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Patented **turmeric** and **fenugreek blend** (500 mg) results in **45 times** greater bioavailability of free **curcuminoids**.

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## Medical Advisory Board

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<th>Name</th>
<th>Title</th>
<th>Background</th>
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<tr>
<td>Gustavo Tovar Baez, MD</td>
<td>operates the Life Extension Clinic in Caracas, Venezuela</td>
<td>is the first physician in Caracas to specialize in anti-aging medicine.</td>
</tr>
<tr>
<td>Ricardo Bernales, MD</td>
<td>is a board-certified pediatrician and general practitioner in Chicago, IL</td>
<td>focusing on allergies, bronchial asthma, and immunodeficiency.</td>
</tr>
<tr>
<td>Mark S. Bezsek, MD, FACP, FAARM, FFAEM</td>
<td>is boardcertified in internal medicine, emergency medicine, and anti-aging/regenerative medicine. He is the director of Med-Link Consulting, which specializes in bioidentical hormone replacement therapy, natural alternatives, anti-aging, and degenerative diseases. He holds U.S. patents for a multivitamin/mineral supplement, an Alzheimer’s/dementia compilation, and a diabetic regimen.</td>
<td></td>
</tr>
<tr>
<td>Thomas F. Crais, MD, FACS</td>
<td>is a board-certified plastic surgeon, was medical director of the microsurgical research and training lab at Southern Baptist Hospital in New Orleans, LA, and currently practices in Sun Valley, ID.</td>
<td></td>
</tr>
<tr>
<td>William Davis, MD</td>
<td>is a preventive cardiologist and author of <em>Wheat Belly: Lose the Wheat, Lose the Weight and Find Your Path Back to Health</em>. He is also medical director of the online heart disease prevention and reversal program, Track Your Plaque (<a href="http://www.trackyourplaque.com">www.trackyourplaque.com</a>).</td>
<td></td>
</tr>
<tr>
<td>Martin Dayton, MD, DO</td>
<td>practices at the Sunny Isles Medical Center in North Miami Beach, FL. His focus is on nutrition, aging, chelation therapy, holistic medicine, and oxidative medicine.</td>
<td></td>
</tr>
<tr>
<td>John DeLuca, MD, DC</td>
<td>is a 2005 graduate of St. George’s University School of Medicine. He completed his internal medicine residency at Monmouth Medical Center in Long Branch, NJ, in 2008 and is board-certified by the American Board of Internal Medicine. Dr. DeLuca is a Diplomate of the American Academy of Anti-Aging Medicine and has obtained certifications in hyperbaric medicine, pain management, nutrition, strength and conditioning, and manipulation under anesthesia.</td>
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<tr>
<td>Sergey A. Dzugan, MD, PhD</td>
<td>was formerly chief of cardiovascular surgery at the Donetsk Regional Medical Center in Donetsk, Ukraine. Dr. Dzugan’s current primary interests are anti-aging and biological therapy for cancer, cholesterol, and hormonal disorders.</td>
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<tr>
<td>Patrick M. Fratellone, MD, RH</td>
<td>is the founder and executive medical director of Fratellone Associates. He completed his internal medicine and cardiology fellowship at Lenox Hill Hospital in 1994, before becoming the medical director for the Atkins Center for Complementary Medicine.</td>
<td></td>
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<tr>
<td>Norman R. Gay, MD</td>
<td>is proprietor of the Bahamas Anti-Aging Medical Institute in Nassau, Bahamas. A former member of the Bahamian Parliament, he served as Minister of Health and Minister of Youth and Sports.</td>
<td></td>
</tr>
<tr>
<td>Mitchell J. Ghen, DO, PhD</td>
<td>holds a doctorate in holistic health and anti-aging and serves on the faculty of medicine at the Benemerita Universidad Autonoma De Puebla, Mexico, as a professor of cellular hematopoietic studies.</td>
<td></td>
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<tr>
<td>Gary Goldfaden, MD</td>
<td>is a clinical dermatologist and a lifetime member of the American Academy of Dermatology. He is the founder of Academy Dermatology of Hollywood, FL, and COSMESIS Skin Care.</td>
<td></td>
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<tr>
<td>Miguelangelo Gonzalez, MD</td>
<td>is a certified plastic and reconstructive surgeon at the Miguelangelo Plastic Surgery Clinic, Cabo San Lucas.</td>
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<tr>
<td>Garry F. Gordon, MD, DO</td>
<td>is a Payson, Arizona-based researcher of alternative approaches to medical problems that are unresponsive to traditional therapies. He is president of the International College of Advanced Longevity Medicine.</td>
<td></td>
</tr>
<tr>
<td>Richard Heifetz, MD</td>
<td>is a board-certified anesthesiologist in Santa Rosa, CA, specializing in the delivery of anesthesia for office-based, plastic/cosmetic surgery, chelation therapy, and pain management.</td>
<td></td>
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<tr>
<td>Roberto Marasi, MD</td>
<td>is a psychiatrist in Brescia and in Piacenza, Italy. He is involved in anti-aging strategies and weight management.</td>
<td></td>
</tr>
<tr>
<td>Maurice D. Marholin, DC, DO</td>
<td>is a licensed chiropractic and board-certified osteopathic family physician. While training at the University of Alabama, he completed fellowships in Clinical Nutrition and Behavioral Medicine. He is currently in private practice in Clermont, FL.</td>
<td></td>
</tr>
<tr>
<td>Professor Francesco Marotta, MD, PhD</td>
<td>of Montenapoleone Medical Center, Milan, Italy, is a gastroenterologist and nutrigenomics expert with extensive international university experience. He is also a consulting professor at the WHO-affiliated Center for Biotech &amp; Traditional Medicine, University of Milano, Italy and honorary resident professor, Nutrition, Texas Women’s University. He is the author of more than 130 papers and 400 lectures.</td>
<td></td>
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<tr>
<td>Philip Lee Miller, MD</td>
<td>is founder and medical director of the Los Gatos Longevity Institute in Los Gatos, CA.</td>
<td></td>
</tr>
<tr>
<td>Michele G. Morrow, DO, FAAFP</td>
<td>is a board-certified family physician who merges mainstream and alternative medicine using functional medicine concepts, nutrition, and natural approaches.</td>
<td></td>
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<tr>
<td>Filippo Ongaro, MD</td>
<td>is board-certified in anti-aging medicine and has worked for many years as flight surgeon at the European Space Agency. He is a pioneer in functional and anti-aging medicine in Italy where he also works as a journalist and a writer.</td>
<td></td>
</tr>
<tr>
<td>Lambert Titus K. Parker, MD</td>
<td>is an internist and a board-certified anti-aging physician, practices integrative medicine from a human ecology perspective with emphasis on personalized brain health, biomarkers, genomics and total health optimization. He serves as the Medical Director of Integrative Longevity Institute of Virginia, a 501(c)3 Non-Profit Medical Research Institute. He also collaborates on education and research for Hampton Roads Hyperbaric Therapy.</td>
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<tr>
<td>Ross Pelton, RPh, PhD, CCN</td>
<td>is scientific director for Essential Formulas, Inc.</td>
<td></td>
</tr>
<tr>
<td>Patrick Quillin, PhD, RD, CNS</td>
<td>is a clinical nutritionist in Carlsbad, CA, and formerly served as vice president of nutrition for Cancer Treatment Centers of America, where he was a consultant to the National Institutes of Health.</td>
<td></td>
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<tr>
<td>Allan Rashford, MD</td>
<td>graduated from the University of Iowa Medical School. Upon completing medical training, he became chief of medicine at St. Francis Hospital in South Carolina, and he was later named president of the Charleston Medical Society.</td>
<td></td>
</tr>
<tr>
<td>Marc R. Rose, MD</td>
<td>practices ophthalmology in Los Angeles, CA, and is president of the Rose Eye Medical Group. He is on the staff of Pacific Alliance Medical Center, Los Angeles, and other area hospitals.</td>
<td></td>
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<tr>
<td>Michael R. Rose, MD</td>
<td>is a board-certified ophthalmologist with the Rose Eye Medical Group in Los Angeles, CA, is on the staff of the University of Southern California and UCLA.</td>
<td></td>
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<tr>
<td>Ron Rothenberg, MD</td>
<td>is a full clinical professor at the University of California San Diego School of Medicine and founder of California HealthSpan Institute in San Diego.</td>
<td></td>
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<tr>
<td>Roman Rozencwaig, MD</td>
<td>is a pioneer in research on melatonin and aging. He practices in Montreal, Canada, as research associate at Montreal General Hospital, Department of Medicine, McGill University.</td>
<td></td>
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<tr>
<td>Michael D. Seidman, MD, FACS</td>
<td>is the director of skull base surgery and wellness for the Adventist Health System in Celebration, FL.</td>
<td></td>
</tr>
<tr>
<td>Ronald L. Shuler, BS, DDS, CCN, LN</td>
<td>is involved in immunoncology for the prevention and treatment of cancer, human growth hormone secretagogues, and osteoporosis. He is board-certified in anti-aging medicine.</td>
<td></td>
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</tbody>
</table>
Sandra C. Kaufmann, MD, is a fellowship-trained and board-certified pediatric anesthesiologist as well as the Chief of Anesthesia at the Joe DiMaggio Children’s Hospital in Hollywood, Florida. She is the founder of The Kaufmann Anti-Aging Institute and the author of the book The Kaufmann Protocol: Why we Age and How to Stop it (2018). Her expertise is in the practical application of anti-aging research.

Richard Black, DO, is a dedicated nuclear medicine physician practicing as an independent contractor out of Cleveland, Ohio. Dr. Black is board certified in internal medicine and nuclear medicine, and is licensed to practice medicine in multiple states throughout the United States.

John Boik, PhD, is the author of two books on cancer therapy, Cancer and Natural Medicine (1996) and Natural Compounds in Cancer Therapy (2001). He earned his doctorate at the University of Texas Graduate School of Biomedical Sciences with research at the MD Anderson Cancer Center, focusing on screening models to identify promising new anti-cancer drugs. He conducted his postdoctoral training at Stanford University’s Department of Statistics.

Aubrey de Grey, PhD, is a biomedical gerontologist and Editor-in-Chief of Rejuvenation Research, the world’s highest-impact, peer-reviewed journal focused on intervention in aging. He received his BA and PhD from the University of Cambridge in 1985 and 2000 respectively. Dr. de Grey is a Fellow of both the Gerontological Society of America and the American Aging Association and sits on the editorial and scientific advisory boards of numerous journals and organizations.

Deborah F. Harding, MD, is founder of the Harding Anti-Aging Center. She is double board-certified in internal medicine and sleep disorder medicine. She also earned the Cenegenics certification in age management medicine. She is a faculty member of the University of Central Florida Medical School.

Steven B. Harris, MD, has participated in groundbreaking hypothermia, cryothermia, and ischemia research. His research interests include antioxidant and dietary-restriction effects in animals and humans.

Peter H. Langsjoen, MD, FACC, is a cardiologist specializing in congestive heart failure, primary and statin-induced diastolic dysfunction, and other heart diseases. A leading authority on coenzyme Q10, Dr. Langsjoen has been involved with its clinical application since 1983. He is a founding member of the executive committee of the International Coenzyme Q10 Association, a fellow of the American College of Cardiology, and a member of numerous other medical associations.

Dipnarine Maharaj MD, MB, ChB, FRCP (Glasgow), FRCP (Edinburgh), FRCPATH, FACCP, is the Medical Director of the Maharaj Institute of Immune Regenerative Medicine, and is regarded as one of the world’s foremost experts on adult stem cells. He received his medical degree in 1978 from the University of Glasgow Medical School, Scotland. He completed his internship and residency in Internal Medicine and Hematology at the University’s Royal Infirmary.

L. Ray Matthews, MD, FACS, is a professor of surgery and director of Surgical Critical Care at Morehouse School of Medicine in Atlanta, GA, and a trauma and critical care surgeon at Grady Memorial Hospital. He has published widely and is known as one of the top vitamin D experts. Dr. Matthews has spoken before the U.S. Food and Drug Administration several times, presenting a recent update about clinical research on vitamin D.

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

Michael D. Ozner, MD, FACC, FAHA, is a board-certified cardiologist who specializes in cardiovascular disease prevention. He serves as medical director for the Cardiovascular Prevention Institute of South Florida and is a noted national speaker on heart disease prevention. Dr. Ozner is also author of The Great American Heart Hoax, The Complete Mediterranean Diet and Heart Attack Proof. For more information visit www.drozner.com.

Jonathan V. Wright, MD, is medical director of the Tahoma Clinic in Tukwila, WA. He received his MD from the University of Michigan and has taught natural biochemical medical treatments since 1983. Dr. Wright pioneered the use of bioidentical estrogens and DHEA in daily medical practice. He has authored or co-authored 14 books, selling more than 1.5 million copies.

Xiaoxi Wei, PhD, is a chemist, expert in supramolecular assembly and development of synthetic transmembrane nanopores with distinguished selectivity via biomimetic nanoscience. She has expertise in ion channel function and characterization. She founded X-Therma Inc., a company developing a radical new highway towards non-toxic, hyper-effective antifreeze agents to fight unwanted ice formation in regenerative medicine and reduce mechanical icing.
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* Supplier Internal Study. Data on File. 2017

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Impact of Vitamin D on Autoimmune Risk

Autoimmunity occurs when the immune system mistakenly targets healthy body tissues. These misdirected immune attacks result in damage to normal tissues.

Autoimmune disorders are one of the largest classes of illnesses in the United States. Diseases with a known or suspected autoimmune component include:

- Rheumatoid arthritis
- Type I diabetes
- Lupus
- Psoriasis
- Hashimoto’s thyroiditis
- Crohn’s disease
- Multiple sclerosis
- Ulcerative colitis
- Myasthenia gravis
- Raynaud’s
- Vasculitis
- Grave’s disease

A recent study found that the prevalence of a common biomarker of autoimmunity is increasing in the United States.¹

Treatments for autoimmune disorders vary and often focus on reducing immune activity.²

A side effect of immune suppression is increased risk of certain cancers, along with higher risk of bacterial, fungal, and viral infections.³

A landmark placebo-controlled prevention trial studied a large group of people for over five years.⁴

The findings indicate that most readers of Life Extension® Magazine are reducing their autoimmune disease risk by 25%-30%.

This article describes an increase in autoimmune prevalence and what can be done to reduce this risk.
Autoimmunity occurs when the immune system produces antibodies that attack the body’s own tissues. A common method to screen for potential autoimmunity is the antinuclear antibody blood test or “ANA” for short.

In a study published in June 2020, researchers found that the prevalence of positive antinuclear antibody (ANA) tests is increasing in the United States.¹

Groups with the greatest increase in this biomarker of autoimmune disease include males, non-Hispanic whites, adults 50 years and older, and adolescents.

This study was the first to evaluate ANA changes over time in a large representative sampling of the American population.⁵

The study evaluated over 14,000 people enrolled in the U.S. National Health and Nutrition Examination Survey (NHANES).

The following increases in ANA (antinuclear antibodies) prevalence were found:

<table>
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<th>PERIOD</th>
<th>ANA PREVALENCE</th>
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<tbody>
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<td>1988-1991</td>
<td>11.0%</td>
</tr>
<tr>
<td>1999-2004</td>
<td>11.5%</td>
</tr>
<tr>
<td>2011-2012</td>
<td>15.9%</td>
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</table>

The percentages for the 2011-2012 period correspond to an approximate 41 million individuals who may be afflicted by quality-of-life-robbing autoimmune disorders that shorten overall longevity.

The scientists conducting this analysis state that the observed ANA increases were not explained by current trends in weight, alcohol, or smoking exposure.

The findings are concerning because they suggest troubling potential increases in future autoimmune disease cases.

---

First Comprehensive List of Autoimmune Diseases

In November 2020, a nonprofit group called the Autoimmune Registry (www.autoimmuneregistry.org) published a comprehensive list of over 150 autoimmune diseases along with links to published literature and information about possible treatment options.⁶

This group states that between 15-30 million people in the United States suffer from an autoimmune disorder.

The Autoimmune Registry emphasizes how autoimmune diseases can affect every part of the human body—including skin, blood vessels, nerves, and immune and digestive systems.

Their list includes well-known diseases like lupus, rheumatoid arthritis, celiac disease, multiple sclerosis, and type I diabetes.

Dozens of rarer diseases like hemolytic anemia, myasthenia gravis, cytopenia, and vasculitis are also listed.
This recent study tested **vitamin D3** and **omega-3 supplements** versus **placebo** for prevention of **autoimmune** diseases in 25,871 Americans for a median of over **five years**.

The daily supplemental dose was **2,000 IU of vitamin D3** and **1,000 mg of omega-3 fatty acids**.

### Impact of Longer-Term Vitamin D Supplementation

In this study showing a **25%-30%** reduction in **autoimmune disease** risk, the effect of **vitamin D3** appeared to strengthen **after two years** of supplementation.4

When the first two years of supplementation were excluded, the **vitamin D3** group had a nearly **40% reduced autoimmune** risk at a median of **5.3 years**.

This is an important finding that confirms, for autoimmune disease, what has previously been observed—including in results from this same study cohort—for **cancer**. The effects of vitamin D on reducing cancer incidence and mortality become evident, or more pronounced, after continuous supplementation for one or two years or more.14-16

One reason for this is that some people in these studies have **preexisting cancers** that are only formally diagnosed one to two years after the study starts. When **longer** term data are analyzed, improved protective effects can be demonstrated.

### Human Autoimmune Study

In **November 2021**, findings from a follow-up analysis from a major clinical trial were published.4

In this study, subjects were randomized to receive daily **vitamin D** and **fish oil** or **placebo** for five years.7

This nationwide, double-blind, placebo-controlled trial enrolled men at least 50 years of age and women at least 55.

Compared to the **placebo** group, those given **vitamin D3** and **omega-3** supplements had a **25%-30% reduced** incidence of **autoimmune disease**.4

### Impressive Study Size and Design

This **November 2021** published study is not the first to indicate protection against **autoimmune** disorders with **vitamin D** or **omega-3s**.4

**Vitamin D** has been associated with reduced risk of several autoimmune diseases in some observational studies, but a large, randomized, controlled trial has been lacking.8-10

Smaller clinical trials with dietary **fish oil omega-3** fatty acids have suggested that supplementation may help decrease the abnormal immune activation against otherwise healthy cells and tissues observed in autoimmune.11-13

No prior rigorous studies (i.e., large, randomized controlled trials), however, tested whether **supplementation** lowers risk of developing **autoimmune disease**.
Be it nutrient supplementation or controlling hypertension with medications, the earlier one initiates an effective strategy, the greater the likelihood of a successful outcome.

Serendipitous Benefits of Vitamin D + Omega-3s

According to one survey, the illnesses that people fear most are cancer, dementia, and cardiovascular disease.17 When stricken with autoimmune disorders, people are often bewildered because they gave it little thought before symptoms manifest.

Most readers of this publication supplement with vitamin D and omega-3s to help protect against common age-related maladies. This in turn may have provided a robust degree of serendipitous protection against a growing trend of autoimmune blood indicators.

For longer life,

William Faloon, Co-Founder, Life Extension

References

Buffered ascorbate encased in two plant extracts (liposomes plus hydrogel fenugreek) increases blood (plasma) exposure nearly seven times more compared to an equivalent dose of regular vitamin C.

It also maintains higher vitamin levels throughout the day.¹

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1 bottle $25.50 • 4 bottles $23 each

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CAUTION: Individuals consuming more than 50 mcg (2000 IU)/day of vitamin D (from diet and supplements) should periodically obtain a serum 25-hydroxy vitamin D measurement. Do not exceed 10000 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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Pamela
VERIFIED CUSTOMER REVIEW

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with BETA GLUCANS

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- Maitake
- Chaga
- Plus 250 mg of beta glucans

Scientific studies show these four nutrients can:

- Promote innate immune cell function, the body’s first line of defense
- Modulate adaptive immune cells, critical for long-term immune protection
- Exert effects that may reverse many factors of immune senescence
- Encourage a healthy gut microbiota

Item # 02426 30 vegetarian capsules
1 bottle $19.50 • 4 bottles $18 each
(Suggested dose is one capsule daily)

For full product description and to order Mushroom Immune with Beta Glucans, call 1-800-544-4440 or visit www.LifeExtension.com
In the News

Eating More Fish Linked to Benefits for the Brain

People who eat higher amounts of fish have lower vascular brain disease, according to a study published in Neurology.* Vascular brain disease, which involves damage to the brain’s blood vessels, increases the risk of vascular dementia and stroke.

Researchers analyzed MRI brain scans of 1,623 people 65 and over who had no history of stroke, cardiovascular disease, or dementia. The individuals also filled out dietary questionnaires.

Participants who ate the most fish had fewer signs of blood vessel disease in their brains compared to those who ate it less frequently.

Editor’s Note: This association was strongest in people ages 65-69, compared to older individuals in the study.

* Neurology. 2021 Nov 30;97(22).
Diabetes Screening
Age Lowered from 40 to 35
for Overweight and Obese People

The U.S. Preventive Services Task Force has lowered the age at which overweight and obese people should begin screening for diabetes from 40 to 35, a recommendation statement in JAMA urged.*

According to the Task Force, there is a spike in the prevalence of both diabetes and prediabetes around age 35.

Lowering the screening age from 40 to 35 could help identify people with prediabetes and give them time to prevent full-blown diabetes by adopting a healthier diet, exercising more, and losing weight, the Task Force stated.

Editor’s Note: “Diabetes is the leading cause of kidney failure and new cases of blindness among adults in the U.S.,” the statement noted.

* JAMA, 2021;326(8):736-743.
Patients with inflammatory bowel disease who received curcumin experienced improvements, compared with those getting a placebo, a meta-analysis published in *Complementary Therapies in Medicine* found.*

Pooled analysis of the participants’ data revealed an increase in clinical remission for those taking curcumin, compared to controls. This remained significant among patients aged 40 years and older. In two studies that reported changes in clinical symptoms, improvement was also observed in curcumin-treated participants.

Higher Vitamin D Pre-Op Levels Aid Recovery from Hip-Fracture Surgery

A study reported in the *Journal of Bone Metabolism* revealed an association between deficient vitamin D levels and diminished functional recovery with prolonged hospitalization among men and women who underwent surgery for hip fracture. *

The study included 1,029 individuals aged 65 years or older with a hip fracture that required surgery. Measurement of 25-hydroxyvitamin D levels upon hospital admission revealed vitamin D deficiency among 702 patients.

The average length of hospitalization was 27.7 days among patients with vitamin D deficiency compared to 20.9 days among those whose levels were considered sufficient.

Vitamin D deficiency was significantly associated with:

- **1.52** times greater odds of developing postoperative delirium, and
- **2.41** times greater odds of developing a blood clot.

**Editor's Note:** Patients with vitamin D deficiency were also found to have greater odds of postoperative pneumonia compared to those who had sufficient levels.

* *J Bone Metab.* 2021 Nov;28(4):333-338.
Increased Ergothioneine May Prevent Neurodegeneration

Low levels of the amino acid ergothioneine have been associated with cognitive decline and could serve as an early warning sign of cognitive impairment, according to research published in the journal *Free Radical Biology and Medicine.*

Results of the 496-participant study showed that plasma ergothioneine levels were lowest in dementia patients, and only intermediate levels were found in people with cognitive impairment.

In multivariate analyses, lower levels of ergothioneine were significantly associated with dementia and cognitive impairment.

*Editor's Note:* Additionally, researchers noted that lower ergothioneine levels “were also associated with white matter hyperintensities and brain atrophy markers (reduced global cortical thickness and hippocampal volumes).”

*Free Radic Biol Med. 2021 Dec;177: 201-211.*
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* Highest independent 5-star rating, International Fish Oil Society For Over Nine Years. IFOS™ certification mark is a registered trademark of Nutrasource Diagnostics, Inc.

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**L-ergothioneine** is an amino acid found in mushrooms. Cell-based studies suggest that **L-ergothioneine** may support healthy longevity by:

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**References**

A Solution for
BRAIN FOG
We all have moments when we feel mentally fatigued and find it hard to concentrate. This is often referred to as brain fog.

Until recently, it was believed that little could be done about it.

But by studying various medical conditions associated with brain fog, scientists have pinpointed biological alterations in the brain that may cause these feelings of decreased mental energy and sharpness.¹⁻⁷

This research has allowed for the identification of two plant-based nutrients that can prevent or potentially even reverse these alterations to bring back mental clarity, energy, and focus.

In clinical studies, mango leaf extract containing the compound mangiferin improves reaction time, reduces mental fatigue, and boosts attention, performance accuracy, and working memory.⁸⁻⁹

In additional clinical studies, peppermint oil significantly reduces the development of mental fatigue and improves aspects of attention and memory.¹⁰

These two ingredients can help to lift the clouds of brain fog and restore mental energy, clarity, focus, and performance.
What Is Brain Fog?

Brain fog refers to a general feeling of decreased mental energy and focus. It may be characterized by mental fatigue and clouding, forgetfulness, fuzzy thinking, confusion, and difficulty concentrating.

It’s more than an annoyance. It can also decrease cognitive performance and hinder the ability to get work done or accomplish goals.

Scientists trying to understand brain fog noted certain medical conditions associated with some of the same mental symptoms.

For example, people with allergies, inflammatory disorders, and dietary sensitivities often complain of brain fog. Over 90% of patients with mast cell disorders, which increase inflammation, report frequent cognitive impairment consistent with brain fog.

Even seasonal allergies can lead to reduced cognitive performance, including impaired attention, memory problems, and reduced speed of information processing.

These observations led scientists to propose that brain fog may be caused by several related mechanisms. These include the release of histamine (the chemical that causes allergic symptoms), inflammation, neurotransmitter imbalance, and impairments in neuronal activity.

Plant Extracts That Help

When researchers set out to find compounds that could alleviate brain fog, they looked for ingredients that met two criteria:

- They had a track record in animal or human studies of improving the symptoms of brain fog, like aspects of cognition.
- They targeted the possible causes of brain fog, by reducing neuroinflammation, histamine modulation, balancing neurotransmitters, or neuronal activity support.

They found two plant-derived ingredients that were the most promising: mango leaf extract and peppermint oil.

Mangiferin Boosts Brain Power

Mango leaves, extracts, and teas have long been used in Asian and African countries to treat a range of disorders, including fatigue and exhaustion.

More recently, scientists found that mango leaf extracts have neuroprotective, anti-inflammatory, and anti-diabetic properties.

Mangiferin is a compound found in mango leaves that is believed to be largely responsible for these effects.

In animal models, mangiferin helps protect the brain by reducing oxidative stress and neuroinflammation and by providing neurotransmitter support.

Animal studies have also found that mangiferin prevents cognitive impairment and memory impairments, symptoms of brain fog. In addition, in mice and rat studies, mangiferin was shown to have favorable anti-allergic properties. This further suggests benefits against brain fog in those with allergies.
More recently, human trials have explored the use of mangiferin-containing extracts in treating symptoms consistent with brain fog.

One study randomized healthy adults into four groups. One group took a mango leaf extract containing 60% mangiferin, one took caffeine, one was given a combination of mangiferin and caffeine, and one received a placebo.8

The mango leaf extract led to a remarkable 47% improvement in fatigue compared to baseline. It also led to an almost 5% improvement in reaction time compared to baseline, which was a significant improvement compared to the placebo group. This was a greater improvement than seen with caffeine alone or the combination of caffeine and mangiferin.

Tests of electrical activity in the brain showed that those taking mangiferin had increased activity in regions associated with complex cognitive processing, attention, and memory.

In another clinical study, healthy young adults were given either 300 mg of the mangiferin-containing mango leaf extract or a placebo.9 In tests, the extract improved specific areas of cognitive function, including aspects of attention, performance accuracy, and working memory.

These improvements were accompanied by a more relaxed mood. This is notable because many people who take caffeine to counter brain fog complain that it reduces relaxation and increases nervousness and jitters.

Peppermint Sharpens the Mind

The herb peppermint has been traditionally used for its medicinal properties, including as a digestive aid and to promote calming. Its oil contains a high concentration of monoterpenes compounds, including menthol and menthone.

Studies have shown that plants rich in monoterpenes have cognitive benefits.17,18 For example, peppermint teas have been shown to improve memory and mental alertness in human subjects.19

Mint species have demonstrated the ability to modulate various neurotransmitters in the brain, such as acetylcholine and GABA, which play roles in cognition, mood, and mental alertness.10

In a clinical trial, researchers randomized healthy adults to receive either peppermint oil containing 60% monoterpenes or a placebo, and tested various aspects of memory, attention, and mood.10
The peppermint oil significantly reduced the development of mental fatigue and improved aspects of attention and working memory. By contrast, those receiving the placebo were severely fatigued within a few hours after the various demanding cognitive tasks.

Peppermint oil and mango leaf extract can help lift brain fog and bring back mental clarity, energy, and focus.

**Summary**

**Brain fog** refers to symptoms of reduced mental energy, clarity, focus, and performance.

Research suggests that neuroinflammation, histamine release, and neurotransmitter imbalances can contribute to the development of brain fog symptoms. Two plant-derived nutrients may help combat brain fog. Preclinical studies show that mangiferin from mango leaf extract and peppermint oil address the mechanisms thought to contribute to brain fog.

Human studies of mangiferin and peppermint oil show that they improve various aspects of brain fog, reducing mental fatigue and improving attention, memory, and cognitive performance.

A combination of these two ingredients may maximize the brain-supporting power of these nutrients and help lift brain fog.

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**References**

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Harvard Study: Eating WALNUTS May EXTEND Your LIFE

BY MICHAEL DOWNEY

Walnuts provide an array of health benefits. New evidence suggests that regular walnut consumption may contribute to a longer life.¹

In a landmark study using data collected over 20 years, scientists with Harvard University discovered a link between eating more walnuts and a lower overall risk of death among older adults.

This observational study found that 60-year-old Americans who ate five or more servings of walnuts per week lived roughly 1.3 years longer than those who never ate walnuts.¹

They also had a 14% lower risk of death from any cause and a whopping approximate 25% lower risk of dying from cardiovascular disease.
Longer Lifespan

Walnuts contain healthy fats, fiber, vitamins, minerals, and many different compounds with proven health benefits.

Harvard research published in the journal *Nutrients* in 2021 now links walnuts to greater life expectancy.¹ Compared to people who never ate walnuts, consuming five servings of walnuts per week (with one serving being one ounce) resulted in:

- An approximate 1.3-year increase in life expectancy, for 60-year-olds,
- A 14% lower risk of death from any cause, and
- A 25% lower risk of dying from cardiovascular disease.

Consumption of just two to four servings of walnuts per week also had clear benefits, resulting in:

- About a one-year increase in lifespan, for 60-year-olds,
- A 13% lower risk of death from any cause, and
- An approximate 14% lower risk of death from cardiovascular disease.

The study authors noted that even if your diet needs improvement, eating just half an ounce (a half-serving) of walnuts daily could lower the risk of death from any cause by 12%.

Twenty Years of Study Data

The team from the Harvard T.H. Chan School of Public Health analyzed data from 67,014 women enrolled in the Nurses’ Health Study and 26,326 men in the Health Professionals Follow-up Study. Participants had an average age of just over 63 years.¹

All subjects had completed a survey on walnut consumption and were relatively healthy at the start of the average 20-year follow-up period. Their diets were checked every four years. This allowed scientists to identify associations between varying levels of walnut intake and life expectancy.

It’s important to note that the researchers found an approximate 1.3-year increase in life expectancy associated with higher walnut consumption—among subjects who had already reached the age of 60.¹

“Even a few handfuls of walnuts per week may help promote longevity,” noted lead investigator Yanping Li, PhD, “especially among those whose diet quality isn’t great to begin with.”²
Nutritional Powerhouse

Walnuts contain nutrients that play an important role in a healthy diet. One ounce contains 4 grams of protein, 2 grams of fiber, and 45 mg of the mineral magnesium. They also contain ALA (alpha-linolenic acid), an omega-3 fatty acid found in plants. ALA may improve blood lipids (fats) as well as the function of endothelial cells that line the arteries. Walnut consumption has also been associated with reduced oxidative stress. These nutritional contents may help explain walnuts’ contribution to healthy aging and longevity.

Walnuts’ powerful effects on lifespan and risk of death may result from their ability to help inhibit many conditions that can shorten lifespan. These conditions range from high blood pressure and obesity to diabetes and cancer.

Heart Protection

Walnuts are believed to reduce the risk of cardiovascular disease. One possible reason is that walnut consumption is linked to a reduction in blood pressure, even among those with existing hypertension.

The Benefits of Walnuts

- Harvard researchers analyzed 20 years of data on over 93,000 older men and women and found that those who ate a one ounce serving of walnuts five times a week lived roughly 1.3 years longer than those who didn’t eat walnuts.
- Those who ate five weekly servings of walnuts had a 14% lower risk of death from any cause and a 25% lower risk of dying from cardiovascular disease.
- Other studies suggest that walnut consumption may help protect against heart disease, control type II diabetes, and potentially help lower the risk of Alzheimer’s disease and several types of cancer.
High blood pressure is a key risk factor for heart disease and stroke.

High cholesterol levels can also result in the development of vascular disease.

Preclinical data suggest that walnuts may reduce the production of lipids and improve blood lipid levels.\(^\text{14}\)

In a randomized controlled trial, a diet enhanced with 1.5 ounces of walnuts daily significantly reduced fasting levels of multiple atherogenic lipids and lipoproteins, including total cholesterol, non-HDL cholesterol, LDL-cholesterol, triglycerides, and apoB (apolipoprotein B).\(^\text{15}\)

Another clinical trial of healthy adults between 63 and 79 years old showed that eating about two ounces of walnuts daily for two years:\(^\text{16}\)

- Reduced total cholesterol, LDL and IDL (Intermediate Density Lipoprotein),
- Reduced total LDL particles number by 4.3%, and
- Reduced total small LDL particles number (a more dangerous form of LDL) by 6.1%.

Help Controlling Diabetes

Type II diabetes is dangerous for its potential long-term complications, including cardiovascular disease, chronic kidney disease, nerve damage, vision problems, and cognitive impairment.\(^\text{17,18}\)

Accumulating evidence suggests that walnuts and their components may help lower blood sugar and reduce the long-term health risks associated with diabetes.\(^\text{19}\)

A human trial found that consumption of walnut oil daily for three months lowered blood sugar levels in diabetes patients by about 8%. This held true for both the fasting glucose level and the three-month (HbA1c) blood glucose level.\(^\text{20}\)

A flavonoid in walnuts called myricetin has been linked to antidiabetic effects due to its ability to enhance the activity of an insulin receptor.\(^\text{21}\)

Anti-Cancer Activity

Limited evidence suggests that walnut consumption may lower the risk of certain cancers.

In one lab study, walnuts’ peptide fractions inhibited the growth of breast cancer cells by about 63% and colon cancer cells by about 51%.\(^\text{22}\)

Animal studies have found that feeding walnuts to mice inhibits the development of tumors and decreases tumor growth rate and size.\(^\text{23}\)

One analysis compared the estimated lifelong consumption of walnuts, peanuts, and almonds of breast cancer patients with people free from breast cancer. Compared to those with no consumption, those with high consumption had a two to three times lower risk of breast cancer.\(^\text{24}\)
Brain Health

Lab and animal studies show that compounds present in walnuts reduce oxidative damage and inflammation in brain cells. In a mouse model of Alzheimer’s disease, walnuts reduced oxidative damage to lipids and proteins.

In an animal model of Alzheimer’s disease, mice were fed walnuts for about 10 months, a significant portion of their lifetimes. Compared to mice given no walnuts, they showed improvements in memory, learning ability, and more.

Additional research suggests that walnuts may also lower the risk or progression of other brain disorders, including Parkinson’s disease, stroke, and depression.

Adding a handful of walnuts to your daily diet appears to be a simple way to improve overall health and possibly even extend your lifespan.

Summary

A recent, large study by Harvard University scientists found that 60-year-olds, eating five weekly servings of walnuts, had an approximate 1.3-year increase in lifespan.

There was also a 14% lower risk of death from any cause and a 25% lower risk of dying from cardiovascular disease.

Some longevity benefits were found even with fewer weekly servings of walnuts.

Other studies suggest that regular walnut consumption may protect against hypertension, high cholesterol, diabetes, cancer, and Alzheimer’s disease.

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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BOOST DEFENSES
Millions of Americans suffer from colds, flu, and seasonal allergies every year.

Medications only target the symptoms but don’t address the underlying causes.

Scientists have discovered two unique ingredients—a dried yeast fermentate + a probiotic—that help prevent these symptoms and reduce their severity and duration if they do occur.

Clinical studies show that supplementation with a dried yeast fermentate resulted in:1,2

- Increases in secretory IgA levels, an antibody that provides mucosal immune defense against viruses and bacteria, and
- Increases in natural killer cell activity that destroys infected cells.

In a clinical study, the use of the probiotic L. rhamnosus CRL1505 resulted in:3

- 47% higher levels of secretory IgA levels,
- 55% fewer cold and flu occurrences, and
- 46% fewer cases of fever.

Together, these ingredients work in multiple ways to enhance immune defenses and dramatically reduce the number of cold, flu and allergy occurrences.
More Than a Nuisance

Seasonal allergies affect about 30% of American adults. They have also been associated with more serious conditions, including asthma, and sinus and ear infections.

American adults also average two to three colds annually. They can strike any time of year, and the nasal congestion that comes with them may cause worrisome secondary bacterial infections.

Influenza causes thousands of U.S. deaths in a typical year. Those over 65 are most at risk for severe disease and complications.

Preventing and Limiting Symptoms

Medications can provide temporary relief for cold, allergy, and flu symptoms, but they do nothing to prevent them.

Side effects of these drugs can include drowsiness, constipation, headache, rapid heartbeat, and sleep problems. Certain allergy drugs, known as anti-cholinergics, have been linked to an increased risk of Alzheimer’s disease.

Scientists have identified two ingredients that help prevent cold and flu episodes.

These ingredients are:
- A dried yeast fermentate, and
- A probiotic strain called Lactobacillus rhamnosus CRL1505.

Each of these ingredients boosts activity of immunoglobulin A (IgA), an antibody that provides immune defense against viruses and bacteria.

Additionally, supplementation with dried yeast fermentate offers relief for people with allergies.

The Discovery of Yeast’s Immune Benefits

The immune benefits of yeast fermentate were discovered purely by accident.

A company in Cedar Rapids, Iowa was producing a specialized yeast culture when it became clear that its factory workers—exposed daily to the yeast through inhalation—were using far fewer sick days than the office workers.

Scientists investigated and found that, compared to the office staff, factory personnel had significantly higher levels of the antibody secretory IgA. Secretory IgA is known to block pathogens from penetrating mucosal surfaces.
They also had increased activity of natural killer cells, which can destroy cells infected by viruses.16

The company went on to develop the dried fermentate using a proprietary fermentation process and baker's yeast. Six placebo-controlled clinical trials have since validated its ability to protect against colds, flu, and allergies.1,2,13,14,17,18

**Yeast's Allergy Defense**

Scientists conducted a pilot study on 25 healthy individuals, giving them either a placebo or 500 mg of dried yeast fermentate daily for five weeks at the start of allergy season.1

Several in the yeast group saw clear improvements. About a quarter of those who received the yeast reported a complete absence of allergy symptoms, which returned within two weeks after they stopped taking the yeast fermentate.1

Seasonal allergies did not change in the placebo group.

Researchers then conducted a clinical study of people with a history of seasonal allergies and hay fever. Participants took either a placebo or 500 mg of dried yeast fermentate once daily.13

The first half of the 12-week study took place during the year's highest pollen-count period. Compared to the placebo group, those taking yeast had a median of 43% fewer days with nasal congestion, along with decreased severity of runny nose and nasal congestion.13

**WHAT YOU NEED TO KNOW**

**Protect Against Allergies, Colds, and Flu**

- In a human study, taking 500 mg of dried yeast fermentate daily decreased seasonal allergy symptoms, leading to 43% fewer days with nasal congestion. The same dose also reduced cold or flu-like symptoms.

- The probiotic strain *Lactobacillus rhamnosus* CRL1505 decreased the frequency, severity, and duration of cold and flu symptoms in a clinical trial. Over six months, it led to 49% fewer infections, 55% fewer cases of cold and flu, and 46% fewer cases of fever.

- Combining these two ingredients is a safe and effective way to reduce the misery caused by colds, flu, and allergies, all year long.
In the pilot study that first showed yeast fermentate’s ability to relieve allergy symptoms, blood levels of IgE increased among placebo recipients as allergy season went into full swing, indicating heightened allergic responses.¹

In those taking the yeast, IgE levels increased only slightly, indicating far less of an allergic reaction. This demonstrated that yeast fermentate decreases allergic tendencies by stabilizing IgE levels.¹

Scientists also investigated yeast’s ability to help prevent colds and flu.

When given a single 500 mg dose of dried yeast fermentate, volunteers had significantly increased levels of markers of activity of natural killer cells within just two hours.² These immune cells specifically target and kill cells infected by viruses, such as those that cause colds and flu.

When healthy subjects were given 500 mg of yeast fermentate daily for eight weeks, they also had a significant increase in secretory IgA, an antibody that defends against viruses and bacteria.¹

How Yeast Fermentate Works

Allergy symptoms affect the eyes, nose, throat, lungs, or skin. They are chiefly caused by antibodies called immunoglobulin E (IgE), which trigger the body’s release of chemicals such as histamine that cause these reactions.

The probiotic strain Lactobacillus rhamnosus CRL1505 was originally isolated from goat’s milk by scientists in northwestern Argentina.¹⁹

A Probiotic’s Cold and Flu Protection
Because it was shown to decrease respiratory infections in children, the Argentine government has been safely providing *L. rhamnosus* CRL1505 to over 300,000 schoolchildren annually since 2008.\(^3,19-21\)

Preclinical studies show that this probiotic may help fight the viruses and bacteria that cause the common cold, influenza, bronchitis, and pneumonia.\(^20,22\)

A team of nutritionists, pediatricians, and immunologists designed a randomized, controlled trial. They enlisted 298 healthy children between ages two and five, a group particularly susceptible to respiratory infections.\(^3\)

Five days a week, the treatment group was given 100 million CFU (colony-forming units) of *L. rhamnosus* CRL1505 in a yogurt drink. The placebo group received a yogurt drink without the addition of the beneficial probiotic bacteria *L. rhamnosus* CRL1505.

A common misconception is that all yogurt is a good source of probiotics. In fact, it is only when the exact beneficial bacterial strain is present in the correct amounts that these healthy microorganisms can reliably convey their benefit.

After six months, compared to the placebo group, the children in the probiotic group had experienced:\(^3\)

- 49% fewer infections,
- 55% fewer cases of cold or flu,
- 46% fewer cases of fever,
- 47% increase in levels of secretory IgA, and
- 33% less antibiotic use.

The treatment group also had 61% fewer cases of tonsillitis and pharyngitis (an infection in the back of the throat).\(^3\)

**How the Probiotic Works**

Antibodies known as IgA constitute an important element of the immune system. Secreted from mucous membranes including the nose, mouth, and lungs, IgA can bind to respiratory viruses and block them from invading cells, infecting us, and causing colds, flus, and other respiratory infections.
The trial that used the *L. rhamnosus* CRL1505 in schoolchildren found that this probiotic significantly increases levels of secretory IgA, suggesting that this is one way the probiotic enhances immune protection against cold and flu viruses.

Taken together, this probiotic and the dried yeast fermentate can provide optimal protection against colds, flu, and allergies, any time of year.

**Summary**

Human studies have shown that a yeast fermentate safely reduces the occurrence, severity, and duration of allergy, cold, and flu-like symptoms.

The probiotic *Lactobacillus rhamnosus* CRL1505 also provided protection against colds and flu in a high-risk population, including by supporting secretory IgA levels.

These two ingredients work in multiple ways to boost immune defenses against viruses and bacteria, enhancing antibodies and natural killer cell activity and providing an anti-allergy effect.

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 Healthier GLUCOSE LEVELS
With age, a sedentary lifestyle, or a diet high in saturated fat or refined carbohydrates and simple sugars, our cells become insulin resistant.

This causes blood glucose levels to remain high.

Chronically elevated fasting blood glucose is a serious danger.

It can lead to long-term consequences such as heart disease and stroke, dementia, cancer, accelerated aging, and premature death.¹⁻⁸

Life Extension believes everyone should strive for optimal glucose control, regardless of whether or not they are diabetic.

This means taking action to improve your glycemic control if your fasting glucose is over 85 mg/dL or your HbA1C is higher than 5.0%.

Doctors generally prescribe glucose-lowering drugs only to people who have been diagnosed as diabetic. That leaves millions of Americans at risk.

Scientists have found several nutrients that can safely promote healthy blood sugar levels and insulin sensitivity.
To meet this challenge, scientists identified several nutrients that work in different ways to lower blood glucose levels:

- Cinnamon,
- Chromium,
- Amla,
- Shilajit, and
- Iodine-rich seaweed.

**Cinnamon Reduces Glucose**

Cinnamon has been used to help manage conditions including obesity, metabolic syndrome, and diabetes. Scientists identified a purified, water-soluble, cinnamon extract that demonstrates glucose-lowering properties.\(^\text{17-19}\)

In human trials, oral supplementation with a water-soluble cinnamon extract was shown to:

- Lower fasting blood glucose,
- Enhance insulin sensitivity,
- Decrease systolic blood pressure,
- Reduce total and LDL (“bad”) cholesterol, and
- Improve lean mass body composition.

**The Risks of Elevated Glucose**

Insulin resistance occurs when the body’s cells no longer respond efficiently to the hormone insulin. As a result, cells cannot easily take up glucose from the blood and blood sugar levels rise.

Insulin resistance becomes more common as we age. It usually develops without symptoms, allowing blood glucose levels to creep to dangerously high levels over time.

Insulin resistance is considered a causative factor of metabolic syndrome. This condition is defined as the presence of at least three of the following:\(^\text{9}\)

- High fasting blood sugar,
- Abdominal obesity,
- High blood pressure,
- Low HDL (“good”) cholesterol, and
- High triglycerides.

**Epidemic Health Crisis**

The results from a nutritional survey in the United States found that, by 2016, over half of adults age 60 and over had metabolic syndrome.\(^\text{10}\) These people have a higher risk of cardiovascular disease, type II diabetes, non-alcoholic fatty liver disease and liver cancer, chronic kidney disease, gout, sleep apnea, cataracts, retinopathy, and other eye pathologies, and premature death.\(^\text{11-13}\)

Many people with metabolic syndrome have elevated blood sugar levels but their glucose numbers are below the threshold for a diagnosis of diabetes.

**Silent Diabetes**

Prediabetes is the term to describe higher than normal blood sugar that is lower than the diabetic threshold.\(^\text{14}\) It has been estimated that more than 470 million people worldwide will be prediabetic by 2030.\(^\text{14,15}\)

Up to 70% of people with prediabetes will eventually develop diabetes, according to an expert panel of the American Diabetes Association.\(^\text{14,15}\)

Diet and other lifestyle interventions can help reduce the risk of progressing to diabetes.\(^\text{16}\) But in anyone with high blood sugar, lasting damage can occur on a daily basis.
Cinnamon has been shown to impact these metabolic parameters in more than one way.

In one preclinical model, a water-soluble cinnamon extract increased production of glucose transport molecules known as GLUT4, which enable cells to take up glucose from blood plasma in the presence of insulin.24

Without effective GLUT4 transporters, blood glucose can steadily rise, eventually damaging tissues through a process known as glycation, and also by inducing insulin resistance.25,26

Preclinical data indicate that cinnamon activates and also increases the production of metabolic sensors called PPARs,27 mirroring a key mechanism of some antidiabetic drugs.28 Increased expression of PPARs helps promote insulin sensitivity, thereby improving glucose uptake.29

Natural Ways to Control Glucose

- With age, insulin resistance and elevated glucose levels become more common. These conditions often lead to metabolic syndrome and prediabetes, increasing risk for heart disease, dementia, stroke, and premature death.

- Cinnamon increases the body’s ability to take up glucose from the blood and transport it to cells, reducing blood glucose and increasing insulin sensitivity.

- Chromium, amla, and shilajit all support healthy cellular glucose metabolism.

- Iodine-rich brown seaweed blocks the conversion of starches into glucose and increases insulin sensitivity, thereby promoting glucose uptake by cells, further reducing blood glucose levels.

- Together, these nutrients can help maintain healthy glucose levels and prevent the damage elevated levels can do.
Chromium Fights High Glucose

More than 60 years ago, scientists established that having low levels of the mineral chromium contributes to high blood sugar. Studies show that chromium deficiency is associated with insulin resistance and diabetes. One study found that chromium deficiency is common in people with prediabetes.

In type II diabetics, chromium supplementation has been found to significantly:

- Improve blood sugar levels,
- Lower HbA1c,
- Raise HDL cholesterol, and
- Lower triglycerides.

Chromium is believed to work by improving intracellular signaling systems that are critical to cells’ ability to detect and respond to elevated glucose levels in the blood. It does this by activating glucose-transporting GLUT4 molecules.

Amla and Shilajit Optimize Chromium Benefits

Two organic compounds have been identified that deliver free-radical scavenging activity and provide glucose-lowering effects: amla and shilajit. Amla is an herb also known as Indian gooseberry. It has been shown to lower blood glucose in diabetic animals and humans.

Shilajit is a Himalayan nutrient that has been used for centuries. It is rich in fulvic acid, an organic compound that is thought to account for the many medicinal and biological properties of shilajit. It has been used in the management of diabetes and many gastrointestinal conditions like diarrhea, gastritis, ulcers, and more.

Combining chromium with amla and shilajit promotes removal of glucose from the bloodstream and efficient use of glucose within cells.

In a study of type II diabetics, supplementation with a chromium, amla, and shilajit complex, in addition to current medication, compared to placebo, resulted in:

- Better after-meal glucose control,
- Decreases in C-reactive protein (marker of inflammation), and
- Reductions in LDL levels.

Brown Seaweed Stops Conversion of Carbs to Sugars

Another way to improve glucose control is to limit the amount of glucose the body has to process in the first place. Brown seaweed blunts the conversion of starches into glucose in the gastrointestinal tract by blocking two enzymes needed for this conversion, alpha-amylase and alpha-glucosidase. As a result, less glucose is absorbed into the bloodstream.

Brown seaweed is also rich in iodine, and animal studies show that oral iodine reduces glucose.

In clinical trials, brown seaweed extracts:

- Lowered fasting glucose levels,
- Reduced insulin levels and increased insulin sensitivity (when taken before eating carbohydrate-rich bread),
- Lowered A1c readings, and
- Improved after-meal cognitive function.
Seaweed, cinnamon, chromium, amla, and shilajit all help support healthy glucose levels, warding off the damage elevated blood sugar can do.

**Summary**

Aging is associated with increased insulin resistance and elevated glucose levels and with greater risk of diabetes, heart disease, stroke, cancer, and premature death.

The nutrients cinnamon, chromium, amla, shilajit, and seaweed help the body transport and burn glucose, block the conversion of carbohydrates into glucose, and work in other ways to reduce blood glucose levels and optimize energy production.

These innovative compounds can help people maintain healthy blood glucose levels well into older age.

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**


THREE WAYS TO BUILD STRONGER BONES

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Bone Restore helps maintain healthy bone density with three different forms of calcium plus vitamin D3 and magnesium, boron, zinc, manganese, and silicon.

Bone Restore with Vitamin K2, same formula as Bone Restore plus 200 mcg of vitamin K2.

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Fruitex B® and OsteoBoron® are registered trademarks of VDF Futureceuticals, Inc. U.S. Patent No. 5,962,049.

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You know zinc is good for you—but are you getting enough?

Zinc promotes critical immune functions and healthy bones.

This formula provides 50 mg of zinc in a convenient, vegetarian capsule.

For full product description and to order Zinc Caps call 1-800-544-4440 or visit www.LifeExtension.com

OptiZinc® is a registered trademark of InterHealth Nutritionals, Inc.

Caution: Supplemental zinc can inhibit the absorption and availability of copper. If more than 50 mg of supplemental zinc is to be taken daily for more than four weeks, 2 mg of supplemental copper should also be taken to prevent copper deficiency.

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Optimize Healthy Blood-Sugar Levels

This formula combines proprietary cinnamon and seaweed extracts with a unique chromium stabilized with standardized amla and shilajit to promote healthy blood-sugar levels already in normal range.

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Caution: If you are taking blood glucose lowering medication, consult your healthcare provider before taking this product.

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DHEA supports immune function, mood, and lean muscle mass.

Low DHEA levels have been correlated with higher percent **body fat.**

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

7-Keto® brand is a registered trademark of InterHealth N.I. US Patent 7,199,116.

This supplement should be taken in conjunction with a healthy diet and regular exercise program. Individual results are not guaranteed, and results may vary.

These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.
What is Tryptophan?

Tryptophan is an amino acid the body uses for many purposes, notably to create the neurotransmitter serotonin.

As a nutritional supplement, it is known primarily for its ability to improve mood and sleep.¹

Because we can’t supplement with serotonin itself, we must rely on serotonin precursors such as tryptophan to increase serotonin in the brain.

Tryptophan is categorized as an essential amino acid because we don’t produce it on our own. It must be obtained through diet or direct oral intake.²

A meta-analysis found that tryptophan plasma levels were decreased in patients with major depressive disorder compared to controls.³

Depression and poor sleep quality are typically connected. A genetic variation related to tryptophan has been identified as possibly playing an important role in the relationship between these conditions.⁴ When tryptophan was given to patients with this genetic variation, they showed significantly improved sleep-quality scores.
A placebo-controlled clinical study found that supplemental tryptophan intake increased positive social interactions with people. In a randomized crossover study, a diet high in tryptophan improved mood. Additionally, vitamin B6 assists in the conversion of tryptophan into 5-hydroxytryptophan (5-HTP), which is converted into serotonin in the brain.

Supplemental vitamin B3 may reduce premature conversion of tryptophan in the bloodstream, making more tryptophan available to cross the blood-brain barrier where it converts to serotonin.

In summary, clinical research shows that increasing tryptophan intake can improve sleep and boost mood. It is best to consume supplemental tryptophan separately from protein and amino acids.

References

1. Fernstrom JD. Effects and side effects associated with the non-nutritional use of tryptophan by humans. J Nutr. 2012 Dec;142(12):2236S-44S.
Phages target bad intestinal bacteria, allowing beneficial strains to flourish.

FLORASSIST® GI provides a 7-strain blend of probiotics in a dual encapsulation formula to deliver beneficial bacteria and phages where you need them the most.

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“Massage aids muscle recovery and speeds recovery times...”
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“A daily foot massage lowers blood pressure and lowers triglyceride levels...”
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TWO FORMS OF TRYPTOPHAN

"I have been able to fall asleep easily and I feel so much better when I wake up.”

Janet
VERIFIED CUSTOMER REVIEW

PROMOTE SLEEP AND REDUCE STRESS

Tryptophan is the precursor of serotonin in the brain, a neurotransmitter associated with:1-4

- Enhanced mood
- Improved sleep
- Reduced stress

Life Extension offers two forms of tryptophan:

- Optimized Tryptophan Plus
  Three capsules daily provide 1,000 mg of L-Tryptophan plus Niacin, L-Lysine, Hops, and Rosemary for enhanced neurotransmitter support.

- L-Tryptophan
  One capsule provides 500 mg of pure L-Tryptophan.

References

For full product description and to order Optimized Tryptophan Plus and L-Tryptophan, call 1-800-544-4440 or visit www.LifeExtension.com

CAUTION: Serotonin syndrome is characterized by high levels of serotonin and symptoms like confusion, sweating, agitation, nausea, involuntary muscle contractions, and racing heartbeat. Do not take L-tryptophan if you experience these symptoms. Because tryptophan may have numerous drug interactions (most commonly, MAOIs and SSRIs) consult your healthcare provider before taking this product if you are taking prescription medications. Do not use before driving or operating heavy machinery.

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THE TREE OF LIFE

Just one daily Optimized Broccoli and Cruciferous Blend tablet provides cell-protective compounds found in fresh vegetables.

For maximum absorption each enteric coated tablet contains two layers:

- **Myrosinase** to release **sulforaphane** in the small intestine, in one layer, and
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For full product description and to order Optimized Broccoli and Cruciferous Blend, call 1-800-544-4440 or visit www.LifeExtension.com

"Even though I have a good diet, I feel this product has given me a little extra energy."

Carol
VERIFIED CUSTOMER REVIEW

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Can you imagine living to 100, 150, or even 200 years of age... and beyond? Better yet, enjoying those extra years while staying healthy, vigorous, and mentally adept?

In *The Science and Technology of Growing Young*, Sergey Young explains why this radical concept is not only possible, but inevitable.

It starts with the idea that aging itself is not an inescapable process, but a curable condition. Unlike other longevity books that are viewed through the lens of a scientist or medical doctor, *The Science and Technology of Growing Young* was written by an investor-author with his finger on the pulse of dozens of companies on the cutting edge of longevity science.

In his latest book, Young shares his firsthand knowledge of these remarkable breakthroughs. He identifies the Near Horizon of Longevity—those developments that will allow us to live to 150 (some of which are already in use, like gene editing and organ regeneration).

He also introduces the Far Horizon of Longevity—the future of age-reversal (including digital avatars and AI-brain integration) that could allow us to experience age 200 and beyond.

In addition to revealing the latest scientific discoveries and technological breakthroughs gathered from leading health entrepreneurs, scientists, doctors, and inventors, *The Science and Technology of Growing Young* provides practical advice for ways to live better right now for increased longevity.

Young believes that following these steps will help people live long enough to be able to take advantage of the latest technologies when they become available.

The following brief excerpts from *The Science and Technology of Growing Young* provide insight into Sergey Young’s innovative thinking on achieving practical longevity.

—LAURIE MATHENA
Huntington’s disease, Lyme disease, congenital blindness, and many more conditions.

When perfected, gene editing technology will have the ability to correct 89% of the known hereditary human diseases.

The FDA has stated that it expects to approve 10 to 20 new gene and cell therapies per year by the year 2025. This will drive the cost of gene therapy down and make it available for a wide range of health conditions.

**CART-CELL THERAPY**

Gene therapy works by effectively providing cells with genes that produce necessary proteins in patients whose own genes cannot produce them.

This process is already being applied to a few rare diseases, but it will soon become a common and incredibly effective medical approach.

Probably the most revolutionary area of gene therapy today is CAR T-cell therapy—a cancer treatment method by which scientists modify a patient’s own immune-system T cells to fight the specific type of cancer they have.

**GENE EDITING IN PRACTICE**

The hereditary trait that causes sickle-cell anemia affects tens of millions worldwide, including as many as 30% of sub-Saharan Africans, and up to three million African Americans.

The bone marrow of those with sickle-cell anemia produces abnormally shaped red blood cells that are unable to carry oxygen to the body. This often leads to fatigue, frequent infections, and sudden and excruciating bouts of pain.

Sickle-cell anemia also leads to premature death.

Victoria Gray was just three months old the first time she endured a sickle-cell attack. By the time she was 34 years old, the condition had already gotten so bad that she could no longer walk or feed herself.

Then one day, doctors at the Sarah Cannon Research Institute (SCRI) in Nashville, Tennessee, threw Gray a lifeline: she became the first patient to be treated with a new treatment called CRISPR-Cas9, a new form of genetic engineering.

Using this new technology, doctors at the SCRI removed bone marrow from Gray’s body and altered the genes of her cells. The procedure effectively “edited” the defect, the way you might go through the lines of a book and correct typos or alter words.

Doctors then reintroduced billions of these enhanced cells back into her body to see if they would start doing their job properly.

One year after the treatment, Gray appeared to be doing marvelously.

While SCRI researchers hoped that at least 20% of Gray’s red blood cell system would be positively affected by the procedure, when they checked nine months later, the vast majority of bone marrow cells and hemoglobin proteins found in Gray’s body appeared to be functioning effectively.

More importantly, her pain attacks and hospital visits had ceased completely!

While it is still too early to declare this procedure a cure for sickle-cell anemia, it has at least for the moment completely rehabilitated the life of Victoria Gray.

In laboratories around the world, gene editing is being used to tackle sickle-cell anemia also leads to premature death.

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These T cells are equipped in a lab with the antigen receptors they need to latch on to and kill cancer cells, based on the specific characteristics of the cancer cells. The T cells are then reintroduced to the body, where they destroy the cancer cells and then remain on watch for the cancer to return.

CAR T-cell therapy may very well end the scourge of cancer, which takes an estimated 10 million lives per year.

**EXAMPLE**

Emily Whitehead was the first pediatric patient to receive CAR T-cell therapy, when she was just seven years old. Emily was in hospice care—her last stand in a severe battle against leukemia.

Within a few days of receiving her highly experimental CAR T-cell therapy, the treatment started to work.

After a few weeks, she was in such strong remission that she was no longer considered terminal. Best of all, the CAR T cells remain on duty inside Emily to this day, remembering and watching for her cancer to come back, for the rest of Emily’s life.

Hundreds more like her are alive today after receiving CAR T-cell therapy. It is as close to a “cure” for cancer as we have today, with up to 80% of those receiving the treatment surviving.

**IMPORTANCE OF EARLY DIAGNOSTICS**

Early and accurate detection of diseases is the key to addressing the prevention of the “premature death” dimension of longevity.

Of the nearly 60 million lives lost around the globe each year, more than 30 million are attributed to conditions that are reversible if caught early.

We live in a world of “reactive medicine.” Most people do not have advanced batteries of diagnostic tests unless they’re experiencing problems.

But not for long.

Soon, health care will move from being “reactive” to being “proactive.”

The key to this shift will be low-cost, ubiquitous, connected devices that constantly monitor your health.

Very soon, wearable, portable, and embeddable devices will radically reduce premature death from diseases like cancer and cardiovascular disease, and in doing so, add years, if not decades, to global life expectancy.

They will constantly monitor your heart rate, your respiration, your temperature, your skin secretions, the contents of your urine and feces, free-floating DNA in your blood that may indicate cancer or other disease, and even the organic contents of your breath.

**EXAMPLE**

After it was discovered that dogs can use their highly sensitive noses to detect cancer, UK firm Owlstone produced a handheld diagnostic mask that measures volatile organic compounds (VOCs) transferred from your blood to your breath.

This “breath biopsy” can diagnose inflammation, infectious disease, cardiovascular disease, metabolic conditions, and eight different types of cancer.

In a 2016 study of 2,500 smokers and nonsmokers, the Owlstone breath biopsy accurately identified 42 people with lung cancer. Of those subjects, 90% had a curable, early stage of the disease.

**SENOLYTIC LONGEVITY PILLS**

Dr. Judith Campisi and others have pioneered a new class of potential longevity pills called senolytics, which target and destroy zombie senescent cells.

Cellular senescence is the natural process whereby cells reach their capacity for division and finally take themselves out of service. When senescence proceeds smoothly, expired cells are absorbed by the body and their useful contents recycled.

When they reach the end of their natural life cycle, they sometimes stick around in a kind of “zombie state” instead of being reabsorbed. They become inflamed and begin sending chemical signals to adjacent cells to also become zombies.

High levels of zombie cells in the body are linked to heart disease, diabetes, dementia, osteoporosis, kidney disease, liver failure, and lung conditions.

In studies by Campisi and other researchers, senolytic molecules like dasatinib and quercetin successfully destroyed these zombie cells in mice, subsequently curing or preventing age-related conditions in the lungs, cardiovascular system, bones, and kidneys.

The mice given these senolytics also lived 36% longer than mice that were not.

In 2019, the Mayo Clinic’s resident senescent cell expert Dr. James Kirkland released the results of the first clinical trial exploring the use of senolytics to treat age-related diseases in humans.

In a small, short study of just 14 patients with pulmonary fibrosis, dasatinib and quercetin improved the condition of the subjects in just three weeks.
Another Kirkland study, released later that year, showed that senolytic drugs indeed reduce the number of senescent cells in humans.

**LONGEVITY SUPPLEMENTS**

Berkeley biochemist Bruce Ames created a list of nutrients that he theorizes are needed for the body’s most important undertakings. When there are enough of these nutrients in the body to go around, they are used to protect the body from aging.

But when there is a shortage, the body prioritizes immediate survival and reproduction over repair of damaged cells.

Of the 41 nutrients on his list, Ames thinks vitamin D, omega-3, magnesium, quinone, and carotenoids—are critical.

Quercetin and its senolytic sister fisetin are also both naturally occurring fruit flavonoids that are available over the counter as supplements.

Many supplements are probably good for longevity. I, myself, take 40 to 50 supplements per day.

**PRACTICAL STEPS FOR LONGEVITY**

First, early diagnosis is critical for the prevention of disease and age-related decline. This recommendation is not number one on my list by accident. I recommend that you get yourself checked regularly, and as comprehensively as possible, within your means.

At a minimum, you should have a complete annual physical exam that includes blood count and metabolic blood chemistry panels, a thyroid panel, and testing to reveal potential deficiencies in nutrients such as vitamin D, vitamin B, iron, and magnesium. If you are sexually active, you should also be checked for STDs.

Second, eat early, and less often. Awareness of the relationship between caloric restriction (CR) and longevity goes back to the 1930s, when Cornell animal husbandry professor Clive McCay discovered that rats who were underfed by 30% to 50% not only became healthier than their normally fed littermates but they also lived 33% longer.

These experiments have been successfully repeated in one form or another in worms, mice, rats, rhesus monkeys, and humans.

Caloric restriction predictably reduces common health problems like diabetes, cancer, heart disease, and cognitive decline. It reduces the likelihood of obesity and insulin resistance. It preserves immune system function.

And, in animal subjects, at least, it results in as much as an 80% increase in lifespan.

**LIVING TO 100**

Living to at least age 100 is within reach for most people on the planet today.

In the United States, 50% currently make it past 83 years old and 25% past 90. In Japan, 51% of girls and 27% of boys born today are expected to reach 90.

Going forward, these numbers will only improve for anyone who follows a longevity-optimized lifestyle. The middle-aged today can still add 10 to 15 years of extra life, while for those in their twenties, adding up to an additional quarter century should be a piece of (sugar-free, low-carb) cake!

If you would like to stay alive longer, then my advice to you is to stay as healthy as possible for as long as possible, until you are able to take advantage of the next horizon of innovation.

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

Reprinted with permission from BenBella Books, publisher of The Science and Technology of Growing Young by Sergey Young.

Sergey Young is a longevity investor and visionary with a mission to extend the healthy lifespan of one million people. He is founder of the $100 million Longevity Vision Fund, one of the few funds specializing exclusively in longevity and helping to accelerate longevity breakthroughs. He is also Development Sponsor of Age Reversal XPRIZE, a global initiative designed to cure aging and age-related diseases.

To order a copy of The Science and Technology of Growing Young, call 1-800-544-4440 or visit www.LifeExtension.com

Item #34193 • Price: $20.96
Oral ingestion of collagen peptides and hyaluronic acid boosts these rejuvenating factors in normal, aging skin. Clinical results reveal improved skin elasticity, increased moisture, and a 20% reduction in the appearance of eye wrinkles.

The Gummy Science™ Youthful Collagen formula provides clinically studied doses with daily intake of 4 tasty chewable gummies.

No added sugars.

For full product description and to order Gummy Science™ Youthful Collagen, call 1-800-544-4440 or visit www.LifeExtension.com

References:

VERISOL® and Bioactive Collagen Peptides® are registered trademarks of GELITA AG.

Item #02304 • 80 gummies
1 jar $30
2 jars $27 each

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
ASTAXANTHIN is a carotenoid that benefits the brain, heart, skin, and immune system. Research suggests that astaxanthin can play a role in promoting cardiovascular health.¹

Found naturally in seafood and algae, as little as 50% of astaxanthin is normally absorbed in the bloodstream.²,³

Life Extension® combines 4 mg of astaxanthin with a blend of four different phospholipids, which has been shown to enhance carotenoid absorption by several-fold.⁴

References

For full product description and to order ASTAXANTHIN 4 mg with Phospholipids, call 1-800-544-4440 or visit www.LifeExtension.com

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.
Macadamia nuts have the hardest shell of all nuts, taking 300 pounds per square inch to break open. It’s worth the effort, though, because cracking open their shell exposes one of the healthiest nuts on the planet.

These nuts are high in monounsaturated fat, which is a healthy fat that has been associated with improved heart health, and lower risk of fatal heart attacks, strokes, and all-cause mortality.¹

In one study, when people with slightly high cholesterol ate a macadamia-rich diet, they experienced lower total and LDL cholesterol levels, compared to the average American diet.²

They contain a specific monounsaturated fatty acid called palmitoleic acid, that could potentially aid in fat metabolism and reduce stored body fat.

This could explain why studies have shown that, despite their high fat content, macadamia nuts have been found to aid in weight loss when eaten in moderate amounts.³

Because they are low in carbohydrates and sugar, macadamia nuts are considered a low-glycemic food. In fact, eating tree nuts like macadamia nuts has been associated with improved glycemic control in people with type II diabetes.⁴

Macadamia nuts are calorie dense, with one cup containing nearly 1,000 calories. A standard serving size is far less than that—just one ounce, or 10-12 nuts—and contains 200 calories.

Be aware that some macadamia nuts contain added oil, salt, or sugar. For the greatest health benefit, be sure to choose brands that contain only the nuts, without extra ingredients.

References
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<th>PRODUCT</th>
<th>Description</th>
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<td><strong>ACTIVE LIFESTYLE &amp; FITNESS</strong></td>
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01984 Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 120 enteric coated softgels
01986 Super Omega-3 EPA/DHA Fish Oil, Sesame Lignans & Olive Extract • 240 softgels
01812 Provinal® Purified Omega-7
01640 Vegetarian DHA

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
00438 Stevia™ Organic Liquid Sweetener
00432 Stevia™ Sweetener

GLUCOSE MANAGEMENT
01503 CinSulin® with InSea 2® 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™
02121 Homocysteine Resist
02018 Optimized Carnitine
01949 Super-Absorbable CoQ10 Ubiquinone with δ-Limonene • 50 mg, 60 softgels
01951 Super-Absorbable CoQ10 Ubiquinone with δ-Limonene • 100 mg, 60 softgels
01929 Super Ubiquinol CoQ10
01427 Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 50 mg, 30 softgels
01425 Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 50 mg, 100 softgels
01437 Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 100 mg, 30 softgels
01426 Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 100 mg, 60 softgels
01431 Super Ubiquinol CoQ10 with Enh Mitochondrial Support™ • 200 mg, 30 softgels
01733 Super Ubiquinol CoQ10 with PQQ
01859 TMG Liquid Capsules
00349 TMG Powder

HORMONE BALANCE
00454 DHEA • 15 mg, 100 capsules
00335 DHEA • 25 mg, 100 capsules
00882 DHEA • 50 mg, 60 capsules
00607 DHEA • 25 mg, 100 vegetarian dissolve in mouth tablets
01689 DHEA • 100 mg, 60 veg capsules
02368 Optimized Broccoli and Cruciferous Blend
00302 Pregnenolone • 50 mg, 100 capsules
00700 Pregnenolone • 100 mg, 100 capsules
01394 Optimized Garlic
01395 Optimized Quercetin
01811 Peony Immune
00525 ProBoost Thymic Protein A
01708 Reishi Extract Mushroom Complex
01906 Standardized Cistanche
13685 Ten Mushroom Formula®
01097 Ultra Soy Extract
01561 Zinc Lozenges

IMMUNE SUPPORT
024115 Day Elderberry Immune
00681 AHCC®
02302 Bio-Quercetin®
02410 Black Elderberry + Vitamin C
01961 Enhanced Zinc Lozenges
01704 Immune Modulator with Tinofend®
02425 Immune Packs with Vitamin C & D, Zinc and Probiotic

INFLAMMATION MANAGEMENT
01639 5-LOX Inhibitor with AprèsFlex®
02324 Advanced Curcumin Elite™ Turmeric Extract, Ginger & Turmerones
01709 Black Cumin Seed Oil
02310 Black Cumin Seed Oil and Curcumin Elite™
00202 Boswella
02467 Curcumin Elite™ Turmeric Extract • 30 veg capsules
02407 Curcumin Elite™ Turmeric Extract • 60 veg capsules
01804 Cytokine Suppress® with EGCG
02223 Pro-Resolving Mediators
00318 Serraflazyme
01203 Specially-Coated Bromelain
00407 Super Bio-Curcumin® Turmeric Extract
01254 Zyflamend™ Whole Body

JOINT SUPPORT
02404 Arthro-Immune Joint Support
02238 ArthroMax® Advanced NT2 Collagen™ & AprèsFlex®
01617 ArthroMax® with Theaflavins & AprèsFlex®
02138 ArthroMax® Elite
00965 Fast-Acting Joint Formula
02430 Fast Acting Relief
00522 Glucosamine/Chondroitin Capsules
02420 Glucosamine Sulfate
02424 Joint Mobility
01600 Krill Healthy Joint Formula
01050 Krill Oil
00451 MSM (Methylsulfonylmethane)
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
01922 Advanced Milk Thistle • 60 softgels
01925 Advanced Milk Thistle • 120 softgels
02240 Anti-Alcohol Complex
01651 Calcium D-Glucarate
01571 Chlorophyllin
01534 N-Acetyl-L-Cysteine
01522 Milk Thistle • 60 veg capsules
02402 FLORASSIST® Liver Restore™
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
02361 SOD Booster
### PRODUCTS

#### LONGEVITY & WELLNESS
- **00457** Alpha-Lipoic Acid
- **01625** AppleWise
- **02414** Bio-Fisetin
- **01214** Blueberry Extract
- **02415** GEROPROTECT® Ageless Cell™
- **02114** GEROPROTECT® Autophagy Renew
- **02419** GEROPROTECT® Longevity A.I.™
- **02401** GEROPROTECT® Stem Cell
- **02415** GEROPROTECT® Autophagy Renew
- **02211** Grapeseed Extract
- **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** Resveratrol
- **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 and Beta-Sitosterol
- **01790** PalmettoGuard® Saw Palmetto/Nettle Root Formula and Beta-Sitosterol
- **01837** Pomi-T®
- **01373** Prelox® Enhanced Sex for Men
- **01940** Super MiraForte with Standardized Lignans
- **02500** Testosterone Elite
- **01909** Triple Strength ProstaPollen™
- **02029** Ultra Prostate Formula

#### MINERALS
- **01661** Boron
- **02107** Extend-Release Magnesium
- **01677** Iron Protein Plus
- **02403** Lithium
- **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** 5 HTP
- **01683** L-Theanine
- **02175** SAMe (S-Adenosyl-Methionine) 200 mg, 30 enteric coated vegetarian tablets
- **02176** SAMe (S-Adenosyl-Methionine) 400 mg, 30 enteric coated vegetarian tablets

#### MULTIVITAMINS
- **02199** Children’s Formula Life Extension Mix™
- **02354** Life Extension Mix™ Capsules
- **02356** Life Extension Mix™ Powder
- **02355** Life Extension Mix™ Tablets
- **02292** One-Daily Health Booster • 30 softgels
- **02291** One-Daily Health Booster • 60 softgels
- **02313** One-Per-Day Tablets
- **02428** Plant-Based Multivitamin
- **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** 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** Venotone
- **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
- **02421** FLORASSIST® Daily Bowel Regularity
- **02125** FLORASSIST® GI with Phage Technology
- **01821** FLORASSIST® Heart Health
- **02250** FLORASSIST® Mood Improve
- **02208** FLORASSIST® Immune & Nasal Defense
- **02120** FLORASSIST® Oral Hygiene
- **02203** FLORASSIST® Prebiotic
- **01920** FLORASSIST® Throat Health
- **02400** FLORASSIST® Winter Immune Support
- **02142** Jarro-Dophilus* for Women
- **00056** Jarro-Dophilus EPS® • 60 veg capsules
- **02121** Jarro-Dophilus EPS® • 120 veg capsules
- **01038** Theralac® 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
- **80175** Advanced Probiotic-Fermented Eye Serum
- **80177** Advanced Retinol Serum
- **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
80153 Anti-Aging Rejuvenating Face Cream
80151 Anti-Aging Rejuvenating Scalp Serum
80179 Brightening Peptide Serum
80176 Collagen Boosting Peptide Cream
80156 Collagen Boosting Peptide Serum
02408 Collagen Peptides for Skin & Joints
80180 CoQ10 and Stem Cell Rejuvenation Cream
80169 Cucumber Hydra Peptide Eye Cream
80141 DNA Support Cream
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
55495 Intensive Moisturizing Cream
80168 Melatonin Advanced Peptide Cream
80114 Mild Facial Cleanser
80172 Multi Stem Cell Hydration Cream
80159 Multi Stem Cell Skin Tightening Complex
80122 Neck Rejuvenating Anti-Oxidant Cream
80174 Purifying Facial Mask
80150 Renewing Eye Cream
80142 Resveratrol Anti-Oxidant Serum
01938 Shade Factor™
02129 Skin Care Collection Anti-Aging Serum
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 MicroDermabration
80173 Ultimate Peptide Serum
80178 Ultimate Telomere Cream
80160 Ultra Eyelash Booster
80101 Ultra Wrinkle Relaser
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

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 6 Hour Timed Release
300 mcg, 100 veg tablets
01788 Melatonin 6 Hour Timed Release
750 mcg, 60 veg tablets
01786 Melatonin 6 Hour Timed Release
3 mg, 60 veg tablets
01721 Optimized Tryptophan Plus
01444 Quiet Sleep
01445 Quiet Sleep Melatonin
02502 Rest & Renew

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
02244 Liquid Vitamin D3 • 50 mcg (2000 IU)
02232 Liquid Vitamin D3 (Mint) • 50 mcg (2000 IU)
01936 Low-Dose Vitamin K2
00065 MK-7
00373 No Flush Niacin
01939 Optimized Folate (L-Methylfolate)
01217 Pyridoxal 5’-Phosphate Caps
01400 Super Absorbable Tocotrienols
02334 Super K
02335 Super K Elite
01863 Super Vitamin E
02422 Vegan Vitamin D3
02028 Vitamin B5 (Pantothenic Acid)
01535 Vitamin B6
00361 Vitamin B12 Methylcobalamin
01536 Vitamin B12 Methylcobalamin • 1 mg, 60 veg lozenges
01537 Vitamin B12 Methylcobalamin • 5 mg, 60 veg lozenges
02228 Vitamin C and Bio-Quercetin Phytosome • 60 veg tablets
02227 Vitamin C and Bio-Quercetin Phytosome • 250 veg tablets
01753 Vitamin D3 • 25 mcg (1000 IU), 90 softgels
01751 Vitamin D3 • 25 mcg (1000 IU), 250 softgels
01713 Vitamin D3 • 125 mcg (5000 IU), 60 softgels
01718 Vitamin D3 • 175 mcg (7000 IU), 60 softgels
01758 Vitamin D3 with Sea-Iodine™
02040 Vitamins D and K with Sea-Iodine™

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02479 7-Keto® DHEA Metabolite • 100 mg, 60 veg capsules
01807 Advanced Appetite Suppress
02207 AMPK Metabolic Activator
02504 Body Trim and Appetite Control
02478 DHEA Complete
01738 Garcinia HCA
01908 Mediterranean Trim with Sinetrol™ -XPur
01432 Optimized Saffron
00818 Super CLA Blend with Sesame Lignans

WOMEN'S HEALTH
01942 Breast Health Formula
01626 Enhanced Sex for Women 50+
01894 Estrogen for Women
01064 Femmenessence MacaPause*
02204 Menopause 731™
02319 Prenatal Advantage
01441 Progesta-Care*
01649 Super-Absorbable Soy Isoflavones
A placebo-controlled clinical trial* shows these plant extracts help:

- Support you to walk farther and faster
- Promote knee flexibility and range of motion
- Reduce occasional knee discomfort
- Inhibit inflammation to support continued joint health

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- DNA support
- Gene expression (Sirtuin 1-7)
- Immune cell signalling

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Optimized NAD+ Cell Regenerator™ combines 300 mg of nicotinamide riboside chloride with resveratrol and other plant extracts.

For full product description, pricing and to order NAD⁺ Cell Regenerator™, call 1-800-544-4440 or visit www.LifeExtension.com

* For pricing available to readers of this magazine, call 1-800-544-4440 or visit LifeExtension.com/NAD

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