairment and dementia.

Studies have also linked suboptimal sleep to obesity. Lack of sleep was found to cause abnormalities in levels of the hormones leptin and ghrelin, which are critically important to normal body fat balance. These abnormalities can contribute to weight gain and, eventually, obesity—which, in turn, increases the risk for many diseases.

In fact, poor sleep quality has been implicated in risk for type II diabetes and heart disease. Even death from cancer appears more likely with inadequate sleep. One large study showed that patients with colorectal cancer who get less than five hours of sleep per day have a 54% increase in cancer mortality, compared to those getting seven to eight hours of sleep.

All told, sleep can have a dramatic impact on mental and physical functioning and overall health.
Summary

Getting enough quality sleep is critical to health. Inadequate sleep increases risk for many chronic illnesses.

A large percentage of adults do not get enough sleep on a regular basis, and sleep problems increase with advancing age.

Many people rely on pharmaceutical drugs to aid sleep, but these medications cause several potential adverse effects, including risk for addiction and tolerance (which means they stop working).

A combination of plant-derived nutrients may provide support for healthy sleep, without the risk for significant side effects.

Lemon balm, honokiol, and chamomile (which contains apigenin) work on slumber centers in the brain to induce and maintain sleep, but without the sedating or addictive properties of those pharmaceutical medications.

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


(References continue on the next page.)


Spearmint tea has been shown in human studies to boost:

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Lab data suggest spearmint polyphenols may promote the growth of new brain cells.

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The nice-tasting vanilla flavor enables convenient “drop” dosing of Fast-Acting Liquid Melatonin each night or when needed.

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A good night's sleep supports a healthy immune response, mental alertness, and more youthful-looking skin.

Three plant-based ingredients in Herbal Sleep PM target the brain's sleep centers to promote restful sleep patterns.

- **Lemon Balm**: promotes sleep and a sense of calm.
- **Honokiol**: helps induce relaxation to fall asleep faster.
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Take Herbal Sleep PM 30 to 60 minutes before bedtime.

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Mention erectile dysfunction and most people think of Viagra® and similar drugs.

These drugs work by relaxing the smooth muscles lining the arteries, that increases blood flow to the penis. They also come with some side effects.1-4

Male sexual health is about more than an erection. It also includes interest, response, desire, and satisfaction.

Researchers have found a safer way to treat erectile dysfunction and improve overall sexual health: an extract of a ginger-like root called Kaempferia parviflora.

Long used in South Asia to enhance male sexual function,5-7 this plant extract gently supports increased blood flow to the penis while also enhancing brain responses to sexual stimuli.8-12

A recently published study13 adds to previous evidence6 demonstrating its effectiveness. In the report, improved erections were noted by 61.5% of participants.

Unlike pharmaceuticals, Kaempferia parviflora also improves response time to erotic stimuli and intercourse satisfaction. Noticeable results have been shown in as few as 30 days.6,13

As a side-benefit, this ginger-like extract may also help protect against arterial stiffening throughout the body.
A Safe Alternative to Drugs

Erectile dysfunction drugs like Viagra®, Cialis®, and Levitra® work rapidly to enhance penile blood flow.

These drugs, however, come with some drawbacks:

1) They provide only temporary effects;
2) Cost up to $50 a pill without insurance;
3) Function by only one mechanism;
4) Can cause side effects such as skin flushing, visual disturbances, hearing loss, and headache.14

And male sexual problems go beyond erectile dysfunction. Improved penile blood flow doesn’t address other factors crucial for sexual satisfaction, like interest and desire.

That’s why scientists view a ginger-like root extract called Kaempferia parviflora as a potential advance in male sexual health. It works on both the body and the brain to enhance the overall male sexual experience.

Studies show that taking this plant-based ingredient can result in improvements in response time, and in intercourse satisfaction, in addition to erectile function. And Kaempferia achieves this overall sexual improvement in a sustainable and safe way.6,13

Improved Overall Sexual Health

A human study recently published in the Journal of Integrative Medicine shows the benefits of Kaempferia parviflora.

Scientists enlisted 14 healthy, sexually active men who had self-reported, mild erectile dysfunction. None were using any prescription treatments for this condition.13

Each volunteer took one capsule containing 100 mg of Kaempferia extract once daily for 30 days. The extract was standardized to 5% of the active compound, 5,7-dimethoxyflavone (5,7-DMF). The active 5,7-DMF compound has been shown in lab studies to be instrumental in how this extract works.9

The investigators employed the International Index of Erectile Function (IIEF) questionnaire, a validated 15-item survey used to assess the severity of erectile dysfunction.15,16

The 13 men who completed the study were an average age of 58. According to the IIEF questionnaire, improved erections were reported by 61.5% of participants. And the average score for the question, “When you attempted intercourse, how often were you able to penetrate your partner?” increased by an average of 12.5%.13

There was another compelling finding that goes beyond erectile function.

Participants also reported a mean increase of 13% in intercourse satisfaction. And they reported improvements in their overall sexual health.13

There were no meaningful changes in blood pressure or in an array of other measures, ranging from cholesterol and blood glucose to testosterone and body weight.13

The positive results and lack of harsh side effects make this root extract a new option for men interested in enhancing sexual function.
Additional Research

An earlier clinical trial in aging men found that *Kaempferia parviflora* enhances the overall male sexual experience.6

The study assigned 45 men, with an average age of 65, into one of three groups. One group took a placebo, one took 25 mg of *Kaempferia* extract, and the third took 90 mg of this extract for eight weeks.6

Compared to the placebo group, those taking the 90 mg dose had a quicker erectile response to visual erotic stimuli. Elapsed time between stimulus and full erection was cut by 50%, from 10 minutes to just five. Those taking 25 mg of the extract did not experience a statistically significant reduction in response times, suggesting that the dose was not sufficient.6

Men taking 90 mg of the extract also experienced about one-centimeter greater penile length, both when flaccid and erect. Within one month, their penile circumference (girth) also increased by as much as 1-1.5 centimeters (about half an inch), which was largely sustained at two months.6

Again, this study found no significant changes in testosterone or other hormones, or any other indicators of safety problems.6

Together, these clinical studies provide evidence that *Kaempferia* extract can safely improve erectile dysfunction and boost overall sexual health and interest over a sustained period.6,13

How It Works

Laboratory and animal studies have identified two main mechanisms through which *Kaempferia parviflora* improves sexual health in men.

The first mechanism seems to involve the activation of brain responses to sexual stimuli. Studies on rats showed that in addition to enhancing blood flow to the genitals, *Kaempferia* extract improved sexual motivation and increased sexual behavior.7,8,17 In other words, this extract appears to increase the overall desire to engage in sex, once presented with sensory stimulation. This is an action unique to *Kaempferia* that is not a feature of erectile dysfunction drugs.

The second mechanism improves arterial and endothelial (blood vessel lining) function throughout the body. These improvements have a particularly important impact on the penis, a highly sensitive recipient of blood flow. This is what produces the clinical effects of improved erectile response times and increased size of the penis.6,13

Similar to erectile dysfunction drugs, this extract was also shown to inhibit the enzyme PDE5,9 which normally sends a signal to reduce blood flow through the arteries in the penis, causing an erection to diminish.12

Ginger-like Extract Enhances Sexual Function

- Although erectile dysfunction is often treated with drugs such as Viagra®, male sexual health goes well beyond erectile function.
- A ginger-like root extract, *Kaempferia parviflora*, gently supports blood flow to the penis while also enhancing response time to sexual stimuli, and intercourse satisfaction, with results seen in as little as 30 days.
- Erectile dysfunction is also a useful indicator of vascular (blood vessel) and endothelial (blood vessel lining) problems. In other words, it is one of the earliest symptoms of cardiovascular disease.
- Studies show that, by allowing arteries to relax and offer minimum resistance to blood flow, *Kaempferia* may provide protection against multiple types of cardiovascular disease.
**Broader Cardiovascular Benefits**

*Kaempferia parviflora* isn’t just safe. It also appears to deliver body-wide cardiovascular protection. **Erectile dysfunction** is an important early warning sign for underlying cardiovascular disease, because it is an indicator of the functioning of vascular (blood vessel) and endothelial (blood vessel lining) processes.\(^{18,19}\)

Studies show that men with erectile dysfunction have a higher risk of cardiovascular disease and are more likely to die prematurely compared to men who have normal erectile function. This is regardless of age and other cardiovascular factors.\(^{18,20}\)

**Nitric oxide deficit**, which is a major cause of endothelial dysfunction, often shows up first as erectile dysfunction. But it can also be an indicator of vascular disorders that may result in heart attack or stroke.\(^{21-25}\)

Aside from the sexual benefits already discussed, *Kaempferia* exerts broader arterial benefits by promoting the production of nitric oxide, which helps relax arteries everywhere in the body. In addition to easing erectile dysfunction, this action shows promise in preventing multiple types of vascular-related diseases.\(^{10-13,26}\)

An animal study demonstrated the beneficial effects of *Kaempferia* extract in the heart. In isolated portions of rat aorta, the active component of *Kaempferia*, 5,7-DMF, triggered significant relaxation, which produced a larger space through which blood could flow. These shifts were traced, in part, to higher levels of nitric oxide and cyclic GMP, intracellular signaling molecules that tell arterial muscles to relax.\(^{10}\)

These findings show that by allowing arteries to relax and offer less resistance to blood, *Kaempferia* extract can benefit systemic vascular health while it improves male sexual health.

**Summary**

Many aging men with erectile dysfunction are prescribed costly drugs that can cause side effects. Research shows that a ginger-like root extract called *Kaempferia parviflora* leads to improvements in erectile function, boosts response time and intercourse satisfaction. Studies show enhanced overall sexual health in men improving in as little as 30 days. *Kaempferia* increases levels of nitric oxide, which relaxes blood vessels and enables efficient blood flow. This is critical for both healthy male sexual function and overall blood vessel health.

Studies show that this extract also demonstrates promise beyond sexual health. By relaxing arteries throughout the body, this extract can help maintain systemic vascular health. ●

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References

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PQQ Revitalizes Brain Energy
Scientists have documented that PQQ helps grow **new mitochondria** in aging cells.

This is important because over time, cell energy diminishes as mitochondria weaken and die. The result is accelerated **aging** throughout the body.\(^1\)\(^-\)\(^3\)

PQQ facilitates production of **new mitochondria**,\(^4\)-\(^7\) and helps **energize** existing mitochondria.

As research continues, PQQ promises to play a key role in the fight against the ravages of aging. Studies show that it restores youthful function and, in animal studies, enhances lifespan.\(^8\),\(^9\)

Of significance to maturing individuals is the ability of PQQ to protect the **brain** from **traumatic** injury and **stroke-induced** damage, in addition to its systemic **anti-aging** properties.

**PQQ** is a vitamin-like compound essential for cellular **energy** functions.
supplementation with PQQ was associated with significant improvements in attention and working memory, and an associated increase in brain blood flow in the frontal lobes.14

In elderly people with forgetfulness (either self-identified or identified by a family member or acquaintance), the same PQQ dose led to improvements in memory-test scores after eight weeks.15

Researchers have also found evidence that PQQ may slow the progression of serious neurodegenerative disorders, including Alzheimer’s and Parkinson’s—or even prevent them altogether.16-22 That’s because, in addition to boosting mitochondrial function, PQQ has been found to prevent the accumulation of abnormal proteins (such as beta-amyloid and alpha-synuclein) associated with these diseases.16-18

Moreover, PQQ protects against the toxic effects of these abnormal proteins that damage brain function. For example, cells exposed to amyloid normally display oxidative stress and cell death. In one study, treatment with PQQ dramatically reversed these effects, helping to keep brain cells viable and healthy.22

This indicates remarkable potential for PQQ to halt the development of various kinds of dementia.

Mitochondria and Aging

Mitochondria act like tiny power plants. They take digested nutrients and convert them into energizing compounds that cells use to do their work.

Most cellular functions rely on a constant supply of energy from mitochondria for essential activity such as growth, repair, and reproduction.

During our lifetime, mitochondria divide on their own to replenish their numbers—a remarkable process known as mitochondrial biogenesis. But with advancing age, this process slows.

Mitochondrial biogenesis is critical to protect cells from premature aging.2,3 As we get older and mitochondrial function diminishes, many health problems manifest, including neurodegeneration.1,3

But mitochondria can continue to grow, repair, and replenish themselves even in later life. They just need a boost—and that’s where PQQ comes in.

PQQ Boosts Mitochondrial Biogenesis

PQQ serves as a cofactor for several energy-generating reactions in the mitochondria.10 Animals raised without any intake of PQQ display many abnormalities of growth and development.11

New research confirms that PQQ is a powerful stimulator of mitochondrial biogenesis.4-7

A study evaluated the effect of a single dose of PQQ in human subjects.12 Each participant was given 0.3 mg of PQQ per kilogram of body weight, which amounts to approximately 20 mg for an average person.

Within 48 hours of supplementation there was a definitive increase in mitochondrial function as measured by metabolites in the urine.

A side benefit to this single 20 mg dose of PQQ: Markers of inflammation, including C-reactive protein and interleukin-6, decreased, showing evidence that PQQ also has an anti-inflammatory effect that could help ward off a variety of ailments.

Healthy Brain Aging

The brain is one of the most metabolically active organs in the body. Because of PQQ’s ability to stimulate mitochondrial growth, researchers believed that it should have beneficial effects for cognition and brain health.

Mitochondrial biogenesis has been identified as key in protecting against neurodegeneration and cognitive decline.13,14

In one study, 41 healthy, elderly subjects were randomized to receive either 20 mg of PQQ daily for 12 weeks or a placebo. Compared to the placebo,
PQQ and Recovery from Traumatic Injury

The ability of PQQ to protect and keep cells healthy, even in the face of damage, has led to explorations of PQQ as a neuroprotective compound in cases of traumatic injury.

In experimental rodent models of traumatic brain injury, treatment with PQQ successfully prevented cell death. It did this by preventing the activation of caspases, which are proteins associated with pathways that lead to cell death. This protective effect is linked to improved brain function and cognitive performance—that are otherwise significantly reduced after head injury.

These neuroprotective effects also extend to the peripheral nervous system, that connects the brain and spinal cord to the limbs and organs. The regeneration of peripheral nerves that have been severed is enhanced by treatment with PQQ.

This important finding has led to the development of nerve repair conduits that are filled with PQQ. The aim is for surgeons to use these in nerve reconstruction procedures to help maximize recovery following nerve injuries.

Head trauma is a major problem for maturing individuals at greater risk for falls. PQQ may protect against excessive damage if one sustains a head injury.

The Benefits of PQQ

- Pyrroloquinoline quinone (PQQ) is a vitamin-like compound that many scientists believe should be categorized as an essential nutrient.
- In addition to PQQ being a required cofactor for some enzymes, it is one of the most powerful compounds discovered to stimulate mitochondrial biogenesis.
- Rejuvenating cells through mitochondrial biogenesis improves health and protects cells from age-related loss of function, and from disease.
- In tissues like the brain, with high energy requirements, PQQ can boost function and may prevent the progression of neurodegenerative disorders such as Alzheimer’s and Parkinson’s disease.
- PQQ is not produced in the body, so boosting its levels requires increased oral intake. Most human studies of PQQ have utilized doses of around 20 mg per day.
**PQQ and Stroke**

Stroke remains a leading cause of paralysis, memory loss, nursing home confinement, and premature death.

Emergency medicine technologies such as clot-dissolving drug therapy (tissue plasminogen activator or tPA) are sparing numerous stroke victims from permanent paralysis.

More advanced approaches, such as endovascular thrombectomy (mechanical clot retrieval from occluded cerebral artery), are enabling more stroke victims to avoid paralysis. Thrombectomy has been shown effective up to 24 hours after onset of ischemic stroke symptoms.

**PQQ** can also play a role in further protecting the brain from the devastation of a stroke.

In lab studies, PQQ reduced ischemic damage, potentially improving the quality of life following a stroke.

This was demonstrated in an animal model of ischemic stroke. When PQQ supplementation was given before ischemia was induced, it significantly reduced the size of the damaged brain tissue region.

Surprisingly, PQQ had a similar protective effect even when it was administered after the ischemia was induced.29

Another study showed similar neuroprotective effects. It also showed that PQQ led to significantly improved neurobehavioral scores after the stroke.30 These findings are tremendously exciting for those working in the area of human stroke prevention and treatment. The implication is that stroke patients could be given PQQ in the emergency room to reduce paralyzing brain damage.

**PQQ Extends Lifespan**

The way PQQ boosts mitochondrial growth turns out to have extraordinary side benefits.6

Supplementation with PQQ turns on a gene expression pathway regulated by PGC-1α, a well-known activator of mitochondrial biogenesis.

It appears to achieve this through activation of SIRT1, a sirtuin protein. Numerous recent studies have shown that sirtuins help regulate cellular health, protect against disease and age-related loss of function, and play a role in boosting longevity.6,31-38

In other words, not only does PQQ trigger mitochondrial biogenesis, it also activates and supports many other protective mechanisms tied to lifespan extension and health.

In addition to all these effects, PQQ mops up damaging free radicals. Many other nutrients can only quell oxidative stress for a short period of time.

For example, vitamin C can only participate in about four cycles of beneficial redox cycling. In comparison, one molecule of PQQ can undergo an astonishing 20,000 cycles!10,39

As a result of all these abilities, PQQ has shown it can increase lifespan. A type of roundworm, *C. elegans*, is an animal model commonly used to study longevity, due to its relatively short lifespan. Two different research groups have used this model to evaluate PQQ’s life-extension effects.8,9

In both studies, supplementation with PQQ led to a significant increase in the average lifespan of treated animals. In fact, the studies’ findings were almost identical, with an average increase in lifespan by 30% in one study and 31% in the other.

Dr. Bruce N. Ames is a widely respected professor emeritus of biochemistry at the University of California at Berkeley, who has also worked for the National Institutes of Health. Dr. Ames writes frequently about nutrients that prolong life and improve health.

**From Space Dust?**

PQQ is synthesized in some of the Earth’s simplest and oldest organisms, such as soil bacteria. That has led scientists to believe it may be central to the very formation and existence of life on this planet.

This viewpoint is supported by fascinating findings from outer space. Researchers recently analyzed the chemical makeup of dust from a comet’s tail. They found evidence that PQQ is contained in this material.40,41

This startling discovery has led to speculation that the Earth may have been seeded with PQQ from space, contributing to the development of early life.
Dr. Ames puts PQQ on his shortlist of “longevity vitamins,” based on its ability to stimulate mitochondrial biogenesis. He maintains that optimal levels of PQQ, along with a handful of other compounds (like CoQ10), are “necessary for promoting healthy aging.”

**Summary**

Scientists and physicians are just beginning to recognize the importance of pyrroloquinoline quinone (PQQ). Compelling evidence shows this nutrient is crucial for healthy cellular functions.

Through its ability to activate mitochondrial biogenesis, PQQ supports healthy aging, and helps protect cells from damage that contributes to loss of function in older age.

Increased intake of PQQ has demonstrated the ability to augment healthy brain function and may prevent age-related loss of cognitive function, including dementia due to stroke or Alzheimer’s disease.

Because PQQ is not produced in the body, it must be acquired from the diet or through supplementation. To date, human studies have generally utilized doses of approximately 20 mg of PQQ daily.

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**


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RESTORE YOUTHFUL CELLULAR ENERGY
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PQQ

PQQ (pyrroloquinoline quinone) activates genes involved in the production of cellular energy.1-5

Studies show PQQ supports heart health and cognitive function, complementing CoQ10.6,7

In fact, just 20 mg per day of PQQ plus CoQ10 promotes memory and attention in aging individuals.8

This is the highest quality PQQ available on the market today.

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Also available are 10 mg PQQ caps (Item #01500) and 100 mg Super Ubiquinol CoQ10 with PQQ (Item #01733).

This formulation contains 20 mg of PQQ per capsule, which is the recommended daily dose.

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References

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VITAMIN D3
Systemic support for youthful cell function, bone health, and supporting normal insulin and blood-sugar levels.

Caution: Individuals consuming more than 2,000 IU/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Do not exceed 10,000 IU per day unless recommended by your doctor. Vitamin D supplementation is not recommended for individuals with high blood calcium levels.

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Recent studies have shown that **lutein** and **zeaxanthin**, well known for protecting the eyes, also boost factors involved in **brain function** and cognitive performance.

The effects of these **plant-based** nutrients have been shown in young people *and* older adults—even those with early cognitive impairment.1-5

What most people don’t realize is there is a connection between the eyes and brain.

When doctors examine the **retina** and **optic nerve**, they are looking at **brain cells**.

That’s why it makes sense that the nutrients **lutein** and **zeaxanthin** nourish the brain as well as the eyes.4

Levels of **lutein** and **zeaxanthin** in the **retina** correlate with their levels in brain tissue.4,6,7

Multiple studies reveal that people with higher **macular levels** (central portion of the retina) of **lutein** and **zeaxanthin** have better **brain function** and **cognitive performance** than those with lower levels.6,8-12

Lutein and zeaxanthin are demonstrating beneficial impacts on brain processing speeds, visual memory, cognitive flexibility, and improved brain blood flow.
Enhanced Brain Function

Neurological function relies on the ability of the brain to accurately process signals and carry out processing tasks.

Brain function can be measured by functional MRI (fMRI) scans, which reveal which brain areas are active during specific cognitive tasks.

A 2017 study using fMRI showed that people with higher macular lutein and zeaxanthin levels had greater neural efficiency on a test of learning and memory.9

A 2019 follow-up study showed that those improvements in brain efficiency occurred specifically in areas associated with:12

- **Visual-spatial perception** (Where is the object I'm looking at?),
- **Processing** (What is that object?),
- **Decision making** (Should I approach or avoid the object?),
- **Motor coordination** (Grasp the object or run away from it).

These findings suggest that the brains of people with higher lutein and zeaxanthin are better at distinguishing important signals from unimportant or irrelevant background “noise.”

This was further supported by a study of auditory signaling, which showed that people with higher levels of these plant pigments (lutein and zeaxanthin) could detect true sound signals more efficiently than those with lower levels.10

Brain Function Improvements

Two recent studies conducted at the University of Georgia demonstrate that brain function is improved by daily supplementation with 10 mg of lutein and 2 mg of zeaxanthin.1,5

In the first study, healthy older adults (with a mean age of 72) were randomly assigned to receive supplements containing lutein and zeaxanthin or a placebo. Over the course of a year, the ability to learn and recall word pairs deteriorated in the placebo group, but not in supplemented participants.

Functional MRI scans taken during the task showed this benefit was produced by enhanced brain blood flow in the lutein and zeaxanthin supplemented group.1

The second study measured brain cell activation in people receiving a placebo or 10 mg/day of lutein and 2 mg/day of zeaxanthin.5

At baseline, subjects with lower macular pigment levels had lower-powered visual signals from their brain cells, compared to those with higher levels of lutein and zeaxanthin.5

After a year of supplementation, visual signal power was significantly improved, providing subjects’ brains with a stronger signal-to-noise ratio.5

Improved Cognitive Performance

Cognitive performance refers to more advanced tasks involving memory, reasoning, and thinking, and it is measured by tests of cognition.

Higher macular lutein and zeaxanthin levels have been associated with improvement in:6,8,11

- **Overall cognition,**
- **Verbal learning and fluency,**
- **Recall,**
- **Processing and perceptual speed,**
- **Memory,**
- **Executive function** (Information sorting, prioritizing, and taking action).

Two additional studies from the University of Georgia show that supplementing with lutein
and zeaxanthin can support better cognitive functioning in both young and old populations.2,3

In a group of healthy young adults (ages 18-30), subjects received daily doses of 10 mg lutein and 2 mg zeaxanthin or a placebo. Macular pigment measurements and cognitive testing were performed at the start and then every four months for a year.3

Supplementation increased macular levels of the pigments significantly, and this increase resulted in substantial improvements in:3

- **Spatial memory** (Where did I leave that book?),
- **Reasoning ability** (Where might I have left the book?), and
- **Complex attention** (Why am I reading the book anyway?).

Using the same study design and dosages, the second trial evaluated lutein and zeaxanthin supplementation in older adults (with a mean age of 73).2

Macular levels of lutein and zeaxanthin increased significantly in supplemented subjects, and this change was accompanied by improvements in complex attention and cognitive flexibility (the ability to hold conflicting facts in one’s mind at the same time, which is crucial in making complicated decisions).2

Men in the study also showed improvement in composite memory (verbal and visual memory) when supplemented.

**Summary**

Lutein and zeaxanthin are carotenoid pigments that have long been known to help improve retinal health and preserve vision.

New studies have now shown that people who supplement with 10 mg/day of lutein and 2 mg/day of zeaxanthin see significant improvements in brain function, including enhanced brain blood flow and neural efficiency.

That translates into improved cognitive performance in tasks related to thinking, learning, discerning, and judging—all elements of youthful brain behavior.

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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**N-acetylcarnosine** is used as a stabilizing agent.

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MacuGuard® Ocular Support provides lutein, *trans*-zeaxanthin, and *meso*-zeaxanthin to help maintain structural integrity of the macula and retina.¹ ⁵

Alpha-carotene is included based on new evidence that it helps support the macular pigment.¹

People supplementing with saffron showed an improvement in vision as measured by their seeing an average of two additional lines on the eye chart commonly used by doctors to test vision.¹

This formula provides the optimal dose of saffron along with cyanidin-3-glucoside to support healthy vision.⁶ ⁸

For full product description and to order MacuGuard® Ocular Support, call 1-800-544-4440 or visit www.LifeExtension.com

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With age, dead cells accumulate on our skin’s surface.

As time passes, they build up and clog pores, contribute to inflammation, and cause blemishes that create a dull and uneven outward appearance.

Some people go to dermatologists for aggressive microdermabrasion to remove dead cells on the skin’s surface, or use topical fruit acids as exfoliants.

A new approach utilizing four compounds—zinc oxide, sulfur, camphor, and salicylic acid—gently exfoliates and deeply purifies clogged pores, clearing them of stubborn dirt, excessive oils, and cellular debris.

When applied to blemish-prone skin as a mask, the result is a soothing and calming effect accompanied by a clearer complexion.
Zinc Oxide

Zinc oxide is a mineral well-known for its role as an essential component of superoxide dismutase—an enzyme that combats oxidative stress in the skin to diminish swelling, calm visible redness, and ease inflammation associated with clogged pores. By exerting antioxidant and anti-inflammatory effects, zinc oxide protects and repairs the structural integrity of the skin from sun damage, preventing and healing blemishes.

Other research indicates that zinc oxide suppresses excess production of sebum by reducing the activity of sebaceous glands, thereby helping to eliminate oily skin and minimize the appearance of facial pores.

Sulfur

Sulfur can help in exfoliation by acting on keratinocytes on the outer layer of the skin. This interaction helps shed the dull, devitalized skin cells from the surface, to reveal newer, smoother skin underneath.

By sloughing off these dead skin cells, the sulfur decongests clogged pores and significantly reduces their size, to improve the tone and texture of your skin.
Camphor

Camphor is derived from the wood of the camphor tree. It has been used for centuries in traditional medicine for its strong anti-microbial, anti-viral, and anti-inflammatory properties.\(^{15,16}\)

When topically applied to the skin, camphor improves blood flow, which may enhance the delivery of vital nutrients like zinc oxide and sulfur, while removing toxins and extracting difficult-to-reach impurities to cleanse clogged pores.\(^{17}\) Additionally, camphor induces a cool, soothing sensation that makes for an ideal feeling after exfoliation.

Salicylic Acid

Salicylic acid is a safe and effective ingredient used to treat various skin conditions. Its ability to exfoliate the outer layer of the skin makes it a good peeling agent.\(^{18}\) Applied topically, it clears the buildup of dead cells and impurities, leaving you with a more radiant complexion.

Facial Mask Reveals Rejuvenated Complexion

- Accumulation of dead cells and impurities on the skin’s surface combines with excess sebum (oil) to cause clogged pores, inflammation, and unsightly blemishes like blackheads.
- Environmental stressors such as sun exposure stimulate excess sebum output that enlarges facial pore size.
- Zinc oxide eases inflammation, thereby healing blemishes and calming redness associated with clogged pores, as well as suppressing sebum production to help eliminate oily skin.
- Sulfur exhibits exfoliating properties that decongest clogged pores, reducing their size, to improve the tone and texture of the skin.
- Camphor significantly increases blood flow to skin to aid in the removal of deeply embedded impurities and toxins, while enhancing the delivery of beneficial nutrients like zinc oxide and sulfur.
- Salicylic acid exfoliates the outer layer of the skin, clearing the buildup of dead cells and impurities.
- These compounds have been formulated in a newly designed detox facial mask with a pleasant mint-like smell. When applied to flawed skin, it leaves a smoother, cleaner, and rejuvenated complexion.
Impurities and dead cells accumulate on the skin’s surface despite our best efforts to remove all of them. They combine with excess oils and air pollutants to deeply clog pores and create a flawed complexion marked by unsightly blemishes.

A nutrient-rich detox facial mask with a pleasant mint-like scent has been formulated with zinc oxide, sulfur, camphor, and salicylic acid to gently exfoliate the skin, regulate oil production, and deeply cleanse clogged pores to leave a smoother, cleaner, and rejuvenated complexion.

Gary Goldfaden, MD, is a clinical dermatologist and lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology in Hollywood, FL, and Cosmesis Skin Care. Dr. Goldfaden is a member of the Life Extension® Medical Advisory Board.

All Cosmesis products are available online.

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

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Cosmesis Purifying Facial Mask has been formulated to quickly restore the appearance of youthful skin.

- **Zinc oxide** supports a healthy inflammatory response, clear skin, and balanced levels of natural oils.
- **Sulfur** promotes normal turnover of skin cells.
- **Camphor** boosts healthy blood flow to skin and supports delivery of zinc oxide and sulfur deep into skin cells.
- **Salicylic acid** supports clear skin and promotes normal turnover of skin cells.

Excellent for all skin types. May be used in conjunction with other skin products or treatments.
Humans don’t manufacture vitamin C internally, so it must be obtained through dietary sources or supplements.

Vitamin C is water soluble and needs to be constantly replenished.¹

A new highly-absorbable form of quercetin complements vitamin C’s activity in the body.

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Wendy Ida isn’t your average 67-year-old. She holds eight Bodybuilding Championships. She has set two fitness-related Guinness World Records. And she’s become a social media influencer with about 94,000 followers.

But the most remarkable part of her resume? Ida (pronounced ee-da) didn’t begin her fitness journey until she was 43 years old.

Since then, she’s reinvented herself and is now a best-selling author, motivational speaker, fitness coach, and life coach. Ida is a life reinvention strategist, coaching people on how to transform their lives and their bodies.

But while she now spends her days spreading the message that it’s never too late to take back your life, Ida first had to go through the process of taking back her own life.
Take Back Your Life

Wendy Ida’s goals weren’t always fitness-minded. At one point, her only goal was to save her own life—and the lives of her children.

Married at the age of 19, Ida soon found herself in a physically abusive relationship where she almost lost her life on several occasions. It took 13 years and three attempts to get away before Ida was able to make her escape.

She packed up her two young children and drove all the way from New Jersey to California.

“I left everything I owned and left with my two babies and just the clothes on our backs, and we ran,” said Ida. “I had to start over.”

Little did Ida know that she wasn’t just starting over. She was starting on a journey that would transform her life as well as the lives of thousands of others.

Reinventing Herself

At the age of 43, Ida was making a new life in Los Angeles as an accountant. But even though she had escaped an abusive relationship, she still had not outrun the demons that haunted her.

She was unhealthy, overweight, and scared of her own shadow.

“I was settled with the old way of thinking. My parents and aunts and uncles were all overweight, and I just thought it was going to be my destiny as well,” she said. “I was in my 40s and I thought life was over.”

All of that changed when she joined her local gym and met the person she calls her “Earth Angel,” her fitness coach, Jim Kelly.

“It literally changed my life, it changed my mind, it changed my body, and it changed my career. It led me down the path of the reason why I was put on this earth,” said Ida. “Prior to that, I was just going through the motions of life.”

Kelly pushed her to realize her full potential.

Ida lost 80 pounds and transformed the way she looked. Yet the true transformation came, not from her physical appearance, but from what was happening on the inside.

“When my body started changing, my mind started changing too. I got some clarity,” Ida said. “It cleared the cobwebs in my mind and gave me a path.”

Over the next several years, Ida quit her job as an accountant, got certified as a trainer, learned as much as she could about nutrition, and became a life coach and trauma coach. She also remarried.

In 2011, she wrote a best-selling book based on her life’s journey called Take Back Your Life: My No-Nonsense Approach to Health, Fitness, and Looking Good Naked.

Today she travels the country as a motivational speaker, giving people the tools necessary to do what she did—take back their lives.

Setting Goals

Ida’s number one message to people?

It’s never too late.

And she, herself, is living proof. Ida competed in her first bodybuilding competition at age 57. She has since won eight National Champion trophy awards in the National Physique Committee Bodybuilding and Figure Championships.

At age 60, she set two Guinness World Records. One was for the Most Burpees in One Minute. Ida did 37. (To do a burpee, also called a squat thrust, you begin in a standing position, squat down with your hands on the ground, kick your feet back to a plank
position, jump back forward into a squat, and then stand up—that counts as one burpee.)

The second Guinness World Record was for being the Oldest Active Instructor in multiple disciplines. And she’s not finished yet. Ida constantly sets new goals for herself.

“Goals are what keep me excited about life. Making a goal brought me out of depression. I got focused, I was driven, and I had something to live for,” said Ida. “When I accomplish one goal, I’m always working on the next. It gives me energy.”

And for her next goal? “For my next goal, I want to be – I’m going to be – the first senior on a Sports Illustrated Magazine cover.” As Ida continues to set her own goals, she is also helping people—especially women—accomplish their own.

It All Starts in the Mind

Ida’s no-nonsense approach to health and fitness has earned her the reputation of being “America’s #1 expert on living fit, fierce, and fabulous after 40.”

Ida’s book, Take Back Your Life, speaks directly to women over 40 who feel like their lives have spun out of control after the physical and emotional changes that occur during midlife. It’s a holistic, action-oriented, 90-day guidebook for women who want to take back control of their lives.

Ida focuses on helping people over 40 because, as she says, “They are me.

“At 40 is when all the challenges start coming. Everything you did before 40 all starts coming together. It’s when the chickens come home to roost,” said Ida. “In addition to the natural changes that automatically happen in the aging process, the decisions you’ve made in life come together and create energy losses and mental challenges, and they are literally making people depressed.”

So when people tell her they’re too old or too sick or too anything to start living their best life, Ida points to her own life as living proof that it’s never too late.

“In order to encourage people to take back their life, I try to encourage them to think differently,” said Ida. “You have to change your mindset. Having the knowledge is one part, but you also have to have the tools to go forward. You have to be willing and want it bad enough.”

One of the first steps is to determine what “take back your life” means to you, she said. You have to determine what you want. Is it weight loss, more education, a longer life, to be happier?

“A lot of people initially think I’m only into fitness, but I go way beyond that,” said Ida. “It’s not about doing one particular thing. It’s changing your mindset to be able to sustain your goals.”

That’s what Wendy helps people to do.

“You have to be willing to move forward and trust the process. It takes time, getting out of your comfort zone, and repetition,” said Ida. “You can’t go halfway. You have to go all the way.”

WENDY IDA’S SUPPLEMENT REGIMEN

- Iodine
- Probiotic
- DHEA
- Chromium Picolinate
- Multivitamin
- Vitamin D3
- MCT oil
- Curcumin
- MSM
- L-leucine
**Defying the Clock**

When people see Ida, they are shocked to learn that she is a 67-year-old grandmother of five. What is her secret?

“Age is always age,” Ida said. “But a number of things can make you more youthful.”

In addition to fitness and a positive mindset, Ida believes supplements are necessary, especially for seniors.

“As you get older, everything starts declining,” said Ida. “You need to put back in your body what declines with age. Doing this can keep you healthy, energetic, and lucid.”

Ida herself takes numerous supplements, including DHEA, vitamin D3, curcumin, chromium picolinate, MSM, and L-leucine to name a few. She encourages people to work with their doctors and to have their various levels checked so that they can fine-tune a regimen designed specifically for their needs.

**Spreading the Light**

Ida has appeared on “The Dr. Oz Show,” CNN, “Fox Sports Net,” “Inside Edition,” “Access Live,” NBC, ABC, and more. As a social media influencer, she has about 94,000 followers on Facebook, Twitter, Instagram, and YouTube, which she uses as platforms to transform the lives of others.

And she is currently collaborating with AARP on a “Fit and Fun Challenge,” where she’ll create inspirational videos, messages, and tips for exercising and getting healthy.

Through it all, Ida has never forgotten where she came from. Telling her own, personal story of despair to triumph makes her more relatable to her audience and encourages people to see that they, too, can take back control of their lives.

“I can’t tell you how many messages have come to me begging for help, and telling me I’m their last hope,” said Ida. “They see such light in me, and they want that.”

And that’s exactly what fuels Ida to continue pouring her life and energy into others.

“Someone was the light for me,” said Ida, “and I was born to be the light for someone else.”
Senescent cells are old cells that no longer divide but they emit factors that accelerate aging.

Senolytic compounds selectively help target senescent cells in the body. Laboratory studies show evidence of systemic rejuvenation when the senescent cell burden is reduced.

**Once-Weekly Senolytic Formula**

Senolytic Activator provides a highly absorbable form of quercetin phytosome and black tea theaflavins designed to enhance the body’s ability to manage senescent cells.

The suggested dose is to take two capsules of Senolytic Activator just once weekly.

**Item #02301 • 24 vegetarian capsules**

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<th>Quantity</th>
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<tr>
<td>1 box</td>
<td>$18</td>
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<td>4 boxes</td>
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(Each box lasts three months.)
Super R-Lipoic Acid is more bioavailable, stable, and potent, achieving 10-30 times higher peak blood levels. This unique sodium-R-lipoate can help you reach peak plasma concentrations within just 10-20 minutes of supplementation.

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Enrique Olvera is an internationally recognized chef. Pujol, his highly acclaimed restaurant in Mexico City, Mexico, is ranked #20 on the World’s 50 Best Restaurants list, and #3 on Latin America’s 50 Best Restaurants.

At Pujol, Olvera serves Mexican haute cuisine featuring delicacies ranging from octopus to suckling pig.

But in his latest cookbook, Tu Casa Mi Casa, Olvera doesn’t include complicated recipes or top-chef-worthy fare. Rather, he goes back to his culinary roots -- simple home cooking.

Tu Casa Mi Casa (translation: “Your House My House”) is based on the idea that food is the center of both family and culture.

“It is impossible to separate our cooking from our family story, from the products from the region we grew up in, or the regions our ancestors hailed from,” said Olvera. “It is impossible not to carry, wherever your path leads you, the flavors you grew up with.”

Olvera says that memory is a powerful ally when it comes to food because “it helps us travel in time to the aromas and flavors of the cuisine of our childhood.”

Those memories are the foundation of Tu Casa Mi Casa.

With the help of three of his partners, Olvera transports you to the kitchen of his youth with a collection of 100 Mexican dishes that include staples like tamales, guacamole, carnitas, flautas, and churros.

By sharing these simple recipes designed with the home cook in mind, Olvera brings the flavors of his house to yours.

—Laurie Mathena
Lentil Salad  *Ensalada de lentejas*

Preparation time: 20 minutes  •  Cooking time: 30 minutes  •  Serves: 2-4

This is a great, filling, fresh dish that was inspired by ceviche. Instead of fish, it has lentils. It is important to very slightly undercook the lentils so they do not get mushy. Top the tostadas with lentil salad in the kitchen and serve right away, or serve the salad with the tostadas on the side and assemble at the table as you go.

In a pot, combine the lentils, white onion, garlic, and 1 teaspoon salt. Add enough water to cover the lentils by at least 2 inches. Cook over medium heat until the lentils are tender but not mushy, about 25 minutes. Remove the onion and garlic and discard. Adjust the salt to taste. Drain the lentils and set aside to cool to room temperature.

On a comal or frying pan over high heat, toast the pasilla mixe chiles on all sides until fragrant, 1-2 minutes, careful not to burn them. In a food processor, pulse half of the peanuts with the oil and the pasilla chiles until a thick paste is formed. Set aside.

In a bowl, combine the red onion, tomatillos, cilantro (coriander) stems, cooked lentils (at room temperature), and the remaining whole peanuts. Mix well with a wooden spoon. Slowly add the peanut/pasilla dressing. Season with Key lime juice and salt to taste. Add the avocado cubes and gently stir them in, top with cilantro leaves, and serve with small tostadas on the side.

---

¾ cup (145 g) dried lentils, rinsed and picked over
½ small white onion
3 small garlic cloves, peeled
Salt
2 pasilla mixe chiles, seeded (substitute with dry chipotle chiles)
1 cup (145 g) salted roasted peanuts
2/3 cup (150 ml/5 fl oz) extra virgin olive oil
½ cup finely chopped red onion
5 small tomatillos, husked, rinsed, and chopped into small cubes
½ cup (20 g) finely chopped fresh cilantro (coriander) stems (reserve the leaves for serving)
Key lime juice
1 small avocado, cubed
Tostadas
Baked Fish with Greens  Empapelado de pescado con hierbas y quelites

Preparation time: 15 minutes  •  Cooking time: 30 minutes  •  Serves: 4

Beyond its use for tamales, banana leaf is a very versatile and commonly used wrapper. It is wonderful for holding in moisture, it imparts a unique earthy vegetal flavor, and it is beautiful to serve the dish in. On both coasts of Mexico, banana leaf is often used to steam or bake fish. For this recipe, instead of making a sauce or marinade, we decided to let the fish speak for itself, adding only some herbs and wild greens and some citrus for aroma. The quality of the fish matters a lot when steaming—we like to use a thicker cut of a not-so-oily meaty fish like sea bass. For the herbs, you can substitute whatever is growing in your herb garden or is available at the farmers’ market.

Preheat the oven to 350°F (180°C/Gas Mark 4).

Hold the banana leaves 4 inches above an open flame until they begin to change color, about 1 minute. They should be a brighter green. If using an electric stove, heat up a large dry frying pan or griddle and press the leaves on the hot surface in quick intervals until they change color, just be careful not to brown them or dry them out.

Portion the bass into 4 pieces and season generously on all sides with salt. Portion half of the citrus and herbs onto the center of each banana leaf. Top with the fish, then top with remaining citrus and herbs. Drizzle with the olive oil. Wrap like a tamal and place on a baking sheet. Bake until the fish feels tender to touch, about 25 minutes. Serve immediately in its wrapper, letting each person unwrap their own.

4 large squares (about 10 inches/25 cm) of banana leaf
1 skinless sea bass fillet (1½ lb/680 g)
Salt
1 Key lime, sliced
1 lemon, sliced
3-4 sprigs fresh epazote
3-4 sprigs fresh cilantro (coriander)
3-4 sprigs fresh mint
3-4 sprigs fresh lamb’s quarter, preferably small, tender leaves
4 tablespoons extra virgin olive oil
Chicken Tinga  Tinga de pollo

Preparation time: 10 minutes  •  Cooking time: 45 minutes  •  Serves: 2-4

The first recipe any Mexican will cook as soon as they move out of their parents’ home and live on their own is chicken tinga. It is easy, reminds everyone of home, and the ingredients are very accessible. Although it is better made with dried chipotle chiles, canned chipotles work if in a pinch. It can be a soupy stew served over white rice and with tortillas. If you cook it down to thicken a bit more, it is a great topping on a tostada with fresh shredded lettuce, some crema, cheese, and fresh salsa.

In a medium pot, combine the chicken, onion halves, whole garlic cloves, and 1 tablespoon of the salt. Add water to cover and bring to simmer over medium-high heat. Simmer, uncovered, until the chicken is cooked through, 30-40 minutes, skimming occasionally to remove impurities. Remove the chicken from the broth and let rest until it is cool enough to handle. Using your hands, pull or shred the chicken and reserve. Strain and reserve the broth as well.

In a medium to large pot, heat the oil over medium heat. Add the sliced onion and garlic and cook until translucent, about 5 minutes. Add the reserved shredded chicken, the chipotle chiles, tomatoes, and 1 cup (240 ml/8 fl oz) of the chicken broth (reserve the rest for other preparations). Cook until the tomato breaks down and changes to a brick color, 5-10 minutes. Season to taste with salt. Add some more cooking broth if necessary; it should be a bit soupy. Serve hot or let cool and refrigerate for up to 1 week or freeze for up to 1 month in an airtight container.

1 lb (455 g) skinless, boneless chicken breast
2 large white onions, 1 halved and 1 sliced
6 garlic cloves, 3 whole and 3 sliced
1 tablespoon salt, plus more to taste
3 tablespoons vegetable oil
4 dried or canned chipotle chiles, chopped to a paste
9 plum tomatoes, roughly chopped
Herb Guacamole  *Guacamole con hierbas*

**Preparation time: 5-10 minutes • Makes: 2-3 cups**

Guacamole is probably the most recognized dish from Mexico, and there are thousands of variations. We like adding fresh herbs for roundness and freshness, to contrast with the creaminess of the avocados. Beyond that, regardless of the recipe you use, there are two things that are crucial: First, use ripe avocados, they should give in to a light squeeze, but the flesh should not be bruised or blackened. Second, make sure your avocados are at room temperature. Avocados are mostly fat, and our palate can taste the nuanced flavors of fats when they are warmer. Think about it, what sounds more appetizing: warm butter on a roll or cold butter on a roll? It is one of the simplest pleasures of our cuisine. Enjoy with tostadas on the side or as a condiment in tacos or other preparations.

In a bowl, mash the avocados with a fork. Mix in all the other ingredients until completely incorporated.

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**4 Hass avocados, at room temperature**

1 serrano chile, sliced (seeded for less heat)

1 small white onion, finely diced

*Juice of 1 Key lime*

8 whole fresh mint leaves

8 whole fresh basil leaves

8 whole fresh tarragon leaves

15 whole fresh cilantro (coriander) leaves

1 teaspoon salt, or to taste

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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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Rosemary, a fragrant Mediterranean herb, is known for enhancing dishes like chicken or lamb. But as prized as it is for its culinary contributions, rosemary’s medicinal benefits are even more impressive.

It has reached superfood status because of its abundance of plant compounds like polyphenols, flavonoids, and terpenes.

Ancient healers reportedly used rosemary for boosting the immune and circulatory system, improving memory, and promoting hair growth. Now, modern science has shown its benefits for brain health, eye health, diabetes protection, and more.

**Brain Benefits**

Rosemary contains rosmarinic acid and carnosic acid, shown to protect rat brain cell cultures from free radical damage. This is the kind of damage that can cause strokes and neurodegeneration.

Rosemary could also be beneficial for people who have experienced a stroke. In a rat model of a stroke, a rosemary extract reduced the extent of brain injury following the stroke, reduced swelling in the brain, reduced neurologic deficit scores, and reduced the permeability of the blood-brain barrier. This suggests that rosemary could help protect against brain damage and improve recovery following a stroke.

In another rat study, carnosic acid helped protect against beta amyloid-induced neurodegeneration in the hippocampus, the part of the brain responsible for learning and memory. Beta amyloid plaques are toxic protein “clumps” that accumulate in the brains of Alzheimer’s patients.

**Eye Protection**

That same beneficial compound, carnosic acid, has been found in a preclinical study to protect the retinal cells from degeneration and toxicity. This has led researchers to conclude that it could be beneficial against age-related macular degeneration, the leading cause of vision loss in people over 50.

**Type II Diabetes**

Rosemary shows promise in helping to manage blood glucose levels. In animal models of type II diabetes, rosemary extract and two specific molecules found in rosemary (carnosic acid and rosmarinic acid) were found to have insulin-like effects that can help regulate how the body processes glucose. They also helped protect against hyperlipidemia and hyperglycemia in animal models of type II diabetics.

You can enjoy rosemary in soups and sauces, in a marinade, or as a rub on meat. Or for an extra health boost, try infusing it in extra virgin olive oil and drizzling over a salad or on roasted vegetables.

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References
5. Nutrients. 2017 Sep 1;9(9).
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Neurodegenerative diseases like Alzheimer’s are expected to become a “global epidemic” by 2050, with the number of patients predicted to reach 135 million worldwide, according to the World Health Organization.

Dr. David Perlmutter, board-certified neurologist and a Fellow of the American College of Nutrition, believes he has found the answer to this burgeoning epidemic. According to Perlmutter, the culprit isn’t found in your genes; it’s on your plate.

In his book, Grain Brain, Perlmutter details how wheat, carbs, and sugar are toxic substances that are poisoning our brains. When it was first released in 2013, it became a New York Times bestseller, with more than 1.5 million copies sold, and it established Perlmutter as the leading authority on the dangers of eating wheat, carbs, and sugar.

Perlmutter has released a five-year-anniversary edition that has been completely revised and updated to reflect the latest nutritional and neurological science. This new edition includes details on how blood sugar determines brain health, how insulin resistance relates to Alzheimer’s risk, and how being gluten sensitive is a key culprit behind brain diseases ranging from depression to dementia.

More importantly, Perlmutter helps you make the transition away from relying on harmful carbs—and toward a more brain-healthy lifestyle—with his detailed four-week plan of action. He includes meal plans and recipes, the best nutrients for brain health, and tips for maintaining these healthy habits for life.

“From my perspective, getting the word out that people can make simple changes to prevent a disease like Alzheimer’s, for which there is no meaningful treatment, not only makes sense, but is imperative,” said Perlmutter. “Now that so many physicians seem steeped in providing drug remedies, it is the right time to take a step back, review current science, and get the word out that the patients for whom we care can make choices, today, to remain healthy.”

In this exclusive interview with Life Extension®, Perlmutter talks in more detail about how grains are destroying our brains, and how, through simple dietary changes, you have the power to prevent—and even reverse—brain conditions ranging from headaches, anxiety, and depression, to ADHD, insomnia, and even dementia.

—Laurie Mathena
**LE:** Many people believe that brain diseases like Alzheimer’s are genetic, but you have a different explanation.

**Dr. Perlmutter:** There are plenty of perpetual myths about the basket of brain-degenerating maladies, which include Alzheimer’s: *It’s in the genes, it’s inevitable with age, and it’s a given if you live into your eighties and beyond.*

Not so fast.

I’m here to tell you that the fate of your brain is not in your genes. It’s not unavoidable. And if you’re someone who suffers from another type of brain disorder, such as chronic headaches, depression, epilepsy, or extreme moodiness, the culprit may not be encoded in your DNA.

It’s largely in the food you eat.

**LE:** What is the number one culprit responsible for brain diseases?

**Dr. Perlmutter:** If the thought of your brain suffering over a bowl of savory pasta or plate of sweet French toast seems far-fetched, brace yourself. You probably already knew that processed sugars and carbs weren’t all that great for you, especially in excess, but so-called healthy carbohydrates like whole grains and natural sugars? Welcome to the whole grain truth.

Modern grains are silently destroying your brain. By “modern,” I’m not just referring to the refined white flours, pastas, and rice that have already been demonized by the anti-obesity folks. I’m referring to all the grains that so many of us have embraced as being healthful—whole wheat, whole grain, multigrain, seven-grain, live grain, stone-ground, and so on. Basically, I am calling what is arguably our most beloved dietary staple a terrorist group that bullies our most precious organ, the brain.

In the fall of 2012, a report in the *Journal of Alzheimer’s Disease* published research from the Mayo Clinic revealing that older people who fill their plates with carbohydrates have nearly four times the risk of developing mild cognitive impairment (MCI), generally considered a precursor to Alzheimer’s disease.

**LE:** What exactly is gluten?

**Dr. Perlmutter:** Gluten—which is Latin for “glue”—is a protein composite that acts as an adhesive material, holding flour together to make bread products, including crackers, baked goods, and pizza dough.

Gluten is our generation’s tobacco. Gluten sensitivity is far more prevalent than we realize—potentially harming all of us to some degree without our knowing it—and gluten is hiding where you least suspect it. It’s in our seasonings, condiments, and cocktails, and even in cosmetics, hand cream, and ice cream. It’s disguised in soups, sweeteners, and soy products.

**LE:** Why is gluten so harmful to the brain?

**Dr. Perlmutter:** Researchers have known for some time now that the cornerstone of all degenerative conditions, including brain disorders, is inflammation. But what they hadn’t documented until now are the instigators of that inflammation—the first missteps that prompt this deadly reaction.

And what they are finding is that gluten, and a high-carbohydrate diet for that matter—are among the most prominent stimulators of inflammatory pathways that reach the brain.
In 2017 a consortium of scientists from high-profile institutions reported in the journal Neurology that high levels of inflammatory markers in the blood during midlife were associated with smaller brain volumes in late life.

But even casting aside the gluten factor, I should point out that one of the main reasons why consuming so many grains and carbs can be so harmful is that they raise blood sugar in ways that other foods, such as meat, fish, poultry, and vegetables, do not.

**LE:** Speaking of blood sugar, what is the connection between diabetes and dementia?

**Dr. Perlmutter:** First, if you’re insulin resistant, not only will you starve brain cells and spur their death, but your body may not be able to break down the amyloid protein that forms those infamous plaques associated with brain disease.

Second, high blood sugar provokes menacing biological reactions that injure the body by producing certain oxygen-containing molecules that damage cells and cause inflammation that can result in hardening and narrowing of the arteries in the brain (not to mention elsewhere in the body). This condition, known as atherosclerosis, can lead to vascular dementia, which occurs when blockages and strokes kill brain tissue.

Newer research is now documenting how controlling blood sugar and reducing risk factors for type II diabetes can significantly reduce dementia risk.

**LE:** Is this impact of high blood sugar only a problem for diabetics?

**Dr. Perlmutter:** What I find really interesting is that newer studies are showing that people with high blood sugar—whether or not they have diabetes—have a higher rate of cognitive decline than those with normal blood sugar. This was true in one particularly disturbing longitudinal study from 2018 following more than 5,000 people over 10 years. Their rate of cognitive decline—regardless of whether or not they were diabetic—hinged on blood sugar levels. The higher the blood sugar, the faster the decline—even in the non-diabetics.

**LE:** Gluten is known to be problematic for people with celiac disease, but what about those without celiac?

**Dr. Perlmutter:** Gluten isn’t just an issue for those with bona fide celiac disease. As many as 40% of us can’t properly process gluten, and the remaining 60% could be in harm’s way. The question we all need to be asking ourselves is this:

**What if we’re all sensitive to gluten from the perspective of the brain?**

Gluten sensitivity in particular is caused by elevated levels of antibodies against the gliadin component of gluten. When the antibody combines with this protein (creating an anti-gliadin antibody), specific genes are turned on in a special type of immune cell in the body. Once these genes are activated, inflammatory cytokine chemicals collect and can attack the brain. Cytokines are highly antagonistic to the brain, damaging tissue and leaving the brain vulnerable to dysfunction and disease especially if the assault continues.

Given this, it’s no wonder that elevated cytokines are seen in Alzheimer’s disease, Parkinson’s disease, major depression, multiple sclerosis, and even autism.

**LE:** Does this mean everyone should get tested for gluten sensitivity?
Dr. Perlmutter: I no longer recommend testing for gluten sensitivity because it’s best to assume that you are sensitive to gluten and avoid it entirely—even if you have no celiac and have tested negative to gluten sensitivity in the past.

LE: But you do recommend getting a fasting insulin test. Why is that?

Dr. Perlmutter: Having normal blood sugar levels may mean that the pancreas is working overtime to keep that blood sugar normal. Based upon this understanding, you can see that high insulin levels will happen long before blood sugar rises and a person becomes diabetic. That’s why it’s so important to check not only your fasting blood sugar, but also your fasting insulin level. An elevated fasting insulin level is an indicator that your pancreas is trying hard to normalize your blood sugar. It’s also a clear signal that you are consuming too much carbohydrate.

And make no mistake about it: Even being insulin resistant is a powerful risk factor for brain degeneration and cognitive impairment.

Consider an Italian study done back in 2005 that looked at 523 people aged 70 to 90, who did not have diabetes or even elevated blood sugar. Many of them were insulin resistant, however, as determined by their fasting insulin levels. The study revealed that those individuals who were insulin resistant had a dramatically increased risk of cognitive impairment compared to those within the normal range.

LE: What other neurological problems can gluten impact?

Dr. Perlmutter: The facts of “grain brain” go far beyond just hampering neurogenesis and increasing your risk for cognitive challenges that will progress stealthily over time. A diet heavy in inflammatory carbs and low in healthy fats messes with the mind in more ways than one—affecting risk not just for dementia but for common neurological ailments such as ADHD, anxiety disorder, Tourette’s syndrome, mental illness, migraines, and even autism.

LE: You discuss shifting away from carbs and toward healthy fats like those found in fish, olive oil, avocado, and nuts. Why is that so critical for brain health?

Dr. Perlmutter: Fat is and always has been a fundamental pillar of our nutrition. Beyond the fact that the human brain consists of more than 70% fat, fat plays a pivotal role in regulating the immune system. Simply stated, good fats like omega-3s and monounsaturated fats reduce inflammation, while modified hydrogenated fats, so common in commercially prepared foods, dramatically increase inflammation.

Certain vitamins, notably A, D, E, and K, require fat to get absorbed properly in the body, which is why dietary fat is necessary to transport these “fat-soluble” vitamins. Because these vitamins do not dissolve in water, they can be absorbed from your small intestine only in combination with fat. Deficiencies due to incomplete absorption of these vitally important vitamins are always serious, and any such deficiency can be linked to brain illness, among many other conditions.

LE: Are there nutrients you can take that will help protect the brain from the harmful effects of grains and other carbs?

Dr. Perlmutter: Perhaps no other brain-boosting molecule is receiving as much attention lately as is docosahexaenoic acid (DHA).
For the past several decades, scientists have been aggressively studying this critical brain fat for at least three reasons.

First, more than two-thirds of the dry weight of the human brain is fat, and of that fat, one-quarter is DHA. Structurally, DHA is an important building block for the membranes surrounding brain cells, particularly the synapses, which lie at the heart of efficient brain function.

Second, DHA is an important regulator of inflammation. It naturally reduces the activity of the COX-2 enzyme, which turns on the production of damaging inflammatory chemicals. DHA also acts like a warrior in many ways when it enters hostile territory brought on by poor diet.

It can fight back inflammation when a war ensues within the intestinal lining of a gut that is gluten sensitive. And it can block the damaging effects of a diet high in sugar, especially fructose, and help prevent metabolic dysfunctions in the brain that can result from too many carbs in the diet.

The third, and arguably most exciting, activity of DHA is its role in regulating gene expression for production of BDNF (which plays a key role in creating new neurons). Put simply, DHA helps orchestrate the production, connectivity, and viability of brain cells, while at the same time enhancing function.

LE: The information about diet and brain disorders is actually very encouraging.

Dr. Perlmutter: The idea that we can treat—and in some cases, totally eliminate—common neurological ailments through diet alone is empowering. Most people immediately turn to drugs when seeking a solution, oblivious to the cure that awaits them in a few lifestyle shifts that are highly practical and absolutely free.

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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Dr. Perlmutter: Some of my most remarkable case studies involve people transforming their lives and health through the total elimination of gluten from their diets and a new appreciation for fats instead of carbs. I’ve watched this single dietary shift lift depression, relieve chronic fatigue, reverse type II diabetes, extinguish obsessive-compulsive behavior, and cure many neurological challenges, from brain fog to bipolar disorder.
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00893 Brite Eyes III
01514 Eye Pressure Support with Mirtogenol®
01992 MacuGuard® Ocular Support with Saffron
01993 MacuGuard® Ocular Support with Saffron & Astaxanthin
01873 Standardized European Bilberry Extract
01918 Tear Support with MaquiBright®

FISH OIL & OMEGAS
OMEGA FOUNDATIONS®
02311 Clearly EPA/DHA
01937 Mega EPA/DHA
02218 Mega GLA with Sesame Lignans
01983 Super Omega-3 EPA/DHA with Sesame Lignans & Olive Extract
01988 Super Omega-3 Plus EPA/DHA with Sesame Lignans, Olive Extract, Krill & Astaxanthin
01982  Super Omega-3 EPA/DHA w/ Sesame Lignans & Olive Extract  • 120 enteric coated softgels
01985  Super Omega-3 EPA/DHA w/ Sesame Lignans & Olive Extract  • 60 enteric coated softgels
01984  Super Omega-3 EPA/DHA w/ Sesame Lignans & Olive Extract  • 120 enteric coated softgels
01986  Super Omega-3 EPA/DHA w/ Sesame Lignans & Olive Extract  • 240 easy-to-swallow softgels
01812  Proval® Purified Omega-7
01640  Vegetarian DHA
00463  Organic Golden Flax Seed

**FOOD**

02008  California Estate Extra Virgin Olive Oil
02170  Rainforest Blend Decaf Ground Coffee
02169  Rainforest Blend Ground Coffee
02171  Rainforest Blend Whole Bean Coffee
00432  Stevia™ Sweetener
00438  Stevia™ Organic Liquid Sweetener

**GLUCOSE MANAGEMENT**

01503  CinSulin® with InSea2® and Crominex® 3+
01620  CoffeeGenic® Green Coffee Extract
02122  Glycemic Guard™
00925  Mega Benfotiamine
01803  Tri Sugar Shield®

**HEART HEALTH**

01066  Aspirin (Enteric Coated)
01842  BioActive Folate & Vitamin B12 Caps
01700  Cardio Peak™ with Standardized Hawthorn and Arjuna
02121  Homocysteine Resist
02018  Optimized Carnitine
01929  Super Ubiquinol CoQ10
01733  Super Ubiquinol CoQ10 with PQQ
01437  Super Ubiquinol CoQ10 with Enh Mitochondrial Support™  • 100 mg, 30 softgels
01426  Super Ubiquinol CoQ10 with Enh Mitochondrial Support™  • 100 mg, 60 softgels
01427  Super Ubiquinol CoQ10 with Enh Mitochondrial Support™  • 50 mg, 30 softgels
01425  Super Ubiquinol CoQ10 with Enh Mitochondrial Support™  • 50 mg, 100 softgels
01431  Super Ubiquinol CoQ10 with Enh Mitochondrial Support™  • 200 mg, 30 softgels
01949  Super-Absorbable CoQ10 Ubiquinone with d-Limonene  • 50 mg, 60 softgels
01951  Super-Absorbable CoQ10 Ubiquinone with d-Limonene  • 100 mg, 30 softgels
01859  TMG Liquid Capsules
00349  TMG Powder

**HORMONE BALANCE**

00607  DHEA (Dehydroepiandrosterone)  • 25 mg, 100 tablets (dissolve in mouth)
00454  DHEA (Dehydroepiandrosterone)  • 15 mg, 100 capsules
00335  DHEA (Dehydroepiandrosterone)  • 25 mg, 100 capsules
00882  DHEA (Dehydroepiandrosterone)  • 50 mg, 60 capsules
01689  DHEA (Dehydroepiandrosterone)  • 100 mg, 60 veg capsules
00302  Pregnenolone  • 50 mg, 100 capsules
00700  Pregnenolone  • 100 mg, 100 capsules
01468  Triple Action Cruciferous Vegetable Extract
01469  Triple Action Cruciferous Vegetable Extract with Resveratrol

**IMMUNE SUPPORT**

00681  AHCC®
02302  Bio-Quercetin
01961  Enhanced Zinc Lozenges
01704  Immune Modulator with Tinofend®
00955  Immune Protect with PARACTIN®
02005  Immune Senescence Protection Formula™
29727  Kinoko® Gold AHCC
24404  Kinoko® Platinum AHCC
00316  Kyolic® Garlic Formula 102
00789  Kyolic® Reserve
01681  Lactoferin (Apolactoferin) Caps
01903  NK Cell Activator™
01349  Optimized Garlic
01309  Optimized Quercetin
01811  Peony Immune
00525  ProBoost Thymic Protein A
01708  Reishi Extract Mushroom Complex
01906  Standardized Cistanche
13685  Ten Mushroom Formula®
01907  Ultra Soy Extract
01561  Zinc Lozenges

**INFLAMMATION MANAGEMENT**

01639  5-LOX Inhibitor with AprèsFlex®
01924  Advanced Bio-Curcumin® with Ginger & Turmerones Turmeric Extract
01709  Black Cumin Seed Oil
01710  Black Cumin Seed Oil with Bio-Curcumin®
00202  Boswellia
01804  Cytokine Suppress® with EGCG
00318  Serraflazyme
01203  Specially-Coated Bromelain
00467  Super Bio-Curcumin® Turmeric Extract  • 400 mg, 30 veg capsules
00407  Super Bio-Curcumin® Turmeric Extract  • 400 mg, 60 veg capsules
01254  Zyflamend™ Whole Body

**JOINT SUPPORT**

01404  Arthro-Immune Joint Support
02238  ArthroMax® Advanced NT2 Collagen™ & AprèsFlex®
01617  ArthroMax® with Theaflavins & AprèsFlex®
02138  ArthroMax® Elite
00965  Fast-Acting Joint Formula
00522  Glucosamine/Chondroitin Capsules
01600  Krill Healthy Joint Formula
01050  Krill Oil
00451  MSM (Methylsulfonylemethane)
02231  NT2 Collagen™

**KIDNEY & BLADDER SUPPORT**

00862  Cran-Max® Cranberry Whole Fruit Concentrate
01424  Optimized Cran-Max® with Ellirose™
01921  Uric Acid Control
01209  Water-Soluble Pumpkin Seed Extract

**LIVER HEALTH & DETOXIFICATION**

02240  Anti-Alcohol HepatoProtection Complex
01651  Calcium D-Glucarate
00550  Chlorella
01571  Chlorophyllin
01522  European Milk Thistle  • 60 veg capsules
01922  European Milk Thistle  • 60 softgels
01925  European Milk Thistle  • 120 softgels
01541  Glutathione, Cysteine & C
01393  HepatoPro
01608  Liver Efficiency Formula
01534  N-Acetyl-L-Cysteine
00342 PectaSol-C® Modified Citrus Pectin Powder
01080 PectaSol-C® Modified Citrus Pectin Capsules
01884 Silymarin

LONGEVITY & WELLNESS
00457 Alpha-Lipoic Acid
01625 AppleWise Polyphenol Extract
01214 Blueberry Extract
01438 Blueberry Extract with Pomegranate
02270 DNA Protection Formula
02119 GEROPROTECT® Ageless Cell™
02133 GEROPROTECT® Longevity A.I.™
02211 Grapeseed Extract
02305 Green T-Max
02109 Mediterranean Whole Food Blend
00954 Mega Green Tea Extract (decaffeinated)
00953 Mega Green Tea Extract (lightly caffeinated)
01513 Optimized Fucoidan with Maritech® 926
02230 Optimized Resveratrol
01637 Pycnogenol® French Maritime Pine Bark Extract
02210 Resveratrool
00070 RNA (Ribonucleic Acid)
02301 Senolytic Activator
01208 Super R-Lipoic Acid
01919 X-R Shield

MEN’S HEALTH
02209 Male Vascular Sexual Support
00455 Mega Lycopene Extract
02306 Men’s Bladder Control
01789 PalmettoGuard® Saw Palmetto with Beta-Sitosterol
01790 PalmettoGuard® Saw Palmetto/Nettle Root Formula with Beta-Sitosterol
01837 Pomi-T™
01373 Prelox® Enhanced Sex for Men
01940 Super MiraForte with Standardized Lignans
01909 Triple Strength ProstaPollen™
02029 Ultra Prostate Formula

MINERALS
01661 Boron
02107 Extend-Release Magnesium
30731 Ionic Selenium
01677 Iron Protein Plus
01459 Magnesium Caps
01682 Magnesium (Citrate)
01328 Only Trace Minerals
01504 Optimized Chromium with Crominex® 3+
02309 Potassium with Extend-Release Magnesium
01740 Sea-Iodine™
01879 Se-Methyl L-Selenocysteine
01778 Super Selenium Complex
00213 Vanadyl Sulfate
01813 Zinc Caps

MISCELLANEOUS
00577 Potassium Iodide
00657 Solarshield* Sunglasses

MOOD & STRESS MANAGEMENT
02312 Cortisol-Stress Balance
00987 Enhanced Stress Relief
01074 S-Adenosyl-Methionine
01683 L-Theanine
02175 SA Me (S-Adenosyl-Methionine)
200 mg, 30 enteric coated tablets
02176 SA Me (S-Adenosyl-Methionine)
400 mg, 30 enteric coated tablets
02174 SA Me (S-Adenosyl-Methionine)
400 mg, 60 enteric coated tablets

MULTIVITAMINS
02199 Children’s Formula Life Extension Mix™
02398 Comprehensive Nutrient Packs ADVANCED
02364 Life Extension Mix™ Capsules without Copper
02354 Life Extension Mix™ Capsules
02356 Life Extension Mix™ Powder
02357 Life Extension Mix™ Tablets with Extra Niacin
02365 Life Extension Mix™ Tablets without Copper
02355 Life Extension Mix™ Tablets
02092 Once-Daily Health Booster - 30 softgels
02091 Once-Daily Health Booster - 60 softgels
02313 One-Per-Day Tablets
02317 Two-Per-Day Capsules - 60 capsules
02314 Two-Per-Day Capsules - 120 capsules
02316 Two-Per-Day Tablets - 60 tablets
02315 Two-Per-Day Tablets - 120 tablets

NERVE & COMFORT SUPPORT
02202 ComfortMAX™
02303 PEA Discomfort Relief

PERSONAL CARE
01006 Biosil™ - 5 mg, 30 veg capsules
01007 Biosil™ - 1 fl oz
00321 Dr. Proctor’s Advanced Hair Formula
00320 Dr. Proctor’s Shampoo
02322 Hair, Skin & Nails Collagen Plus Formula
01278 Life Extension Toothpaste
00408 Venitone
00409 Xyliwhite Mouthwash
02304 Youthful Collagen
02252 Youthful Legs

PET CARE
01932 Cat Mix
01931 Dog Mix

PROBIOTICS
01622 Bifido GI Balance
01825 FLORASSIST® Balance
02125 FLORASSIST® GI with Phage Technology
01821 FLORASSIST® Heart Health
02000 FLORASSIST® Mood
02208 FLORASSIST® Nasal
02120 FLORASSIST® Oral Hygiene
02203 FLORASSIST® Prebiotic
01920 FLORASSIST® Throat Health
52142 Jarro-Dophilus® for Women
00056 Jarro-Dophilus EPS® - 60 veg capsules
21201 Jarro-Dophilus EPS® - 120 veg capsules
01038 Theralec® Probiotics
01389 TruFlora® Probiotics

SKIN CARE
80157 Advanced Anti-Glycation Peptide Serum
80165 Advanced Growth Factor Serum
80170 Advanced Hyaluronic Acid Serum
80154 Advanced Lightening Cream
80155 Advanced Peptide Hand Therapy
80152 Advanced Triple Peptide Serum
80140 Advanced Under Eye Serum with Stem Cells
80137 All-Purpose Soothing Relief Cream
80139 Amber Self MicroDermAbrasion
80118 Anti-Aging Mask
80151 Anti-Aging Rejuvenating Face Cream
80153 Anti-Aging Rejuvenating Scalp Serum
80133 Anti-Oxidant Facial Mist Hydrator
80156 Collagen Boosting Peptide Serum
PRODUCTS

VITAMINS

01533  Ascorbyl Palmitate
00920  Benfotiamine with Thiamine
00664  Beta-Carotene
01945  BioActive Complete B-Complex
00102  Biotin
00084  Buffered Vitamin C Powder
02229  Fast-C® and Bio-Quercetin Phytosome
02075  Gamma E Mixed Tocopherol Enhanced with Sesame Lignans
02070  Gamma E Mixed Tocopherol/Tocotrienols
01913  High Potency Optimized Folate
01674  Inositol Caps Liquid Emulsified
02244  Liquid Vitamin D3•2,000 IU, 1 fl oz, unflavored
02232  Liquid Vitamin D3•2,000 IU, 1 fl oz, mint
01936  Low-Dose Vitamin K2
01536  Methylcobalamin - 1 mg, 60 veg lozenges
01537  Methylcobalamin - 5 mg, 60 veg lozenges
00065  MK-7
00373  No Flush Niacin
01939  Optimized Folate (L-Methylfolate)
01217  Pyridoxal 5’-Phosphate Caps
01400  Super Absorbable Tocotrienols
02234  Super K
02335  Super K Elite
01863  Super Vitamin E
02028  Vitamin B5 (Pantothenic Acid)
01535  Vitamin B6
00361  Vitamin B12
02228  Vitamin C and Bio-Quercetin Phytosome
02227  Vitamin C and Bio-Quercetin Phytosome
01753  Vitamin D3•1,000 IU, 90 softgels
01751  Vitamin D3•1,000 IU, 250 softgels
01713  Vitamin D3•5,000 IU, 60 softgels
01718  Vitamin D3•7,000 IU, 60 softgels
01758  Vitamin D3 with Sea-Iodine™
02040  Vitamins D and K with Sea-Iodine™

WEIGHT MANAGEMENT & BODY COMPOSITION

00658  7-Keto® DHEA Metabolite • 25 mg, 100 capsules
00479  7-Keto® DHEA Metabolite • 100 mg, 60 veg capsules
01509  Advanced Anti-Adipocyte Formula
01807  Advanced Appetite Suppress
02207  AMPK Metabolic Activator
01823  CallReduce Selective Fat Binder
01478  DHEA Complete
01738  Garcinia HCA
29754  HCAActive Garcinia Cambogia Extract
01292  Integra-Lean®
01908  Mediterranean Trim with Sinetrol™ -XPur
01492  Optimized Irvingia with Phase 3™ Calorie Control Complex
01432  Optimized Saffron with Satireal®
00818  Super CLA Blend with Sesame Lignans
01902  Waist-Line Control™
02151  Wellness Code® Appetite Control

WOMEN’S HEALTH

01626  Enhanced Sex for Women 50+
01942  Breast Health Formula
01064  Femmenessence MacaPause®
01894  Estrogen for Women
02204  Menopause 731™
01441  Progesta-Care®
01649  Super-Absorbable Soy Isoflavones

SLEEP

01512  Bioactive Milk Peptides
02300  Circadian Sleep
01551  Enhanced Sleep with Melatonin
01511  Enhanced Sleep without Melatonin
02234  Fast-Acting Liquid Melatonin
01669  Glycine
02308  Herbal Sleep PM
01722  L-Tryptophan
01668  Melatonin • 300 mcg, 100 veg capsules
01083  Melatonin • 500 mcg, 200 veg capsules
00329  Melatonin • 1 mg, 60 capsules
00330  Melatonin • 3 mg, 60 veg capsules
00331  Melatonin • 10 mg, 60 veg capsules
00332  Melatonin • 3 mg, 60 veg lozenges
02201  Melatonin IR/XR
01787  Melatonin Timed Release • 300 mcg, 100 veg tablets
01788  Melatonin Timed Release • 750 mcg, 60 veg tablets
01786  Melatonin Timed Release • 3 mg, 60 veg tablets
01721  Optimized Tryptophan Plus
01444  Quiet Sleep
01445  Quiet Sleep Melatonin

80169  Cucumber Hydra Peptide Eye Cream
80141  DNA Support Cream
80167  Environmental Support Serum
80163  Eye Lift Cream
80123  Face Rejuvenating Anti-Oxidant Cream
80109  Hyaluronic Facial Moisturizer
80110  Hyaluronic Oil-Free Facial Moisturizer
80138  Hydrating Anti-Oxidant Facial Mist
00661  Hydroderm
80103  Lifting & Tightening Complex
80168  Melatonin Advanced Peptide Cream
80114  Mild Facial Cleanser
80172  Multi Stem Cell Hydration Cleanser
80159  Multi Stem Cell Skin Tightening Complex
80122  Neck Rejuvenating Anti-Oxidant Cream
80174  Purifying Facial Mask
01448  Rejuvenex® Body Lotion
01621  Rejuvenex® Factor Firming Serum
80150  Renewing Eye Cream
80142  Resveratrol Anti-Oxidant Serum
01938  Shade Factor™
02129  Skin Care Collection Anti-Aging Serum
02132  Skin Care Collection Body Lotion
02130  Skin Care Collection Day Cream
02131  Skin Care Collection Night Cream
80166  Skin Firming Complex
02096  Skin Restoring Ceramides
80130  Skin Stem Cell Serum
80164  Skin Tone Equalizer
80143  Stem Cell Cream with Alpine Rose
80148  Tightening & Firming Neck Cream
80161  Triple-Action Vitamin C Cream
80162  Ultimate MicroDermabrasion
80173  Ultimate Peptide Serum
80160  Ultra Eyelash Booster
01220  Ultra Rejuvenex®
00676  Ultra RejuveNight®
80101  Ultra Wrinkle Relaxed
80113  Under Eye Refining Serum
80104  Under Eye Rescue Cream
80171  Vitamin C Lip Rejuvenator
80129  Vitamin C Serum
80136  Vitamin D Lotion
80102  Vitamin K Cream
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MASSAGE IMPROVES CIRCULATION
University of Miami Miller School of Medicine

MASSAGE AIDS MUSCLE RECOVERY AND SPEEDS RECOVERY TIMES
McMaster University, Ontario

A DAILY FOOT MASSAGE LOWERS BLOOD PRESSURE AND LOWERS TRIGLYCERIDE LEVELS
Pusan National University, South Korea

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SPIRIT LAVENDER
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BALANCE BLACK

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

Suggested dose for either formula is one capsule or softgel daily for otherwise healthy individuals.

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4 bottles $20.25 each

Item #00407 - 60 vegetarian capsules
1 bottle $28.50
4 bottles $26.25 each

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**WHAT'S INSIDE**

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**7 WHY MANY PEOPLE MAY NOT NEED DAILY ASPIRIN**

Recent studies show that **low-dose aspirin may not** be needed to reduce heart attack and stroke risk in healthier Americans. Low-risk adults have other ways to control **vascular risk factors**.

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**38 ENHANCE MALE SEXUAL HEALTH**

A **ginger-like root** improved sexual health in **61.5%** of male participants in as few as 30 days.

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**57 IMPROVE BRAIN FUNCTION WITH CAROTENOIDS**

In new studies, the plant pigments **lutein** and **zeaxanthin** increased brain processing speed, cognitive flexibility, visual memory, and more.

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**28 FALL ASLEEP FASTER — AND STAY ASLEEP LONGER!**

Three **plant-based extracts** work on multiple sleep centers in the brain. A human study showed a remission of **insomnia** in **85%** of subjects.

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**46 PQQ REVITALIZES CELLULAR ENERGY**

A nutrient called **PQQ** helps grow **new mitochondria**, leading to more energy — and increased **lifespan** in animal studies.

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**62 REMOVE DEAD SKIN CELLS**

A facial mask containing a combination of nutrients provides unique **exfoliating** and **deep-cleansing** effects to restore a fresh, youthful look.