



LIFE
EXTENSION®

The Science of a Healthier Life®

March/April 2024

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Optimize the Benefits of Broccoli

Mature **broccoli** contains relatively little **sulforaphane**. Cooking *reduces* it even more.

A convenient solution is combining a **sulforaphane precursor** with an **enzyme** that converts the precursor to **sulforaphane** in the digestive tract.



10 IN THE NEWS

Less slow-wave sleep boosts dementia risk; thiamine lowers heart attack mortality risk; higher vitamin K intake lowers diabetes risk; higher DHA levels linked to lower hearing loss risk with aging.

16 FIGHT BACK AGAINST COLDS AND FLU

Elderberry extract has been shown in **clinical trials** to *reduce* common **cold** episode days *and* resolve cold/flu symptoms up to **four days** sooner compared to **placebo**.

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A clinical study showed that a blend of three **plant** extracts was effective in *improving* women's daytime and nighttime **urinary symptoms**, with **79%** of women reporting improvements.

42 CLEAR AWAY BRAIN FOG

Fuzzy thinking? In separate **clinical trials**, two plant ingredients *reduced* **mental fatigue**, boosted **attention levels** and *improved* aspects of **memory**.

50 REDUCE COLD, FLU, AND ALLERGY SYMPTOMS

Researchers identified two compounds that in **clinical trials** helped **prevent** colds and flu and reduce **severity** and **duration** when they occur.

60 RECONNECT AGING BRAIN CELLS

MIT researchers developed a form of **magnesium** that was shown to *reverse* measures of **brain aging** and improve **synaptic density**.

70 UNDO DAMAGE OF SITTING TOO MUCH

Americans spend half their time sitting, a major risk for **deep vein thrombosis** and blood clots. **Clinical data** show that two plant extracts may *reduce* **leg swelling** and prevent **venous clots**.

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Excess **uric acid** contributes to gout, kidney stones, and kidney disease. A **human** study showed that a **plant extract** *lowered* uric acid blood levels by **28.4%** *and* improved measures of **kidney** health.

86 VITAMIN C AND GUM DISEASE

Gum disease is linked to stroke, diabetes, and more. New research demonstrates **vitamin C's** ability to *decrease* the risk and severity of **gum disease**.

91 WHAT IS MSM?

MSM, rich in sulfur, is found in the human body. Clinical studies show that MSM *reduces* **joint pain** and swelling in **osteoarthritis** patients, while improving physical function and mobility.



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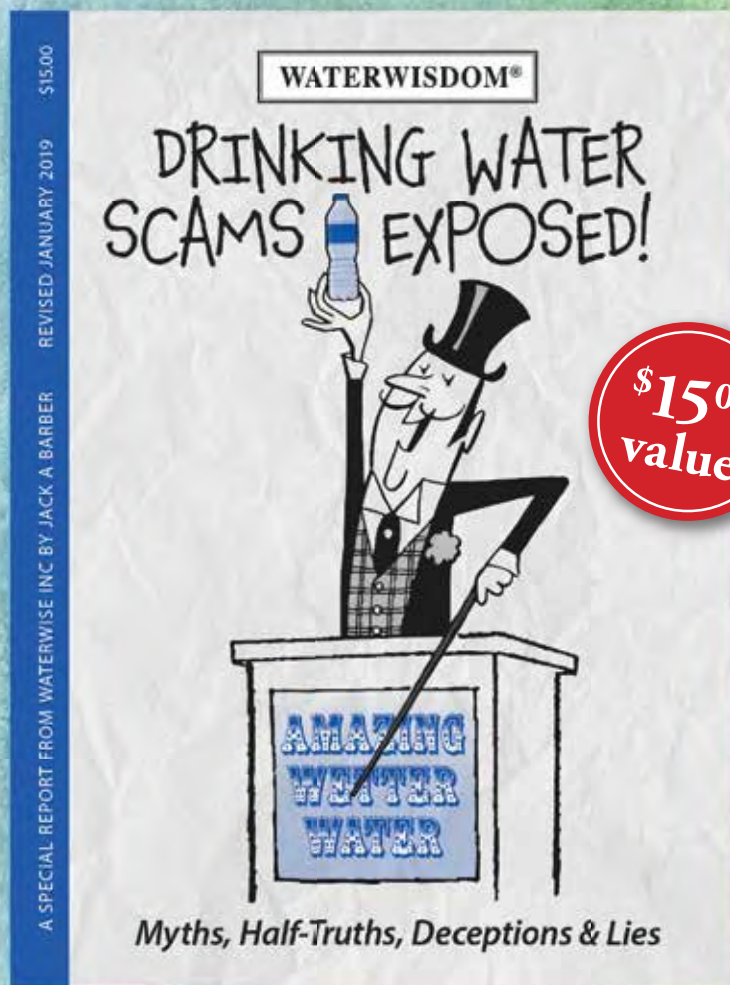
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In the News

More Vitamin K Intake Linked to Reduced Risk of Diabetes

Individuals with a high intake of vitamin K were found to have lower blood glucose and less insulin resistance, as well as a reduced risk of developing type II diabetes, according to a systematic review and meta-analysis.*

Meta-analysis of five observational studies examined the association between reported daily vitamin K intake and the development of type II diabetes among 105,798 participants. The researchers found a **21% lower** risk of developing diabetes among those whose vitamin K intake was *highest* compared with those whose intake was lowest.

Meta-analysis of seven controlled trials compared the effects of treatment with vitamin K1 or K2 to a placebo or multivitamin formula that did not contain vitamin K. The decline in glucose from levels measured at the beginning of the trials was significantly greater at the end of the trials among diabetics who received **vitamin K** in comparison with those who did not receive it.

Editor's Note: A significant reduction was also found in insulin resistance among participants who received vitamin K2 compared with the control group.

* *Food Funct.* 2023 Oct 2;14(19):8951-8963.





Thiamine (Vitamin B1) May Improve Heart Attack Survival Rate

Heart attack patients admitted to an intensive care unit frequently suffer from thiamine insufficiency. Those given thiamine (vitamin B1) had a lower risk of dying in the hospital, as well as a lower mortality risk after 30 and 90 days, a retrospective, observational study showed.*

The study included 1,782 men and women who were admitted to an intensive care unit for a heart attack for at least 48 hours. One hundred seventy patients were given thiamine, while the other 1,612 were not.

Patients who were given thiamine had a **39.5%** lower adjusted risk of in-hospital mortality than those who did not receive the vitamin. The thiamine group also had a 30-day adjusted mortality risk that was **38.2%** lower and a 90-day mortality risk that was **37.4%** lower than those who did not receive the vitamin.

Editor's Note: "Thiamine deficiency may aggravate endothelial dysfunction and chronic vascular inflammation, resulting in the loss of arterial vascular resistance that eventually develops into CVD [cardiovascular disease]. Therefore, thiamine supplementation may provide an unexpected benefit to the prognosis and outcome in patients with CVD," the authors stated.

* *Front Nutr.* 2023 Aug 29;10:1227974.

Less Slow-Wave Sleep Increases Risk of Dementia

Lack of slow-wave sleep over time can increase the risk of dementia, according to a study published in *JAMA Neurology*.*

Slow-wave sleep is a phase of deep, restorative sleep in which the body facilitates removal of potentially harmful substances from the brain, such as beta amyloid plaque.

This study included 346 people averaging 69 years old who had participated in the Framingham Heart Study and had completed two overnight sleep studies. The researchers tracked the risk of developing dementia for up to 17 years after the two sleep studies.

First, the researchers found that aging itself was associated with a decline in slow-wave sleep, which accelerated from age 60 to age 80.

Then, they determined that for each percentage decrease in slow-wave sleep per year, there was a **27%** increased risk of all-cause dementia, and a **32%** increased risk of Alzheimer's dementia.

Editor's note: The researchers found that individuals who experienced declines in slow-wave sleep were more likely to have heart disease, to take medications that impact sleep, and to carry the APOE4 gene that increases Alzheimer's risk.

* *JAMA Neurol.* 2023; 10.1001/jamaneurol.2023. 3889.



Higher DHA Levels Associated with Lower Risk of Age-Related Hearing Loss

Higher plasma levels of the omega-3 fatty acid DHA (docosahexaenoic acid) have been linked to a lower risk of hearing loss in middle-aged and older adults, according to research presented at NUTRITION 2023, the annual meeting of the American Society for Nutrition.*

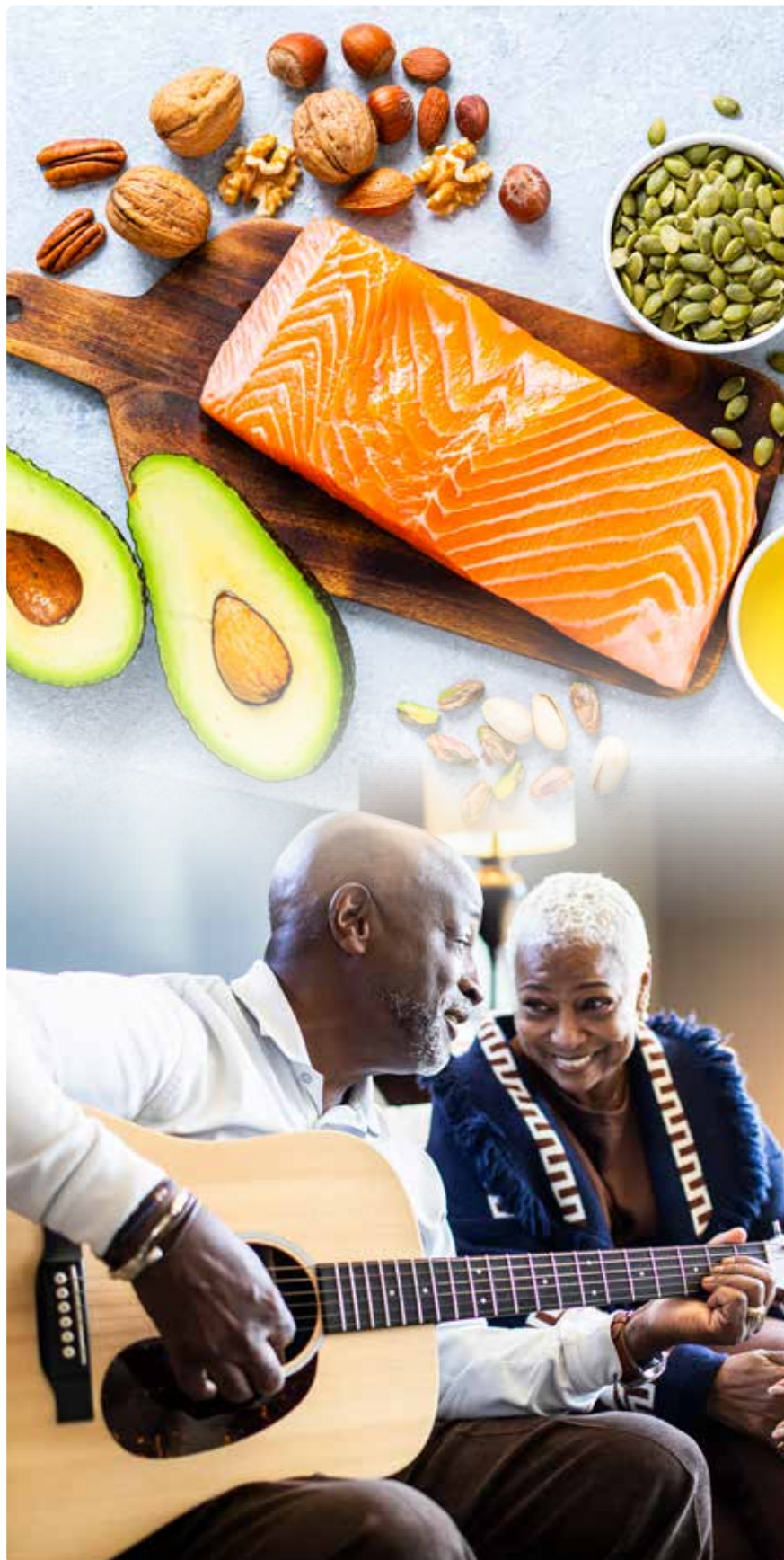
Researchers evaluated data from participants in the UK Biobank, which included men and women between the ages of 40 and 69 from 2007 to 2010. Information was available from 115,303 participants concerning whether they had difficulty hearing, from 113,134 respondents concerning if they had difficulty following a conversation if there is background noise, and from 71,368 regarding hearing-aid use.

Individuals whose plasma DHA was among the top **20%** of individuals in the study had an **8% to 20%** lower risk of reporting hearing issues than those whose DHA was among the lowest **20%**.

People in the top **20%** of blood DHA levels were **16%** less likely to answer 'yes' to the question 'do you have difficulty hearing?' compared with those in the lowest **20%** of DHA levels.

Editor's Note: Plasma DHA was assessed as the percentage of total plasma fatty acids.

* <https://nutrition.org/upping-your-intake-of-omega-3s-may-help-protect-your-hearing/>





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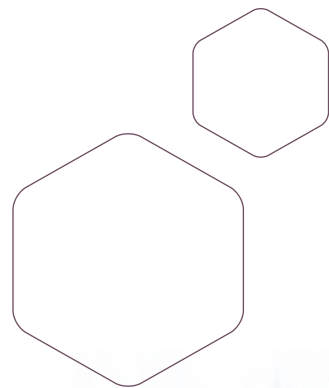
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Fight Back Against COLDS and FLU



ELDERBERRY

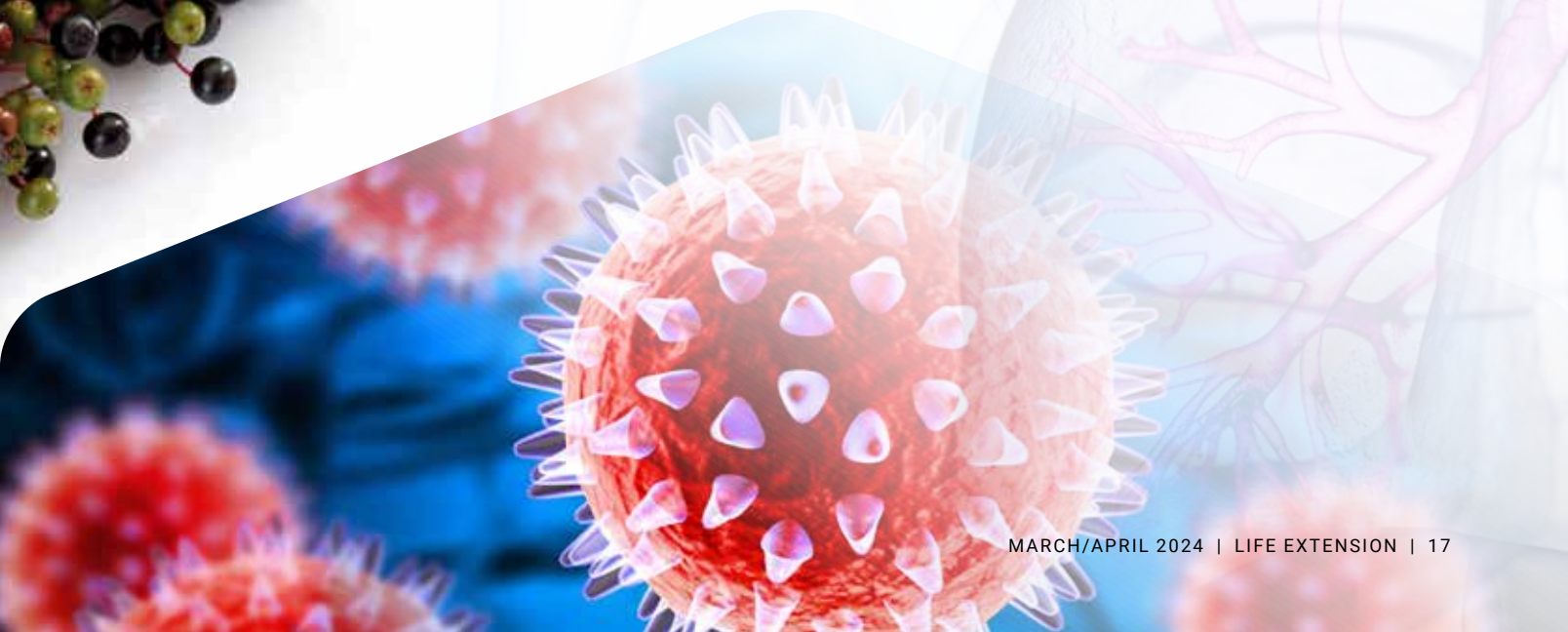


BY SARAH A. LOBISCO, ND, IFMCP

Black elderberry has been shown in **clinical studies** to lessen the **duration** and **severity** of colds and flu.¹⁻⁷

In one study, people suffering from upper respiratory symptoms who used **elderberry extract** had symptoms resolve **four days earlier** than those taking a placebo.⁸

Another **clinical trial** found that those in the **elderberry** group had **57** cold episode days compared to **117** days in the **placebo** group.



Risks of Cold and Flu

Most adults have **two to three** colds a year. Symptoms typically last **seven to 10 days** but can linger for up to **two weeks**.^{9,10}

Every year, as much as **20%** of the U.S. population will contract the flu.^{11,12} Hundreds of thousands of Americans are hospitalized and up to **52,000** flu-related deaths occur.¹³

Antiviral medications (like Xofluza®) may speed recovery from the flu, when taken within 48 hours after flu symptoms begin,^{2,14} but they are not prescribed for colds.⁹ Flu viruses are constantly changing making them more resistant to the antiviral drugs.¹⁵

That's where **black elderberry** comes in. An extract of this fruit has been shown to safely reduce the severity and speed the resolution of upper respiratory tract infections.¹⁻⁷



Vital Immune Support

Black elderberries have historically been used for respiratory problems.^{2,4} Their extracts are used to stimulate immune function and reduce the impact of colds and flu.^{2-5,16}

Elderberries contain plant pigments called flavonoids, including **anthocyanins**. Anthocyanins have immunomodulating, antioxidant, antiviral, and anti-inflammatory effects.^{2,17} Standardized extracts of elderberries help preserve these active compounds, which are highly **bioavailable** (absorbable).¹⁷

Antiviral Effects

Extracts of **elderberry** and its flavonoids have demonstrated direct **antiviral** activity in cell cultures for both **influenza A**^{1,18} and **B**, the two main types that infect people.^{4,8}

In one lab study, **elderberry extract** was shown to inhibit **H1N1** (subtype of human influenza A). This study showed this virulent “swine flu” H1N1 virus was prevented from entering host cells in a dose dependent manner.

The highest elderberry doses were capable of blocking almost **100%** of cells from infection. This compared favorably to the anti-influenza activities of the common antivirals oseltamivir (Tamiflu®) and amantadine.¹⁸

Another cell study suggests antiviral mechanism of elderberry by blocking the function of **viral glycoproteins** (proteins on the surfaces of viruses that aid infection) from attaching to host cells. Isolated **anthocyanins** also blocked viral infectivity.¹

In a dual, cell and animal trial, elderberry juice concentrate containing a high flavonoid content was shown to **enhance immunity** and display **antiviral activity**. In the cell study, the elderberry interfered with early stages of viral replication, viral attachment, and penetration into host cells.¹⁹

When the elderberry juice was given to rodents infected with human flu, it led to an increase in **antibodies** that specifically attacked and eliminated the virus.¹⁹

It also stimulated the production of **secretory IgA**, an antibody that provides mucosal support against **viral** and **bacterial** infections. By contrast, mice taking a placebo or antiviral oseltamivir (Tamiflu®) showed a **suppression** of antibodies.¹⁹

Elderberry Helps the Body Battle Colds and Flu

- The average adult has **two to three colds** per year. Up to **20%** of Americans contract the flu annually. The elderly and immune-compromised are at risk for severe complications.
- **Elderberries** contain anthocyanins, compounds that have immunomodulating, antiviral, antibacterial, and anti-inflammatory properties.
- **Black elderberry extract** has been shown to fight viruses and bolster immune defenses.
- In clinical trials, elderberry extract safely decreased the duration and severity of colds and flu, resolving upper respiratory symptoms up to **four days earlier** than a placebo.

Treating Colds and Flu (Human Trials)

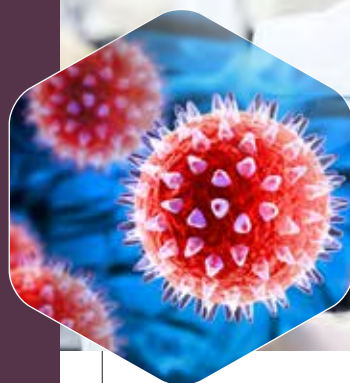
Human studies have validated the ability of **elderberry** to speed recovery and decrease the intensity of symptoms in **colds** and **influenza**.

One placebo-controlled clinical trial with **312** subjects assessed the impact of elderberry on **cold** duration, severity, and incidents during overseas air travel. Those in the treatment group took **600 mg** of **black elderberry extract** for several days before travel and **900 mg** daily during their trip.⁵

Overall, those in the **elderberry** group had a total of **57** cold episode days compared to **117** days in the **placebo** group. The elderberry group also experienced **less than half** the symptom severity of the placebo group.

This means individuals who took elderberry had less severe cold symptoms *and* recovered about **two days** faster.

WHAT
YOU
NEED
TO
KNOW



In another study of people suffering from **flu-like symptoms**, those who used elderberry daily for five days had their symptoms resolve **four days earlier** than those taking a placebo.⁸

Systematic reviews provide further evidence for **elderberry** as a remedy for colds and influenza:

- One meta-analysis found that standardized forms of elderberry were effective at reducing **severity** and **duration** of both cold and flu, regardless of vaccination status.²
- A review of elderberry and elderflower (which comes from the same plant) found that they increased **antibodies** to influenza and decreased the intensity and duration of symptoms.⁶
- In a 2021 review, elderberry was found to support the **immune system** without overstimulating it. One trial found that an elderberry-containing product lowered risk of influenza complications and adverse events when compared to oseltamivir.⁴
- A meta-analysis of clinical trials showed that when black elderberry was taken within 48 hours of the onset of an acute respiratory infection, common symptoms such as **fever**, **headache**, and **congestion** were reduced by an average of **50%** in as little as two days.³

Many studies report that doses of **600-900 mg** daily were most effective during acute viral infections, while lower doses are sufficient for preventative support.^{4-6,18,19}

Summary

When winter respiratory illnesses hit, flavonoid-rich **elderberry** can help people feel better faster while bolstering their immune response.

Clinical studies show that elderberry extract can decrease the severity and duration of **colds** and **flu**, especially when taken at the first sign of symptoms. •

References

1. Torabian G, Valtchev P, Adil Q, Dehghani F. Anti-influenza activity of elderberry (*Sambucus nigra*). *Journal of Functional Foods*. 2019 2019/03/01;54:353-60.
2. Hawkins J, Baker C, Cherry L, Dunne E. Black elderberry (*Sambucus nigra*) supplementation effectively treats upper respiratory symptoms: A meta-analysis of randomized, controlled clinical trials. *Complement Ther Med*. 2019 Feb;42:361-5.
3. Harnett J, Oakes K, Care J, et al. The effects of *Sambucus nigra* berry on acute respiratory viral infections: A rapid review of clinical studies. *Adv Integr Med*. 2020 Dec;7(4):240-6.
4. Wieland LS, Piechotta V, Feinberg T, et al. Elderberry for prevention and treatment of viral respiratory illnesses: a systematic review. *BMC Complement Med Ther*. 2021 Apr 7;21(1):112.
5. Tiralongo E, Wee SS, Lea RA. Elderberry Supplementation Reduces Cold Duration and Symptoms in Air-Travellers: A Randomized, Double-Blind Placebo-Controlled Clinical Trial. *Nutrients*. 2016 Mar 24;8(4):182.
6. Ulbricht C, Basch E, Cheung L, et al. An evidence-based systematic review of elderberry and elderflower (*Sambucus nigra*) by the Natural Standard Research Collaboration. *J Diet Suppl*. 2014 Mar;11(1):80-120.
7. F K. Pilot Clinical Study on a Proprietary Elderberry Extract: Efficacy in Addressing Influenza Symptoms. 2009.
8. Zakay-Rones Z, Thom E, Wollan T, Wadstein J. Randomized study of the efficacy and safety of oral elderberry extract in the treatment of influenza A and B virus infections. *J Int Med Res*. 2004 Mar-Apr;32(2):132-40.
9. Available at: <https://medlineplus.gov/commoncold.html>. Accessed November 8, 2023.
10. Available at: <https://www.cdc.gov/antibiotic-use/colds.html>. Accessed November 8, 2023.
11. Available at: <https://www.lung.org/lung-health-diseases/lung-disease-lookup/influenza/learn-about-influenza>. Accessed November 8, 2023.
12. Available at: <https://www.nccih.nih.gov/health/flu-and-colds-in-depth#>. Accessed 10/17/2022.
13. Available at: <https://www.cdc.gov/flu/about/burden/index.html>. Accessed November 7, 2023.
14. Available at: <https://www.nia.nih.gov/health/flu-and-older-adults>. Accessed November 8, 2023.
15. Available at: <https://www.cdc.gov/flu/treatment/antiviralresistance.htm>. Accessed November 8, 2023.
16. Mocanu ML, Amariei S. Elderberries-A Source of Bioactive Compounds with Antiviral Action. *Plants (Basel)*. 2022 Mar 10;11(6).
17. Strugala P, Loi S, Bazanow B, et al. A Comprehensive Study on the Biological Activity of Elderberry Extract and Cyanidin 3-O-Glucoside and Their Interactions with Membranes and Human Serum Albumin. *Molecules*. 2018 Oct 8;23(10):2566.
18. Roschek B, Jr., Fink RC, McMichael MD, et al. Elderberry flavonoids bind to and prevent H1N1 infection in vitro. *Phytochemistry*. 2009 Jul;70(10):1255-61.
19. Kinoshita E, Hayashi K, Katayama H, et al. Anti-influenza virus effects of elderberry juice and its fractions. *Biosci Biotechnol Biochem*. 2012;76(9):1633-8.



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References:

1. *Nutrients*. 2018 Jun 6;10(6):730.
2. *Nutrients*. 2022 12; 14(24): 5235.

3. *J Alzheimers Dis*. 2016;49(4):971-90.
4. *Innov Aging*. 2017 Jul; 1(Suppl 1): 170.
5. *Neuron*. 2010 Jan 28;65(2):165-77.

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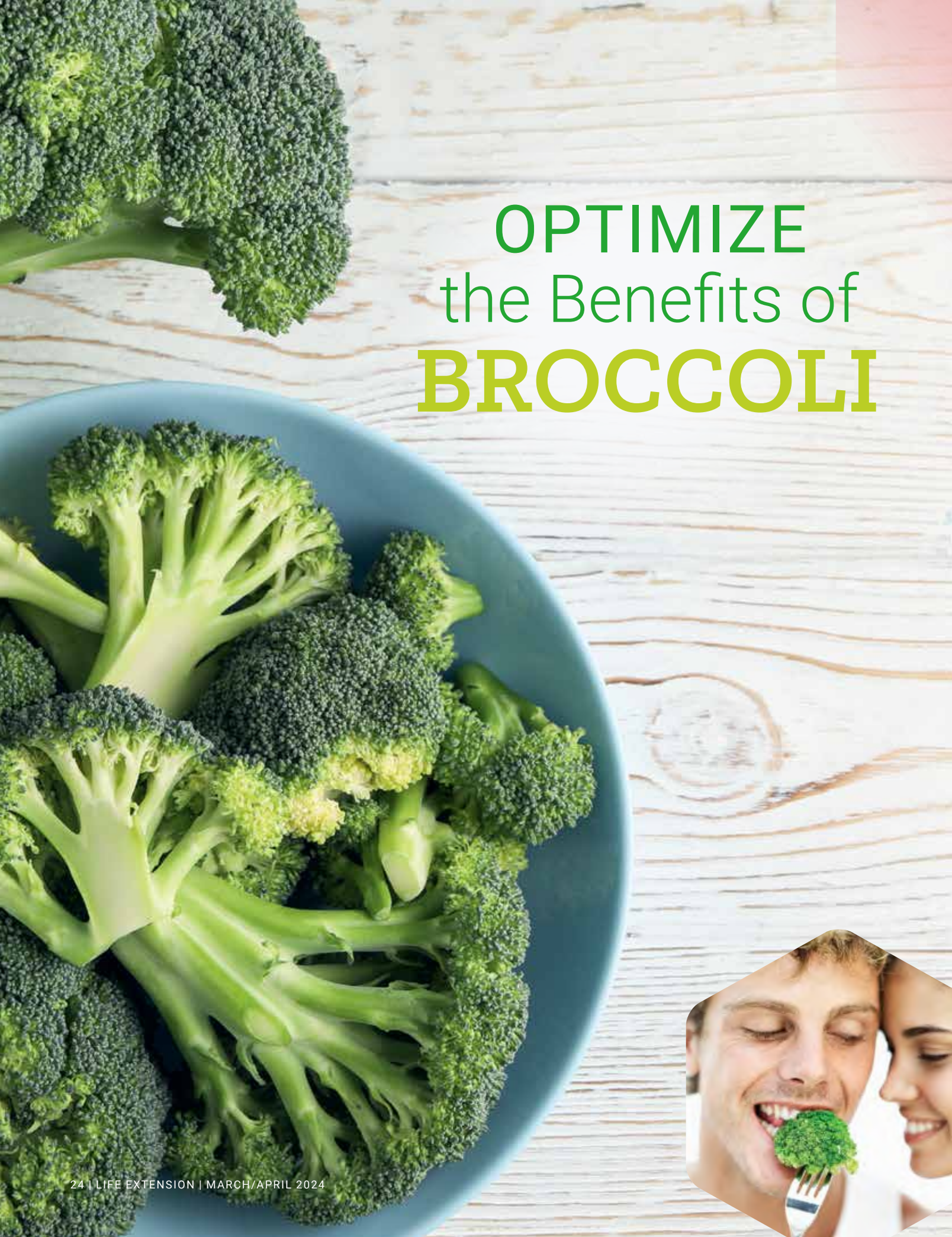
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OPTIMIZE the Benefits of **BROCCOLI**





BY RICHARD WATERMAN

Most of us grew up being urged to “eat your broccoli.”

Turns out that was excellent advice.

Broccoli is a source of a nutrient called **sulforaphane**.^{1,2}

Sulforaphane consumption has been shown to offer wide-ranging health benefits, including protection against:

- Cancer,
- Cardiovascular disease,
- Neurodegenerative diseases,
- Diabetes,
- And more.¹⁻⁴

But getting enough of this nutrient can be difficult, particularly because **cooking** broccoli reduces the availability of **sulforaphane**.^{2,3,5}

Scientists have discovered a way around this issue that mimics how nature delivers sulforaphane.

They combined a sulforaphane precursor with an enzyme that converts the precursor into **sulforaphane** in the digestive tract.

This enables more **sulforaphane** to be formed and distributed to cells throughout the body.



Broccoli's Powerhouse Nutrient

Broccoli contains a sulforaphane *precursor* called **glucoraphanin**, and an enzyme called **myrosinase**, which converts glucoraphanin into sulforaphane.²

These two compounds are found in *different parts* of broccoli cells. They mix together to form **sulforaphane** *only* when the plant is cut or chewed.

Cooking broccoli, as most of us do before eating it, *dramatically* reduces the amount of sulforaphane it can provide.^{3,6,7}

Chopped, raw broccoli sprouts are the best natural source of sulforaphane. But you would have to eat a massive amount daily to obtain desired levels.

Maximizing Delivery of Sulforaphane

Cruciferous vegetables are usually consumed cooked, which inactivates the plant enzyme **myrosinase**, required for activating **sulforaphane** inside the gut.⁶

Scientists have found a solution to maximize sulforaphane activation and absorption. They extract the sulforaphane *precursor* **glucoraphanin** from **broccoli seeds**. Then they combine it with the enzyme **myrosinase** from **mustard seed powder**.^{8,9}

Mustard plants belong to the same family of **cruciferous vegetables** as broccoli. The mustard-seed version of myrosinase is more robust than myrosinase from broccoli.⁸

The **sulforaphane precursor** and the **enzyme** only *combine* during **digestion**, rapidly releasing sulforaphane *in the gut*.

This innovative method allows **sulforaphane** to be readily *absorbed* and circulated throughout the body while it is still active.

How Sulforaphane Protects Health

Sulforaphane has the ability to shield cells and tissues from threats. Think of it as a full-service **detoxification nutrient**.

One of its most crucial functions is to activate **Nrf2**, a protein that regulates over **250 genes** that protect cells from oxidative damage and other stressors.^{2,3,10}

Nrf2 also activates **detoxification** enzymes that protect against a wide range of threats. This includes neutralizing **mutagens**, toxins that can cause mutations that could lead to **cancer**.¹¹

Sulforaphane also reduces harmful **chronic inflammation** by inhibiting **NF-kB**, a cellular complex that drives production of **pro-inflammatory** compounds.^{2,3,12}

Anti-Cancer Activity

Sulforaphane is one of the widely studied anti-cancer nutrients in the medical literature.³

It can help *prevent* cancer by favorably altering gene expression and reducing **chronic inflammation**. It has also been shown to fight against *existing* tumor cells and reduces tumor growth.⁴

In **preclinical** and **clinical studies**, sulforaphane has helped prevent the growth and spread of **cancer** in a few specific ways that include:^{2,3}

- Preventing adverse gene expression that can lead to cancer growth,
- Blocking new tumor blood vessel growth,
- Inhibiting cancer cells' ability to reproduce, and
- Promoting the death (apoptosis) of cancer cells.

Many studies show that eating **broccoli** and other **cruciferous vegetables** is associated with a *lower* risk of different cancers in **humans**, including breast, prostate, colorectal, lung, and bladder cancers.⁴





WHAT YOU NEED TO KNOW

The Disease-Fighting Power of Broccoli

- **Broccoli** and other cruciferous vegetables are associated with many health benefits, including reduced risk for cancer, cardiovascular disease, neurodegenerative diseases, and type II diabetes.
- Scientists attribute many of broccoli's benefits to a compound called **sulforaphane**.
- When broccoli is cooked, its ability to produce sulforaphane is rapidly lost with processing and cooking.
- A new formula has been developed that combines a sulforaphane precursor found in broccoli with an enzyme from mustard seeds. Consuming this combination produces **sulforaphane** in the digestive tract, where it can be rapidly absorbed into the body.
- This formulation has the potential to maximize the benefits of sulforaphane to shield against metabolic and other chronic disorders.

Protection Against Other Diseases

Sulforaphane has been found to be beneficial against additional illnesses, including:

Cardiovascular Disease. Consumption of cruciferous vegetables is associated with reduced risk for cardiovascular disease. Studies have shown that sulforaphane can improve lipid levels, reduce obesity, and slow the progression of atherosclerosis, all actions that reduce risk and progression of heart disease.¹³

Neurodegenerative Disease. Preclinical studies have shown that sulforaphane is a neuroprotectant, shielding the brain and spinal cord from injury and disease.^{13,14} It is able to cross the blood-brain barrier to exert its protective functions within the brain tissue itself.¹⁴ It also has the potential to defend against neurodegenerative disorders like Alzheimer's and Parkinson's.^{2,13,14}

Type II Diabetes. Metabolic abnormalities like type II diabetes can lead to cardiovascular disease, dementia, kidney disease, fatty liver disease, eye disease, nerve damage, and more. Studies show that broccoli and sulforaphane have the potential to improve aspects of these metabolic diseases, including reducing blood sugar, improving blood lipid levels, and improving insulin sensitivity.¹² In **human trials**, sulforaphane intake improves levels of fasting blood glucose and hemoglobin A1c (HbA1c), a marker of long-term glucose control.¹⁵

Viral Infection. In cell studies and animal models, sulforaphane inhibits replication and reduces the impact of viruses that can cause respiratory infection in humans.¹⁶⁻¹⁹

Maximizing the intake of **sulforaphane** may help its ability to fight these pathologies and promote overall health.

Summary

Many of the health benefits of broccoli and other **cruciferous vegetables** come from a nutrient called **sulforaphane**.

Sulforaphane has been shown to have activity against cancer, cardiovascular disease, neurodegeneration, type II diabetes, and more.

The **enzyme** that converts the precursor to sulforaphane gets degraded when broccoli is cooked.

Scientists have discovered how to formulate the precursor of sulforaphane with the enzyme (myrosinase) that converts to active **sulforaphane in the gut**.

It can then be easily circulated throughout the body. ●



References

1. Houghton CA. Sulforaphane: Its "Coming of Age" as a Clinically Relevant Nutraceutical in the Prevention and Treatment of Chronic Disease. *Oxid Med Cell Longev*. 2019;2019:2716870.
2. Mangla B, Javed S, Sultan MH, et al. Sulforaphane: A review of its therapeutic potentials, advances in its nanodelivery, recent patents, and clinical trials. *Phytother Res*. 2021 Oct;35(10):5440-58.
3. Gasmi A, Gasmi Benahmed A, Shanaida M, et al. Anticancer activity of broccoli, its organosulfur and polyphenolic compounds. *Crit Rev Food Sci Nutr*. 2023 May 2:1-19.
4. Kaiser AE, Baniyasadi M, Giansiracusa D, et al. Sulforaphane: A Broccoli Bioactive Phytochemical with Cancer Preventive Potential. *Cancers (Basel)*. 2021 Sep 25;13(19).
5. Nandini DB, Rao RS, Deepak BS, Reddy PB. Sulforaphane in broccoli: The green chemoprevention!! Role in cancer prevention and therapy. *J Oral Maxillofac Pathol*. 2020 May-Aug;24(2):405.
6. Fahey JW, Holtzclaw WD, Wehage SL, et al. Sulforaphane Bioavailability from Glucoraphanin-Rich Broccoli: Control by Active Endogenous Myrosinase. *PLoS One*. 2015;10(11):e0140963.
7. Okunade O, Niranjana K, Ghawi SK, et al. Supplementation of the Diet by Exogenous Myrosinase via Mustard Seeds to Increase the Bioavailability of Sulforaphane in Healthy Human Subjects after the Consumption of Cooked Broccoli. *Mol Nutr Food Res*. 2018 Sep;62(18):e1700980.
8. Ghawi SK, Methven L, Rastall RA, Niranjana K. Thermal and high hydrostatic pressure inactivation of myrosinase from green cabbage: A kinetic study. *Food Chemistry*. 2012;131:1240-7.
9. Supplier Internal Data. Data on File. 2023.
10. Dinkova-Kostova AT, Copple IM. Advances and challenges in therapeutic targeting of NRF2. *Trends Pharmacol Sci*. 2023 Mar;44(3):137-49.
11. Boddupalli S, Mein JR, Lakkanna S, James DR. Induction of phase 2 antioxidant enzymes by broccoli sulforaphane: perspectives in maintaining the antioxidant activity of vitamins a, C, and e. *Front Genet*. 2012;3:7.
12. Mohammed A, Mohammed HA. Beneficial role of broccoli and its active ingredient, sulforaphane in the treatment of diabetes. *Phyto-medicine Plus*. 2023;3:100431.
13. Kamal RM, Abdull Razis AF, Mohd Sukri NS, et al. Beneficial Health Effects of Glucosinolates-Derived Isothiocyanates on Cardiovascular and Neurodegenerative Diseases. *Molecules*. 2022 Jan 19;27(3).
14. Jazwa A, Rojo AI, Innamorato NG, et al. Pharmacological targeting of the transcription factor Nrf2 at the basal ganglia provides disease modifying therapy for experimental parkinsonism. *Antioxid Redox Signal*. 2011 Jun 15;14(12):2347-60.
15. Wang M, Chen M, Guo R, et al. The improvement of sulforaphane in type 2 diabetes mellitus (T2DM) and related complications: A review. *Trends Food Sci Technol*. 2022;129:397-407.
16. Cho HY, Imani F, Miller-DeGraff L, et al. Antiviral activity of Nrf2 in a murine model of respiratory syncytial virus disease. *Am J Respir Crit Care Med*. 2009 Jan 15;179(2):138-50.
17. Gasparello J, Marzaro G, Papi C, et al. Effects of Sulforaphane on SARS-CoV-2 infection and NF-kappaB dependent expression of genes involved in the COVID-19 'cytokine storm'. *Int J Mol Med*. 2023 Sep;52(3).
18. Ordonez AA, Bullen CK, Villabona-Rueda AF, et al. Sulforaphane exhibits antiviral activity against pandemic SARS-CoV-2 and seasonal HCoV-OC43 coronaviruses in vitro and in mice. *Commun Biol*. 2022 Mar 18;5(1):242.
19. Waqas FH, Shehata M, Elgaher WAM, et al. NRF2 activators inhibit influenza A virus replication by interfering with nucleo-cytoplasmic export of viral RNPs in an NRF2-independent manner. *PLoS Pathog*. 2023 Jul;19(7):e1011506.

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References

1. *Practice* TsV. Surveying Supplements: Current Trends, Research, & Recommendations. Vol 20232014.
2. *Vet Res Commun*. 2022 2;46(1):261-75.
3. *Nutrients*. 2022 2 4;14(3):659
4. *Anaerobe*. 2015 8;34:14-23.
5. *Front Microbiol*. 2021;12:625562.
6. *Vet Dermatol*. 1994 9;5(3):99-104.
7. *Prostaglandins Leukot Essent Fatty Acids*. 2020 8;159:102140.
8. *In Vivo*. 2021 5-6;35(3):1419-36.
9. *Nutrients*. 2023, 15(6), 1350;
10. *J Am Vet Med Assoc*. 2007 2 15;230(4):514-21.

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References

1. *J Ethnopharmacol*. 2020 Oct 5;260:112996.
2. *Nutrients*. 2020 Jul 23;12(8).
3. *Nutrients*. 2018 Aug 7;10(8).

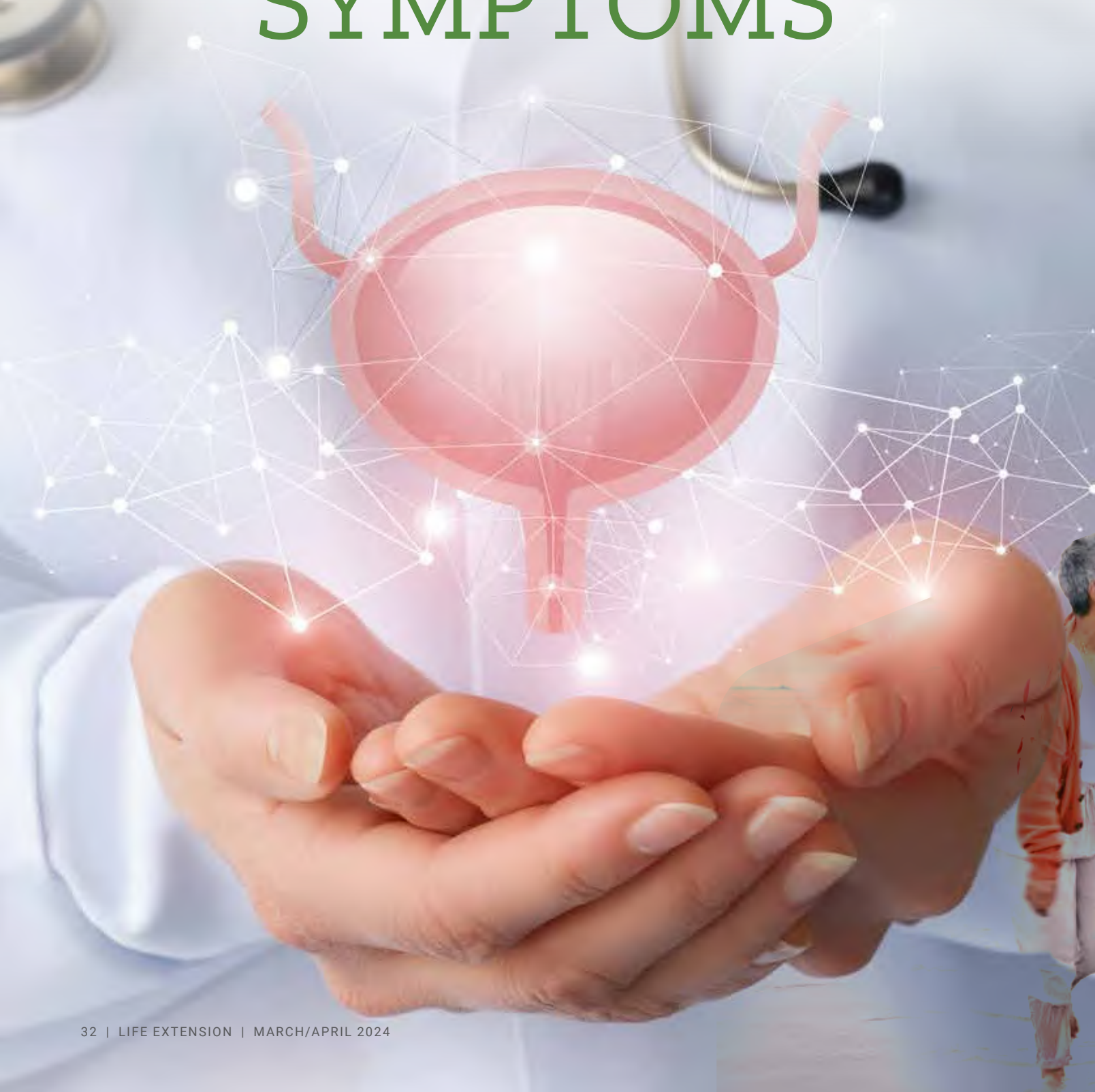


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Relief for Women's URINARY SYMPTOMS





HORSETAIL

BY HEATHER L. MAKAR

As women get older, many experience **urinary problems**.

They may need to make frequent trips to the restroom or wake up multiple times a night with an urgent need to use the bathroom.

Jogging, lifting a heavy object, or even just having a laugh with friends may cause **urinary leakage**.^{1,2}

It doesn't have to be this way.

In an eight-week **clinical trial**, a combination of **three plant-based** extracts dramatically improved these and other **urinary symptoms** in women. Among other improvements, taking this blend once a day:^{3,4}

- **Normalized** frequency of daytime urination,
- Decreased episodes of incontinence related to urgency by **65%**,
- Reduced the urgent need to urinate by **57%**, and
- Decreased nightly waking up to urinate by **43%**.

A remarkable **79%** of women who took the extract blend noted a **substantial improvement** in symptoms, compared to just **17%** in a placebo group.⁴

Aging Worsens Bladder Symptoms

Many women experience **urinary symptoms** as they grow older, typically beginning after age **40**.⁵

The severity and frequency of these symptoms are greater in women than in men. A population study using data from the U.S., UK, and Sweden found that among women aged 40-99:⁶

- **56%** reported experiencing **incontinence**,
- **36%** dealt with **urinary urgency**,
- **34%** complained of **nocturnal urination**, and
- **25%** needed to **urinate frequently** throughout the day.

Most people need to urinate every three to four hours (5-7 times daily).⁷ Those with an **overactive bladder** may need to urinate more than **eight times** during the day, and **two times** or **more** at night.¹



Available medications provide little help. Only about **13%** of patients taking medications find relief from incontinence symptoms, with many discontinuing use due to **side effects**.³

Many women feel **embarrassed** by their symptoms, and simply assume they are an inevitable part of aging.^{5,8} But they don't have to be.

A clinical study demonstrated that a blend of **three plant-based extracts**^{3,4} made a *significant difference* in urinary symptoms and quality of life, with virtually no side effects.

Two Decades of Development

More than 20 years ago, Dr. Tracey Seipel, a naturopath and medical herbalist, sought an effective solution for her patients' **urinary problems**.⁹ She gradually began administering several traditionally used **plant compounds** to address bladder issues.^{3,9}

Feedback from Dr. Seipel's patients led to research to fine-tune a treatment using **three plant extracts**, each with a proven track record of effectiveness:

- **Horsetail** (*Equisetum arvense*), used in Western herbal medicine, contains high levels of silica, which can improve urinary tissue strength and elasticity.
- **Lindera** (*Lindera aggregata*), long used in traditional Chinese medicine, is known for improving kidney and bladder health and may calm feelings of urgency.
- **Three-leaf caper** (*Crateva nurvala*), from Indian Ayurvedic medicine, is known for easing tense muscles and relaxing bladder spasms.

In a rodent model of symptomatic **overactive bladder**, a blend of these three extracts **reversed** changes in multiple biomarkers in urine, the bladder lining, and bladder control muscles.⁸

This improved bladder control symptoms in the:⁸

- **Storage phase** (frequency and urgency, waking to urinate), and the
- **Void and post-void phase** (dribbling, stream weakness, intermittency, hesitancy).

Validated In Human Trials

Researchers conducted a placebo-controlled **clinical trial** of this three-extract blend. They worked with 88 women with an average age of **62 years** who displayed two or more of these symptoms:

- **10 or more** episodes of daytime urination,
- **One episode or more** of incontinence per day,
- **Two or more** episodes of urinary urgency per day, and
- **Two or more** nighttime urination episodes per night.

Those in the treatment arm of the trial took **840 mg** of the extract blend once daily. After only **eight weeks**:^{3,4}

- Daytime urination episodes returned to normal levels, falling from an average of more than **11 times** a day to an average of **under eight times** a day.
- Episodes of incontinence associated with urgency were reduced by **65%**, from an average of **nearly three times** a day to an average of **just once per day**,
- Urgent urinary episodes decreased nearly 60%, from an average of **almost four times** a day to an average of only **1.6 times** a day, and
- Episodes of waking to urinate were reduced **43%**, from an average of **3.8 times** a night to an average of **just over two times** a night.

Better Quality of Life

Women who took the plant extract blend also reported substantial improvements in their **quality of life**, including:^{3,4}

- A **50%** decrease in overactive bladder symptoms,
- A **39%** reduction in incontinence episodes, and
- A **39%** reduction in bladder discomfort.



WHAT
YOU
NEED
TO
KNOW

A Solution for Women's Bladder Problems

- Many aging women experience **urinary symptoms**, which include frequent urination, urinary incontinence, urinary urgency, and nocturnal urination.
- In a **clinical trial**, a blend of extracts of the plants **horsetail**, **lindera**, and **three-leaf caper** significantly improved women's urinary symptoms and quality of life without side effects often seen in medication use.
- After only eight weeks, women taking this extract blend had their daytime urination frequency return to **normal**; incontinence episodes decreased by **65%**, urinary urgency episodes were reduced **60%**, and nighttime urination episodes declined **43%**.
- A whopping **79%** of women who took the plant extract blend reported feeling a **significant benefit**, compared to just **17%** of those taking a placebo.

In total, a stunning **79%** of women in the plant extract group reported a dramatic **improvement**, compared to only **17%** of participants taking the placebo.⁴

These benefits came **without side effects** typically seen with medications,^{3,4} providing relief for many women who might otherwise have resigned themselves to living with urinary problems.

Summary

Many women suffer from **urinary symptoms**, especially after age 40.

A clinical study has shown that a blend of extracts of the plants **horsetail**, **lindera**, and **three-leaf caper** was effective in reducing daytime urinary frequency, urinary incontinence, urinary urgency, and nocturnal urination in women.

It achieved these benefits and improved quality of life without side effects that often come with medications. ●

References

1. Corcos J, Przydacz M, Campeau L, et al. CUA guideline on adult overactive bladder. *Can Urol Assoc J*. 2017 May;11(5):E142-E73.
2. Available at: <https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=85&contentid=p01528>. Accessed December 14, 2023.
3. Schoendorfer N, Sharp N, Seipel T, et al. Urox containing concentrated extracts of Crataeva nurvala stem bark, Equisetum arvense stem and Lindera aggregata root, in the treatment of symptoms of overactive bladder and urinary incontinence: a phase 2, randomised, double-blind placebo controlled trial. *BMC Complement Altern Med*. 2018 Jan 31;18(1):42.
4. Schoendorfer Dof. Supplier Internal Analysis, unpublished. 2018.
5. Leron E, Weintraub AY, Mastrolia SA, Schwarzman P. Overactive Bladder Syndrome: Evaluation and Management. *Curr Urol*. 2018 Mar;11(3):117-25.
6. Coyne KS, Sexton CC, Thompson CL, et al. The prevalence of lower urinary tract symptoms (LUTS) in the USA, the UK and Sweden: results from the Epidemiology of LUTS (EpiLUTS) study. *BJU International*. 2009;104(3):352-60.
7. Lukacz ES, Whitcomb EL, Lawrence JM, et al. Urinary frequency in community-dwelling women: what is normal? *Am J Obstet Gynecol*. 2009 May;200(5):552 e1-7.
8. Zapala L, Juszczak K, Adamczyk P, et al. New Kid on the Block: The Efficacy of Phytomedicine Extracts Urox((R)) in Reducing Overactive Bladder Symptoms in Rats. *Front Mol Biosci*. 2022;9:896624.
9. Available at: <https://seipelgroup.com/team>. Accessed December 14, 2023.



Dryness and loss of firmness are outward signs of normal aging.

One reason is loss of **ceramides** that are required for skin to retain its **moisture** and youthful suppleness.

Skin Restoring Ceramides contains wheat-derived ceramide lipids in an **oral** capsule that **hydrate** the skin and smooth the appearance of fine lines and wrinkles.

*Restore Smoother,
Youthful-Looking*
Skin from the
Inside Out



Item #02096

30 liquid vegetarian capsules

This product is available at fine health food stores everywhere.

Contains wheat. Gluten free.



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BLACK ELDERBERRY + VITAMIN C

Immune Support

Standardized **elderberry** extract helps support immune function.

Vitamin C promotes signaling proteins called **interferons** that further support immune health.

One daily serving (2 capsules) of **Black Elderberry + Vitamin C** provides a potent **600 mg** of **black elderberry** extract together with **200 mg** of **vitamin C**.

Item #02410

60 vegetarian capsules

This product is available at fine health food stores everywhere.

"Love this product, especially being a combo!"

Rhonda

VERIFIED CUSTOMER
REVIEW



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The 'Healthy Aging' Amino Acid



Essential Youth with L-Ergothioneine

L-ergothioneine is an amino acid found in **mushrooms**.

Cell-based studies suggest that **L-ergothioneine** may support healthy aging by:

- Protecting **mitochondrial DNA** function¹
- Delaying **telomere** shortening²
- Supporting **DNA function** in cells subjected to UV exposure³

One daily capsule of **Essential Youth** provides **5 mg** of **L-ergothioneine**.

One daily capsule provides as much **L-ergothioneine** as 2 to 5 cups of white button mushrooms.^{4,5}



Item #02431

30 vegetarian capsules

This product is available at fine health food stores everywhere.

References

1. Cell Death Differ. 2010 Jul;17(7):1134-40.
2. J Diet Suppl. 2020 Dec 7:1-14.
3. Free Radic Biol Med. 2009 Apr 15;46(8):1168-76.
4. FEBS Lett. 2018 Oct;592(20):3357-66.
5. Food Chem. 2017 Oct 15;233:429-33.



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A More Restful Sleep

Serene Sleep contains two plant extracts that in independent clinical studies were shown to support restorative, high-quality sleep for ***occasional sleeplessness***.

Clinical trials have demonstrated that:

- A standardized **black cumin** extract encouraged sleep efficiency and supported healthy sleep patterns.¹ Additionally, **black cumin extract** maintained restorative sleep along with sleep efficiency, latency, and total sleep time.²
- **Ashwagandha** maintained measures of restorative sleep,³ reduced stress measures,³ and maintained healthy levels of the stress hormone *cortisol*.⁴

Take just one softgel **20 to 30 minutes** before bed.

For Occasional Sleeplessness

References:

1. *Front Nutr.* 2023;10:1152680.
2. *Mohan et al.*, unpublished resubmitted to Medicine – Draft Manuscript on file 2023.
3. *Sleep Med.* 2020 Aug;72:28-36.
4. *Report I.* Data on file. 2023.



Item #02526

30 softgels

This product is available at fine health food stores everywhere.

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B12

B12

B

SMART

Body & Brain

B12

B12

B12

BIOACTIVE FORMS OF VITAMIN B12

Only two **bioactive** coenzyme forms of vitamin B12 can be used directly by the body and brain.

This **B12 Elite** provides both:

ADENOSYLCOBALAMIN

- Active in brain cell mitochondria.
- Preclinical evidence suggests that it may support already healthy levels of dopamine.
- Supports cellular energy production.

METHYLCOBALAMIN

- Supports cognition within brain cells.
- Promotes red blood cell production.
- Helps maintain healthy homocysteine levels.

Dissolve in the mouth or chew one vegetarian **lozenge** daily.

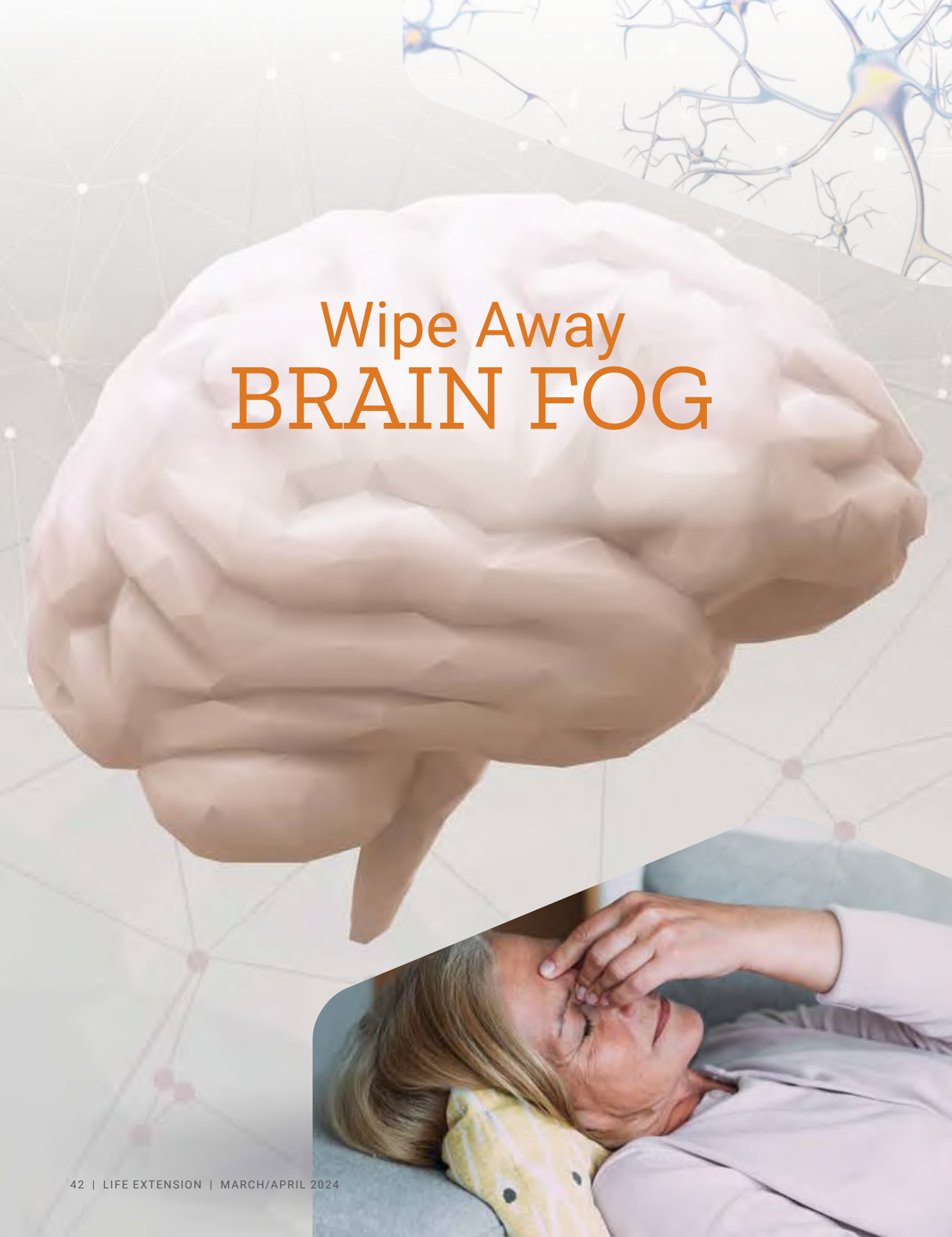


Item #02419
60 vegetarian lozenges



This product is
available at fine health
food stores everywhere.

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Wipe Away BRAIN FOG





BY MICHAEL DOWNEY

Have you had days when thinking seemed “fuzzy” and you couldn’t concentrate?

If it interferes with daily life, you may be suffering from **brain fog**.^{1,2}

Brain fog refers to an overall feeling of **decreased focus** and **low mental energy**.

After pinpointing **biological changes** in the brain that may trigger brain fog, researchers identified two **plant-based nutrients** that can prevent or reverse these changes to boost alertness and mental sharpness.

In clinical trials, **mango leaf extract**.^{3,4}

- Improved reaction time,
- Reduced mental fatigue,
- Boosted attention,
- Increased performance accuracy, and
- Enhanced working memory.

In additional clinical studies, **peppermint oil**.⁵

- Reduced development of mental fatigue,
- Improved aspects of memory, and
- Boosted attention levels.

Taken together, **mango leaf extract** and **peppermint oil** may help replace that fog with focus.

Origins of Brain Fog

Brain fog is more than an annoyance. The feeling of mental fatigue, difficulty concentrating, and foggy thinking can impair cognitive performance and get in the way of school, work, family time or day-to-day activities.

To understand brain fog better, scientists studied medical conditions that produce some of the same **mental symptoms**.

Complaints consistent with **brain fog** have been reported by people with:^{2,6-12}

- Various inflammatory disorders,
- Allergies (including seasonal allergies),
- Immune disorders, which increase inflammation, and
- Dietary sensitivities.

After analyzing the **biological alterations** associated with these conditions, scientists proposed that brain fog may be caused by:^{6-8,13}

- Release of **histamine** (the chemical that causes allergic symptoms),
- **Inflammation**, and
- **Neurotransmitter** imbalance and impairments in neuronal activity.

Reversing Harmful Changes

Based on this research, scientists began studying compounds that met **two criteria**:

- They could prevent or reverse the biological alterations seen in conditions that lead to brain fog, and
- They have been shown in animal or human studies to improve symptoms of brain fog.

They identified two plant-derived ingredients that met **both** of these conditions and seemed the most promising:

- **Mango leaf extract** has been clinically shown to improve reaction time, mental fatigue, attention, performance accuracy, and working memory,^{3,4} and
- **Peppermint oil** has been clinically shown to reduce mental fatigue and improve aspects of attention and memory.⁵

Mango Leaf's Protective Effects

Mango leaf has long been used in Asia and Africa to treat fatigue. It has neuroprotective, anti-inflammatory, and anti-diabetic properties, which scientists suggest may help prevent brain fog.³

These effects are believed to be largely attributable to the polyphenol compound **mangiferin**.

In animal and human studies, **mangiferin** showed a capacity to **protect the brain** by:^{3,14-18}

- Decreasing neuroinflammation,
- Reducing oxidative stress,
- Providing neurotransmitter support,
- Preventing cognitive and memory impairment,
- Improving key brain fog symptoms, and
- Exhibiting anti-allergic properties.



Fight Brain Fog

- **Brain fog** is the feeling of reduced mental energy, clarity, focus, and performance.
- Preclinical studies show that **mango leaf extract** and **peppermint oil** each counter the underlying mechanisms thought to contribute to brain fog.
- In clinical studies, **mango leaf extract** and **peppermint oil** improve symptoms of brain fog, reducing mental fatigue and improving attention, memory, and cognitive performance.
- A combination of these two ingredients may maximize their brain-supporting power and help lift **brain fog**.

Clearing Mental Fog

To explore the ability of mango leaf to treat symptoms of **brain fog**, scientists conducted controlled **human** trials.

In one study, healthy adults were randomized into four groups. Each group was given one of the following:³

- **Mango leaf extract** containing **60% mangiferin**,
- **Caffeine**,
- **Mango leaf extract and caffeine**, or
- A **placebo**.

The **mango leaf extract** group had, compared to baseline:³

- A striking **47% reduction** in fatigue, and
- An almost **5% improvement** in reaction time.



These results were significantly *greater* than those observed with **caffeine** alone or with a combination of caffeine and mango extract.

Additionally, brain electrical activity tests showed that taking mango leaf extract increased activity in regions associated with **attention**, **complex cognitive processing**, and **memory**.³

In another clinical study, healthy young adults took either **300 mg of mango leaf extract** or a **placebo**.

The mango leaf improved several areas of **cognitive function**, including aspects of:⁴

- Attention,
- Performance accuracy, and
- Working memory.

Improvements were also accompanied by a more relaxed mood. This is critical, because many people who take **caffeine** to counter brain fog find that it increases nervousness and jitters.

These findings demonstrate that **mango leaf extract** boosts brain activity, decreases mental fatigue, and supports mental focus and performance.

Peppermint's Brain Effects

The herb **peppermint** has traditionally been used to promote digestion and induce calm.

Placebo-controlled studies have shown that plants rich in **monoterpenes** provide cognitive benefits.¹⁹⁻²¹ Peppermint oil contains many compounds from this group, including **menthol** and **menthone**.²¹

Human studies show that **peppermint teas**.²²

- Improve memory, and
- Boost mental alertness.

In addition, mint species have shown the ability to modulate various **neurotransmitters** in the brain, such as **acetylcholine** and **GABA**, which play roles in cognition, mood, and mental alertness.⁵

Boosting Brain Power

In a clinical trial, healthy adults took either **peppermint oil** containing **60% monoterpenes** or a **placebo**.⁵

Tests were administered to assess aspects of memory, attention, and mood.

Participants who took the **peppermint oil** showed significant benefits, including:⁵

- Reduced development of **mental fatigue**, and
- Enhanced aspects of **attention** and **working memory**.

By contrast, those who took the **placebo** were fatigued within a few hours after performing various cognitive tasks.⁵

Taking peppermint oil and mango leaf extract together may maximize their ability to banish brain fog.

Summary

Two plant-based ingredients can improve symptoms of **brain fog**.

Mango leaf extract and **peppermint oil** have each been shown in clinical studies to help bring back mental clarity, energy, and focus.

Combined, they may help reduce, or even *eliminate*, symptoms of **brain fog**. •

References

1. CLINIC C. Strategies for Busting Up Brain Fog. 2022.
2. Lucius K. "Brain Fog": Exploring a Symptom Commonly Encountered in Clinical Practice. *Alternative and Complementary Therapies*. 2021;27(1):23-30.
3. Lopez-Rios L, Wiebe JC, Vega-Morales T, Gericke N. Central nervous system activities of extract *Mangifera indica* L. *J Ethnopharmacol*. 2020 Oct 5;260:112996.
4. Wightman EL, Jackson PA, Forster J, et al. Acute Effects of a Polyphenol-Rich Leaf Extract of *Mangifera indica* L. (Zynamite) on Cognitive Function in Healthy Adults: A Double-Blind, Placebo-Controlled Crossover Study. *Nutrients*. 2020 Jul 23;12(8).
5. Kennedy D, Okello E, Chazot P, et al. Volatile Terpenes and Brain Function: Investigation of the Cognitive and Mood Effects of *Mentha x Piperita* L. Essential Oil with In Vitro Properties Relevant to Central Nervous System Function. *Nutrients*. 2018 Aug 7;10(8).
6. Hartgerink-Lutgens I, Vermeeren A, Vuurman E, Kremer B. Disturbed cognitive functions after nasal provocation in patients with seasonal allergic rhinitis. *Clin Exp Allergy*. 2009 Apr;39(4):500-8.
7. Theoharides TC, Stewart JM, Hatzigelaki E, Kolaitis G. Brain "fog," inflammation and obesity: key aspects of neuropsychiatric disorders improved by luteolin. *Front Neurosci*. 2015;9:225.
8. Balter LJ, Bosch JA, Aldred S, et al. Selective effects of acute low-grade inflammation on human visual attention. *Neuroimage*. 2019 Nov 15;202:116098.
9. Croall ID, Hoggard N, Aziz I, et al. Brain fog and non-coeliac gluten sensitivity: Proof of concept brain MRI pilot study. *PLoS One*. 2020;15(8):e0238283.
10. Makhoul S, Messelmani M, Zaouali J, Mrissa R. Cognitive impairment in celiac disease and non-celiac gluten sensitivity: review of literature on the main cognitive impairments, the imaging and the effect of gluten free diet. *Acta Neurol Belg*. 2018 Mar;118(1):21-7.
11. Yelland GW. Gluten-induced cognitive impairment ("brain fog") in coeliac disease. *J Gastroenterol Hepatol*. 2017 Mar;32 Suppl 1:90-3.
12. Mackay M. Lupus brain fog: a biologic perspective on cognitive impairment, depression, and fatigue in systemic lupus erythematosus. *Immunol Res*. 2015 Dec;63(1-3):26-37.
13. Robles-Figueroa M, Bedolla-Barajas M, Morales-Romero J, et al. Allergic Rhinitis Is Associated With Loss of Energy and Concentration Difficulty: A Cross-sectional Study. *Am J Rhinol Allergy*. 2020 Jan;34(1):108-14.
14. Lei LY, Wang RC, Pan YL, et al. Mangiferin inhibited neuroinflammation through regulating microglial polarization and suppressing NF-kappaB, NLRP3 pathway. *Chin J Nat Med*. 2021 Feb;19(2):112-9.
15. Marquez L, Garcia-Bueno B, Madrigal JL, Leza JC. Mangiferin decreases inflammation and oxidative damage in rat brain after stress. *Eur J Nutr*. 2012 Sep;51(6):729-39.
16. Lum PT, Sekar M, Gan SH, et al. Protective effect of mangiferin on memory impairment: A systematic review. *Saudi J Biol Sci*. 2021 Jan;28(1):917-27.
17. Sekar M. Molecules of Interest – Mangiferin – A Review. *Annual Research & Review in Biology*. 2015 01/10;5(4):307-20.
18. Garcia D, Escalante M, Delgado R, et al. Anthelmintic and antiallergic activities of *Mangifera indica* L. stem bark components Vimag and mangiferin. *Phytother Res*. 2003 Dec;17(10):1203-8.
19. Falcone PH, Nieman KM, Tribby AC, et al. The attention-enhancing effects of spearmint extract supplementation in healthy men and women: a randomized, double-blind, placebo-controlled, parallel trial. *Nutr Res*. 2019 Apr;64:24-38.
20. Falcone PH, Tribby AC, Vogel RM, et al. Efficacy of a nootropic spearmint extract on reactive agility: a randomized, double-blind, placebo-controlled, parallel trial. *J Int Soc Sports Nutr*. 2018 Dec 12;15(1):58.
21. Zhao H, Ren S, Yang H, et al. Peppermint essential oil: its phytochemistry, biological activity, pharmacological effect and application. *Biomed Pharmacother*. 2022 Oct;154:113559.
22. Moss M, Jones R, Moss L, et al. Acute consumption of Peppermint and Chamomile teas produce contrasting effects on cognition and mood in healthy young adults. *Plant Science today*. 2016;3:327-36.

"Love the combination
of ingredients in this
supplement."

Amy

VERIFIED CUSTOMER REVIEW

RELEASE the POWER of BROCCOLI



Many of broccoli's benefits come from **sulforaphane**—a compound that is *activated* when the plant is cut or chewed.¹⁻³

Mature broccoli provides relatively little **sulforaphane precursor** compared to broccoli sprouts. Cooking further depletes the sulforaphane precursor.^{2,4}

Optimized Broccoli with Myrosinase improves conversion of the precursor into **sulforaphane**, and its absorption into the bloodstream.^{2,5,6}

Each capsule contains:

Glucoraphanin, a sulforaphane *precursor* found in broccoli seed extract, that is standardized to a high concentration.^{3,4}

Myrosinase, an enzyme found in mustard seed that converts **glucoraphanin** to **sulforaphane**.²⁻⁶

Vitamin C, a cofactor for the myrosinase enzyme for more efficient *enzymatic conversion*.⁷

Item #02368

30 vegetarian capsules

This product is available
at fine health food stores
everywhere.

References:

1. Crit Rev Food Sci Nutr. 2023 5 2:1-19.
2. PLoS One. 2015;10(11):e0140963.
3. Phytother Res. 2021 10;35(10):5440-5458.
4. J Oral Maxillofac Pathol. 2020 May-Aug;24(2):405.
5. Mol Nutr Food Res. 2018 Sep;62(18):e1700980
6. Supplier Internal Data. Data on File. 2023.
7. Biochem J. 1999 8 1;341 (Pt 3):725-32.



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YOUR **BONE** HEALTH...NOW **BOOSTED**



Bone Restore Calcium Supplement with Vitamin K2 combines skeletal-strengthening nutrients in one highly absorbable formula.

Item #01727

120 capsules

This product is available at fine health food stores everywhere.

Caution: Those taking a vitamin K antagonist (e.g. warfarin) should use Bone Restore without vitamin K2.



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Need a Break From Bathroom Breaks?



A clinically studied combo of horsetail, lindera and caper extracts can help maintain bladder comfort and normal urinary frequency, day and night.



Item #02513

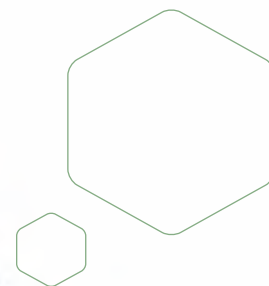
60 vegetarian capsules



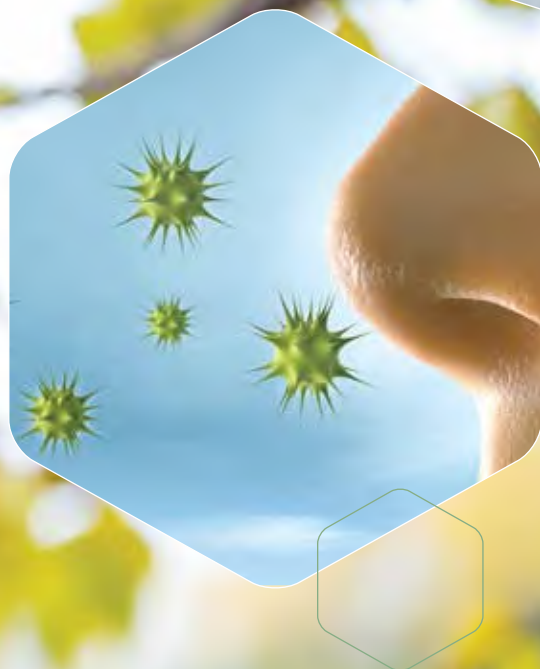
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Reduce
COLD, FLU,
and ALLERGY
Symptoms



BY HEATHER L. MAKAR



Colds and **allergies** make millions of people miserable every year.

The **flu** causes tens of thousands of U.S. deaths in a typical year.¹

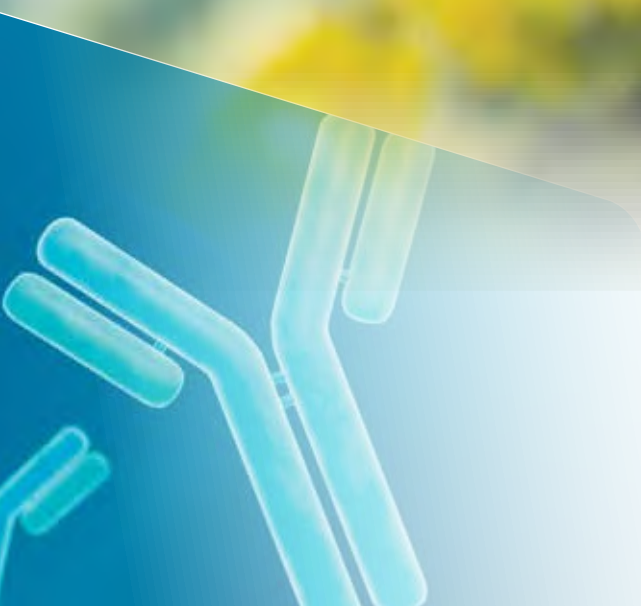
Human studies demonstrate how two ingredients help **prevent** colds and flu and **reduce the severity and duration** of symptoms when they do occur.

In a clinical study of school children, consumption of yogurt containing the **probiotic *L. rhamnosus* CRL1505** resulted in approximately:²

- **55% fewer** cold and flu occurrences, and
- **48% fewer** cases of fever.

In other **human** studies, **yeast fermentate** cut days of suffering from nasal congestion during peak allergy season by **43%**³ and reduced cold and flu symptoms during winter.⁴

Both these ingredients boost the activity of an **antibody** that provides **immune** responses against viruses and bacteria.^{5,6}



Fighting Colds and Flu

American adults get an average of two to four colds annually.⁷

Colds, flu, and seasonal allergies cause **75%** of all employees to miss some work, with an average time out of work of two to three days per upper respiratory episode.⁸

Researchers have identified two compounds, a **probiotic**² and a **dried yeast fermentate**,⁴ that can help prevent colds and flu and their symptoms *and* reduce their **severity** and **duration** when they occur.

Probiotics are beneficial bacteria and yeast. Their formal definition is “living microorganisms that promote health when ingested in sufficient amounts.” The specific strain ***Lactobacillus rhamnosus* CRL1505** can enhance immunity against respiratory infections.^{5,9}

Using a proprietary fermentation process, scientists created a special dried **fermentate** of baker’s **yeast** (*S. cerevisiae*).

The **fermentate** helps promote the body’s healthy **immune response** by increasing the antibody **secretory IgA**.^{10,11}

Secretory IgA is known to block pathogens from penetrating mucosal surfaces,^{12,13} which may provide protection from environmental triggers of allergies, such as pollen.

Yeast fermentate is rich in **beta-glucans**, complex carbohydrates shown to have **immune-enhancing** effects such as supporting activity of **natural killer cells**.^{14,15}

Avoid Allergy Drug Side Effects

While over-the-counter medications can provide temporary relief from cold, flu, and allergy symptoms, they don’t impact the frequency or duration of these illnesses.

Side effects from drugs for seasonal flu and allergic rhinitis include drowsiness, headaches, rapid heartbeat, and sleep problems.¹⁶ Some allergy medications, such as **anticholinergics**, are associated with increased risk of cognitive impairment.^{17,18}

The **probiotic** *Lactobacillus rhamnosus* CRL1505 and yeast fermentate are associated with little to no adverse effects.

An Immunity-Boosting Probiotic

***L. rhamnosus* CRL1505** was originally isolated from goat’s milk in Argentina.⁵

Cell and animal research has found that this probiotic can improve innate **respiratory immunity**, increase levels of **anti-pneumococcal antibodies** (which fight a wide range of infections),¹⁹ and reduce the **inflammatory** response that causes some cold/flu symptoms.^{20,21}

A **human study** found that oral use of this probiotic significantly increases levels of antibodies known as **immunoglobulin A (IgA)**.²

These antibodies are secreted from mucous membranes including the nose, mouth, and lungs, and can block viruses that cause **colds** and **flu** from invading cells and causing infection.





WHAT
YOU
NEED
TO
KNOW

Preventing Infections

In Argentina, scientists enrolled preschool children attending day care centers in a **placebo-controlled** study of a yogurt containing the ***L. rhamnosus* CRL1505** probiotic strain.

Over a six-month period, compared to a group receiving yogurt *without* the probiotic, children receiving **100 million CFUs** (colony-forming units) of ***L. rhamnosus* CRL1505** five days a week had:

- **55% fewer** cold and flu occurrences,
- **48% fewer** instances of fever,
- **49% fewer** overall infections, and
- **47% higher** levels of beneficial **secretory IgA**.

The treatment group also had **61% fewer** cases of **tonsillitis** and **pharyngitis** (a throat infection).

These results captured the attention of the Argentinian government, which has been distributing the probiotic yogurt to more than **200,000 children annually** since **2008**.²

Reduce the Misery of Colds, Flu, and Allergies

- In a clinical trial, the probiotic strain *Lactobacillus rhamnosus* CRL1505 reduced cold and flu occurrences by **55%**, infections by **49%**, and fevers by **48%** over six months.
- Taking dried yeast fermentate also reduced cold and flu symptoms and dramatically reduced symptoms of seasonal allergies, leading to **43%** fewer days with nasal congestion.
- These ingredients boost aspects of the immune system, including natural killer cell activity and antibodies against viruses and bacteria.
- A combination of yeast fermentate and *L. rhamnosus* CRL1505 may help decrease the frequency, duration, and severity of allergies, colds, and flu.

Yeast Fermentate Strengthens Immunity

The effects of **yeast fermentate** were discovered unintentionally when it was noticed that factory workers in Cedar Rapids, Iowa, who inhaled the yeast daily, took significantly **fewer sick days** than their office-worker counterparts.⁶

This observation led to multiple **human** studies, which found that oral intake of dried yeast fermentate resulted in:^{3,6,15,22,23}

- Increased levels of **secretory IgA**, the antibody providing mucosal immune defense against viruses and bacteria, and
- Increased activity of **natural killer cells**, immune cells that are part of the first line defense against infected cells.

A company in Iowa went on to develop a dried **yeast fermentate** using baker's yeast. At least **five placebo-controlled** clinical trials have since validated its protection against **colds, flu, and allergies**.^{15,22,23}

In one clinical trial, taking **500 mg** of **dried yeast fermentate** daily from January through March (peak cold and flu season) led to a **13% reduction** in cold or flu symptoms, compared to a placebo group.⁴

In a similar study, the same dose reduced the **duration** of cold and flu symptoms by **17%**.²⁴

Relief for Allergy Symptoms

Yeast fermentate also helps relieve symptoms of seasonal **allergies**.

Allergy symptoms are primarily caused by **immunoglobulin E (IgE)** antibodies, which trigger the body's release of chemicals such as **histamine** that cause these reactions.

Yeast fermentate has shown an ability to *prevent* IgE levels from rising too much, reducing allergic reactions.²³

In a pilot study, adults were given a placebo or **500 mg** of **dried yeast fermentate** daily for five weeks during allergy season. Symptoms were unchanged in the placebo group, while **half** of those taking yeast had a **complete absence of allergy symptoms**. Symptoms returned within two weeks after stopping the yeast fermentate.²³

A larger clinical study of adults with seasonal allergies and hay fever showed that those taking **500 mg** of dried **yeast fermentate** daily had **43%** fewer days with nasal congestion and reduced severity of runny noses and congestion.³

Taking **yeast fermentate** and ***L. rhamnosus* CRL1505** together may help provide broad protection against colds, flu, and allergies.



Summary

In separate clinical studies, **dried yeast fermentate** and the probiotic ***L. rhamnosus* CRL1505** significantly reduced the severity, frequency, and duration of symptoms associated with **colds and flu**.

Yeast fermentate also reduced **allergy** symptoms.

These two ingredients have been found to enhance **immune defenses** against viruses and bacteria in numerous ways. •

References

- Available at: <https://www.cdc.gov/mmwr/volumes/69/wr/mm6940a5.htm>. Accessed April 5, 2022.
- Alvarez. Probiotics for Everyone! The Novel Immunobiotic Lactobacillus rhamnosus CRL1505 and the Beginning of Social Probiotic Programs in Argentina. *International Journal of Biotechnology for Wellness Industries*. 2012.
- Moyad MA, Robinson LE, Kittelsrud JM, et al. Immunogenic yeast-based fermentation product reduces allergic rhinitis-induced nasal congestion: a randomized, double-blind, placebo-controlled trial. *Adv Ther*. 2009 Aug;26(8):795-804.
- Moyad MA, Robinson LE, Zawada ET, et al. Immunogenic yeast-based fermentate for cold/flu-like symptoms in nonvaccinated individuals. *J Altern Complement Med*. 2010 Feb;16(2):213-8.
- Salva S, Villena J, Alvarez S. Immunomodulatory activity of Lactobacillus rhamnosus strains isolated from goat milk: impact on intestinal and respiratory infections. *Int J Food Microbiol*. 2010 Jun 30;141(1-2):82-9.
- Schauss AG, Vojdani A. Discovery of edible fermentation product with unusual immune enhancing properties in humans. *The FASEB Journal*. 2006;20(4):A143-A.
- Available at: <https://www.lung.org/lung-health-diseases/lung-disease-lookup/facts-about-the-common-cold>.
- Zumofen MB, Frimpter J, Hansen SA. Impact of Influenza and Influenza-Like Illness on Work Productivity Outcomes: A Systematic Literature Review. *Pharmacoeconomics*. 2023 Mar;41(3):253-73.
- Zelaya H, Tsukida K, Chiba E, et al. Immunobiotic lactobacilli reduce viral-associated pulmonary damage through the modulation of inflammation-coagulation interactions. *Int Immunopharmacol*. 2014 Mar;19(1):161-73.
- Moslehi-Jenabian S, Pedersen LL, Jespersen L. Beneficial effects of probiotic and food borne yeasts on human health. *Nutrients*. 2010 Apr;2(4):449-73.
- Evans M, Reeves S, Robinson LE. A dried yeast fermentate prevents and reduces inflammation in two separate experimental immune models. *Evid Based Complement Alternat Med*. 2012;2012:973041.
- Available at: <https://www.sciencedirect.com/topics/neuroscience/secretory-immunoglobulin>. Accessed October 10, 2023.
- Cerutti A, Chen K, Chorny A. Immunoglobulin responses at the mucosal interface. *Annu Rev Immunol*. 2011;29:273-93.
- Singh RP, Bhardwaj A. beta-glucans: a potential source for maintaining gut microbiota and the immune system. *Front Nutr*. 2023;10:1143682.
- Jensen GS, Redman KA, Benson KF, et al. Antioxidant bioavailability and rapid immune-modulating effects after consumption of a single acute dose of a high-metabolite yeast immunogen: results of a placebo-controlled double-blinded crossover pilot study. *J Med Food*. 2011 Sep;14(9):1002-10.
- Available at: <https://www.uptodate.com/contents/allergic-rhinitis-beyond-the-basics/print>. Accessed October 11, 2023.
- Available at: https://www.rxlist.com/allergy_medications/drug-class.htm. Accessed January 20, 2022.
- Gray SL, Anderson ML, Dublin S, et al. Cumulative use of strong anticholinergics and incident dementia: a prospective cohort study. *JAMA Intern Med*. 2015 Mar;175(3):401-7.
- Barbieri N, Herrera M, Salva S, et al. Lactobacillus rhamnosus CRL1505 nasal administration improves recovery of T-cell mediated immunity against pneumococcal infection in malnourished mice. *Benef Microbes*. 2017 May 30;8(3):393-405.
- Correa Deza MA, Rodríguez de Olmos A, Suarez NE, et al. Inorganic polyphosphate from the immunobiotic Lactobacillus rhamnosus CRL1505 prevents inflammatory response in the respiratory tract. *Saudi J Biol Sci*. 2021 Oct;28(10):5684-92.
- Salva S, Tiscornia I, Gutierrez F, et al. Lactobacillus rhamnosus postbiotic-induced immunomodulation as safer alternative to the use of live bacteria. *Cytokine*. 2021 Oct;146:155631.
- Jensen GS, Carter SG, Reeves SG, et al. Anti-inflammatory properties of a dried fermentate in vitro and in vivo. *J Med Food*. 2015 Mar;18(3):378-84.
- Jensen GS, Patterson, K.M., Barnes, J., Schauss, A.G., Beaman, R., Reeves, S.G. and Robinson, L.E.,. A double-blind placebo-controlled, randomized pilot study: consumption of a high-metabolite immunogen from yeast culture has beneficial effects on erythrocyte health and mucosal immune protection in healthy subjects. *The Open Nutrition Journal*. 2008;2:pp.68-75.
- Moyad MA, Robinson LE, Zawada ET, Jr., et al. Effects of a modified yeast supplement on cold/flu symptoms. *Urol Nurs*. 2008 Feb;28(1):50-5.





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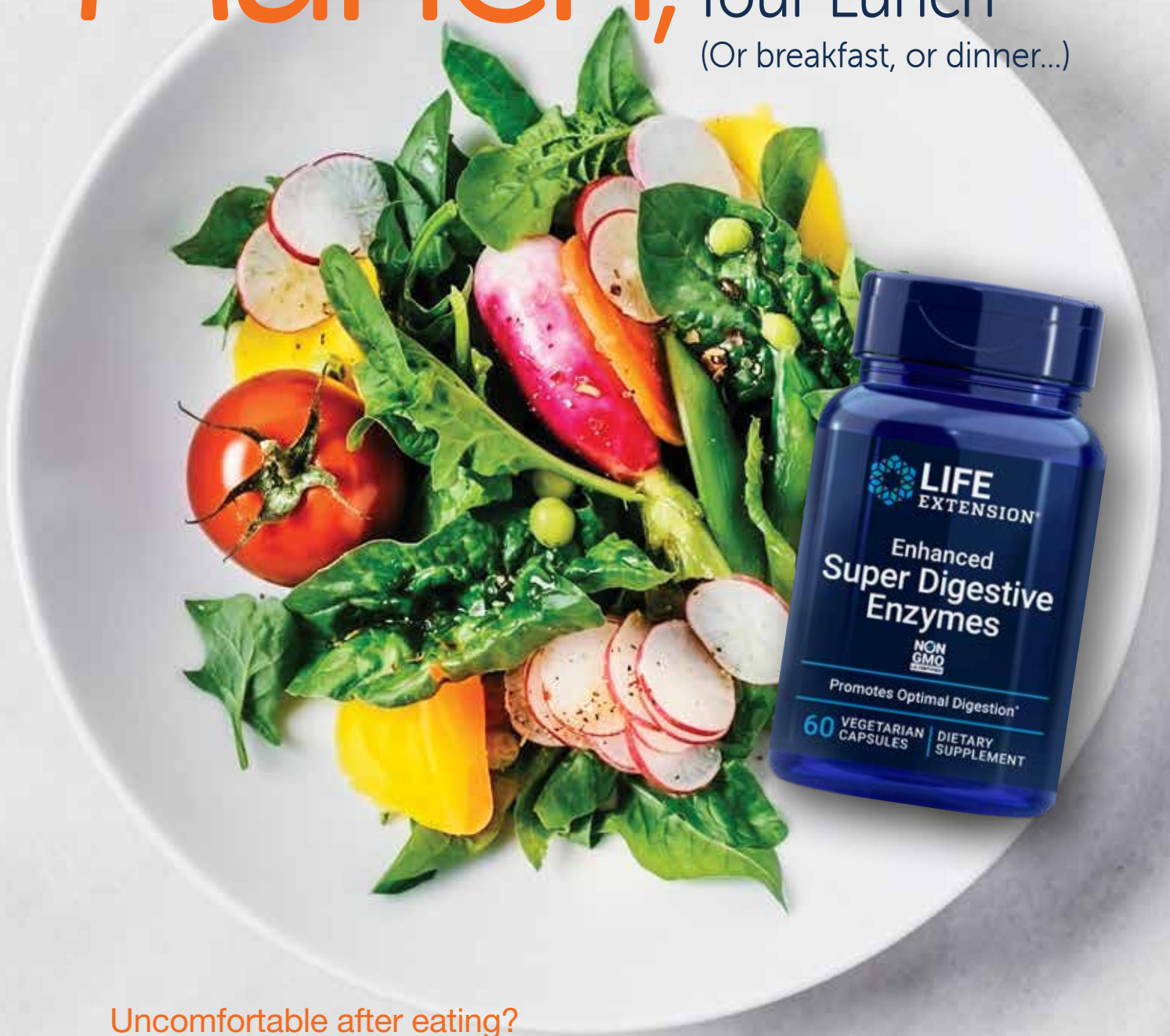
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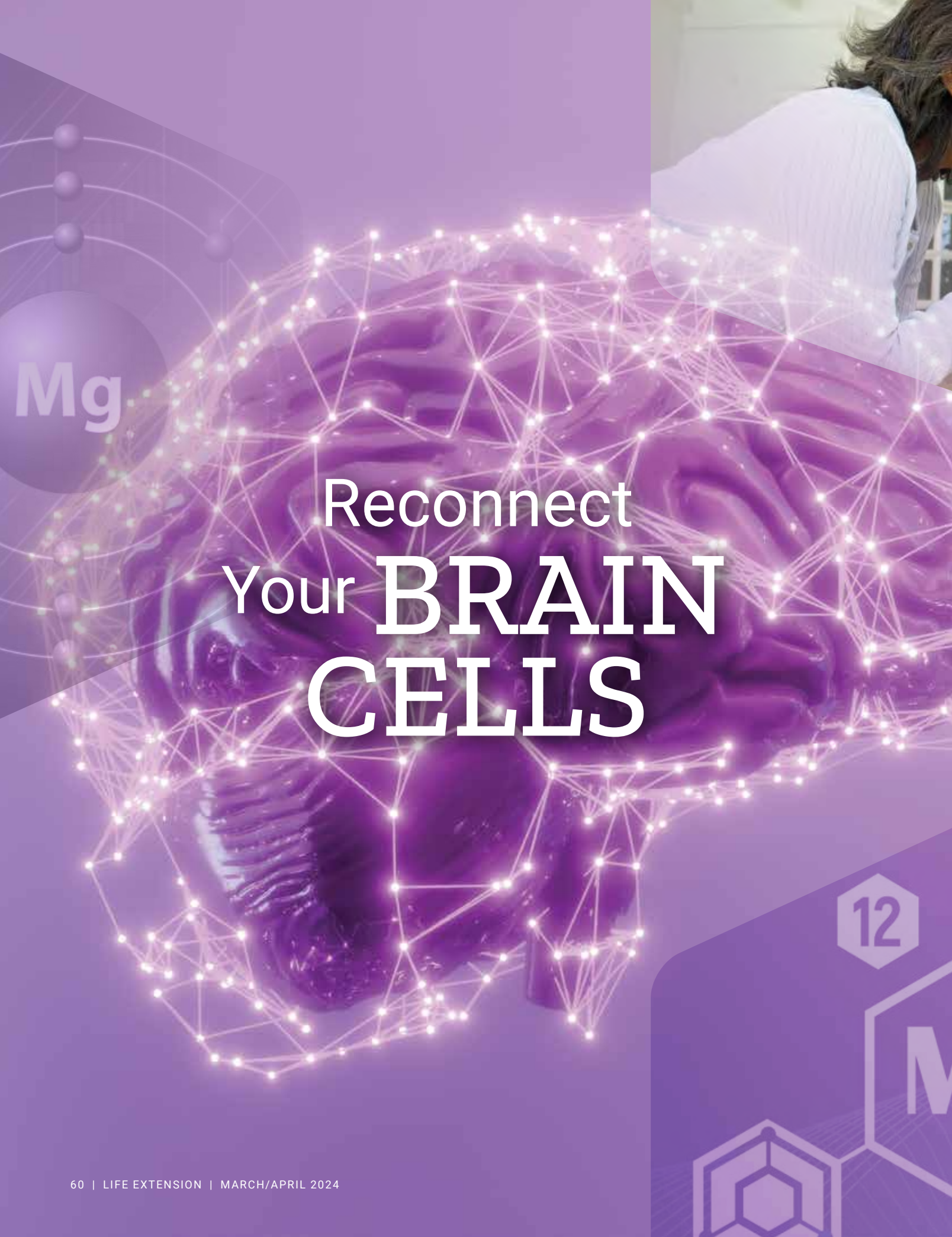
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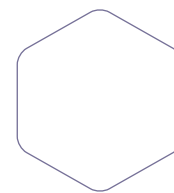


Mg

Reconnect Your **BRAIN** **CELLS**

12

M



BY MICHAEL DOWNEY

As our brains age, we lose connections between brain cells called **synapses**.¹

Loss of synapses is associated with **brain shrinkage**, which is a structural predictor of **cognitive decline**.¹⁻³

Preclinical studies show that by increasing brain **magnesium** concentrations, **synaptic density** (number) and **plasticity** (ability to adapt to stimuli) are enhanced.⁴⁻⁷

Regular magnesium intake, however, does not increase **brain** levels much because many forms of this mineral fail to efficiently cross the **blood-brain barrier**.^{6,8-10}

MIT researchers developed a novel form called **magnesium L-threonate** that changes all that. It is easily absorbed and *does* cross the blood-brain barrier.^{8,11,12}

Taken orally, **magnesium L-threonate** has the ability to significantly boost brain magnesium levels. This enables it to improve **synaptic density and plasticity**, and thus help **reverse** these aspects of **brain aging**.^{8,10,13,14}

The effects are striking. In a **human** study, volunteers who took **magnesium L-threonate** had a *reversal* in measures of **brain age** of more than **nine years**.¹³



Magnesium's Brain Impact

The mineral **magnesium** works throughout the body as a cofactor required for normal functioning of hundreds of **enzymes**.^{15,16}

Magnesium's role in the **brain** is especially critical. It protects **synapses**, the communication connection points between brain cells.¹⁰

In order to learn, or access memory, the brain's synapses require **plasticity**, the ability to adapt and change in response to stimuli.¹⁷

Decreased synaptic plasticity is a major contributor to **cognitive decline** in older adults.¹

Animal studies show that increasing **brain** levels of **magnesium**.^{7,8,10-12,18}

- Increases the total number of **synapses**,
- Improves **synaptic plasticity**,
- Stimulates the growth of new **brain cells**, and
- Improves **learning** and **memory**.

Reaching the Brain

The majority of the U.S population are not getting enough magnesium in their diet.¹⁹ And very little magnesium from supplements enters the brain.^{8,20}

A clinical study found that increasing **blood** magnesium levels by approximately **160%** changed magnesium levels in **cerebrospinal** fluid by only **15%**.²¹

As a result, taking standard oral magnesium provides **bodily** benefits but may not significantly improve **brain function**.⁸

There *is* a way around this problem. Researchers developed a specific form of magnesium that elevates levels of magnesium in the **brain**.^{8,10} It is called **magnesium L-threonate (MgT)**.

In a rodent study, **MgT** raised cerebrospinal fluid levels of magnesium by approximately **15%** and successfully increased **synaptic density**, an effect also observed in a separate cell culture study.⁷

Improving Memory

In this study, the effect on rodents' **cognitive** ability was dramatic.

Aged rats given **magnesium L-threonate** had enhanced **learning** ability, with improvements in short-term *and* long-term **memory**.⁸

Magnesium L-threonate was also tested in two studies utilizing a mouse model of **Alzheimer's**. In both studies, it **prevented** the **loss of synapses** associated with the disease and maintained or **improved memory**.^{10,12}

Another mouse study showed that **magnesium L-threonate** stimulated growth of **new brain cells** in brain areas central to memory and learning. Growth of these cells typically slows or stops in older animals, but magnesium L-threonate *restricted* this decline.¹⁸





Human Trial

To test the cognitive benefits of magnesium L-threonate in **humans**, scientists conducted a randomized, placebo-controlled trial.¹³

Volunteers aged 50-70 years old were given either a placebo or **1,500-2,000 mg of magnesium L-threonate** (depending on body weight) daily for 12 weeks. The participants all had some impairment in executive functioning, the ability to plan, adapt, focus, and make decisions.

Compared to placebo subjects, those receiving **magnesium L-threonate** showed **improved cognitive abilities** after six weeks.

A further **20%** improvement from baseline was observed after 12 weeks¹³ including significantly increased performance speed for **executive function** and **cognitive processing**.

The treatment group's composite scores for all tests combined increased significantly compared to their **baseline** scores and compared to the **placebo** group's scores at weeks six and twelve.¹³

All subjects were assigned a "**brain age**" by comparing their cognition test scores with normal scores for people the same age. At the start of the trial, the participants' *chronological ages* averaged **57.8 years**. Their *brain ages* averaged a much older **68.3 years**.¹³

WHAT
YOU
NEED
TO
KNOW

Magnesium L-Threonate Takes Years Off Your Brain Age

- **Magnesium** helps prevent brain aging and the loss of synapses seen with cognitive decline.
- In animal studies, **magnesium L-threonate** crossed the blood-brain barrier and boosted *brain* magnesium levels to a vastly greater degree than other forms.
- In animal models and human trials, magnesium L-threonate improved cognitive function. In one human study, it *reversed* cognitive measures of **brain age** by a remarkable **nine years**.

After six weeks, those who took **magnesium L-threonate** had improved their *brain age* by an astounding **nine years** and by the end of the study the number was further improved to **9.4 years**.¹³

Overall, taking **magnesium L-threonate**:¹³

- Improved memory and executive function,
- Improved cognitive abilities and speed,
- Reduced fluctuations in cognitive function (cognitive function being worse on some days than others is an early warning sign of mild cognitive impairment), and
- Reversed measures of brain age.

These improvements are consistent with the greater **synaptic density** and **plasticity** shown in preclinical studies of magnesium L-threonate.^{5,10,12,14,18,22}

In another **clinical study**, scientists tested **magnesium L-threonate** in patients with mild to moderate **dementia**. Even at this more advanced stage of cognitive decline, magnesium L-threonate led to improvements in **cognition** and **executive function**.²³

Whether taken in a capsule, powder, or gummy form, **magnesium L-threonate** shows potential to **delay or reverse some measured aspects of brain aging**.

Potential ADHD Benefits

Based on **magnesium L-threonate**'s brain benefits, researchers wondered whether it could also improve **neuropsychiatric** conditions.

In a pilot study, they gave magnesium L-threonate to 15 adults with moderate **ADHD (attention deficit hyperactivity disorder)** for up to 12 weeks.²⁴

Almost **half** the participants displayed clinical improvements.²⁴



Summary

Magnesium supports youthful brain function, and it is needed for functioning of **brain synapses**, vital for complex tasks such as learning and memory.

Unlike other forms **magnesium L-threonate** increases brain magnesium levels by a significant amount.

This enables it to boost **synaptic density** and **plasticity**.

A clinical study found that magnesium L-threonate reversed measures of **brain age** in people by **nine years**. •

References

1. Available at: <https://ipi.oregonstate.edu/mic/health-disease/cognitive-function-in-brief#:~:text=Cognition%20basically%20means%20using%20your,problem%20solving%2C%20and%20multitasking>. Accessed September 28, 2023.
2. Temido-Ferreira M, Coelho JE, Pousinha PA, et al. Novel Players in the Aging Synapse: Impact on Cognition. *J Caffeine Adenosine Res*. 2019 Sep 1;9(3):104-27.
3. Subramanian J, Savage JC, Tremblay M. Synaptic Loss in Alzheimer's Disease: Mechanistic Insights Provided by Two-Photon in vivo Imaging of Transgenic Mouse Models. *Front Cell Neurosci*. 2020;14:592607.
4. Maier JAM, Locatelli L, Fedele G, et al. Magnesium and the Brain: A Focus on Neuroinflammation and Neurodegeneration. *Int J Mol Sci*. 2022 Dec 23;24(1).
5. Zhou H, Liu G. Regulation of density of functional presynaptic terminals by local energy supply. *Mol Brain*. 2015 Jul 17;8:42.
6. Yamanaka R, Shindo Y, Oka K. Magnesium Is a Key Player in Neuronal Maturation and Neuropathology. *International Journal of Molecular Sciences*. 2019;20(14):3439.
7. Sun Q, Weinger JG, Mao F, et al. Regulation of structural and functional synapse density by L-threonate through modulation of intraneuronal magnesium concentration. *Neuropharmacology*. 2016 Sep;108:426-39.
8. Slutsky I, Abumaria N, Wu LJ, et al. Enhancement of learning and memory by elevating brain magnesium. *Neuron*. 2010 Jan 28;65(2):165-77.
9. Barbagallo M, Veronese N, Dominguez LJ. Magnesium in Aging, Health and Diseases. *Nutrients*. 2021 Jan 30;13(2).
10. Li W, Yu J, Liu Y, et al. Elevation of brain magnesium prevents synaptic loss and reverses cognitive deficits in Alzheimer's disease mouse model. *Mol Brain*. 2014 Sep 13;7:65.
11. Sadir S, Tabassum S, Emad S, et al. Neurobehavioral and biochemical effects of magnesium chloride (MgCl₂), magnesium sulphate (MgSO₄) and magnesium-L-threonate (MgT) supplementation in rats: A dose dependent comparative study. *Pak J Pharm Sci*. 2019 Jan;32(1(Supplementary)):277-83.
12. Huang Y, Huang X, Zhang L, et al. Magnesium boosts the memory restorative effect of environmental enrichment in Alzheimer's disease mice. *CNS Neurosci Ther*. 2018 Jan;24(1):70-9.
13. Liu G, Weinger JG, Lu ZL, et al. Efficacy and Safety of MMFS-01, a Synapse Density Enhancer, for Treating Cognitive Impairment in Older Adults: A Randomized, Double-Blind, Placebo-Controlled Trial. *J Alzheimers Dis*. 2016;49(4):971-90.
14. Abumaria N, Yin B, Zhang L, et al. Effects of elevation of brain magnesium on fear conditioning, fear extinction, and synaptic plasticity in the infralimbic prefrontal cortex and lateral amygdala. *J Neurosci*. 2011 Oct 19;31(42):14871-81.
15. Workerling JL, Doyle RP, Bortz J. Challenges in the Diagnosis of Magnesium Status. *Nutrients*. 2018 Sep 1;10(9).
16. Uwitonze AM, Razzaque MS. Role of Magnesium in Vitamin D Activation and Function. *J Am Osteopath Assoc*. 2018 Mar 1;118(3):181-9.
17. Mateos-Aparicio P, Rodríguez-Moreno A. The Impact of Studying Brain Plasticity. *Front Cell Neurosci*. 2019;13:66.
18. Jia S, Liu Y, Shi Y, et al. Elevation of Brain Magnesium Potentiates Neural Stem Cell Proliferation in the Hippocampus of Young and Aged Mice. *J Cell Physiol*. 2016 Sep;231(9):1903-12.
19. Al Alawi AM, Majoni SW, Falhammar H. Magnesium and Human Health: Perspectives and Research Directions. *Int J Endocrinol*. 2018;2018:9041694.
20. Kim YJ, McFarlane C, Warner DS, et al. The effects of plasma and brain magnesium concentrations on lidocaine-induced seizures in the rat. *Anesth Analg*. 1996 Dec;83(6):1223-8.
21. McKee JA, Brewer RP, Macy GE, et al. Analysis of the brain bioavailability of peripherally administered magnesium sulfate: A study in humans with acute brain injury undergoing prolonged induced hypermagnesemia. *Crit Care Med*. 2005 Mar;33(3):661-6.
22. Slutsky I, Sadeghpour S, Li B, et al. Enhancement of synaptic plasticity through chronically reduced Ca²⁺ flux during uncorrelated activity. *Neuron*. 2004 Dec 2;44(5):835-49.
23. Wroolie TE, Watson K, Chen K, et al. Open Label Trial of Magnesium L-Threonate in Patients with Dementia. *Innov Aging*. 2017 Jul Jun 30;1(Suppl 1):170. doi: 10.1093/geroni/igx004.661. eCollection 2017 Jul.
24. Surman C, Vaudreuil C, Boland H, et al. L-Threonic Acid Magnesium Salt Supplementation in ADHD: An Open-Label Pilot Study. *J Diet Suppl*. 2021;18(2):119-31.



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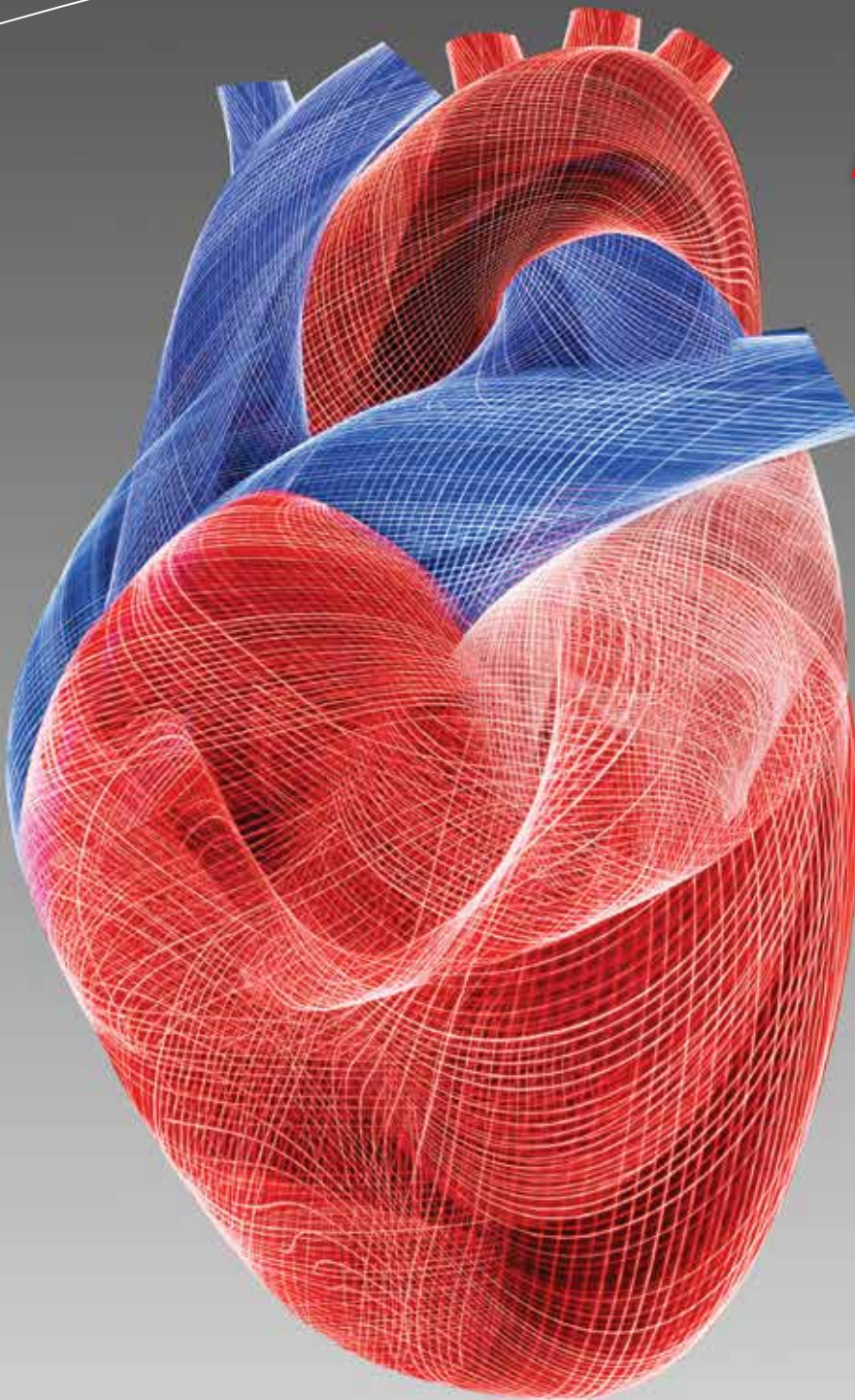
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* *Int Angiol.* 2014 Feb;33(1):20-6.



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Nancy

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REVIEW

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References

1. *Skin Pharmacol Physiol.* 2014;27(3):113-9.
2. *Vet Rec.* 1984 Dec 22-29;114(25-26):642-5.
3. *Nutr Today.* 1993;28(4):13-8.

Caution: Individuals with inborn errors of copper metabolism (e.g. Wilson's disease) should avoid daily, chronic use of this product.

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Reduce the **RISK** of **SITTING** Too Long



BY HEATHER L. MAKAR

Trends show that Americans now spend **over half** their waking hours **seated**.¹⁻³ The prevalence of physical inactivity is over **25%**.⁴

This sedentary lifestyle (prolonged sitting) can pose serious health risks.

Extended sitting results in poor blood circulation, which can lead to **blood clots**, especially in the deep veins of the legs. This condition is known as **deep vein thrombosis (DVT)**.^{5,6}

These clots develop in the legs but can break loose and travel to the lungs. This condition is estimated to cause up to **100,000 deaths** in the U.S. annually.⁷

Researchers have identified two **plant-based** compounds that can help promote healthy blood flow and reduce the risk of **deep vein thrombosis**.

A combination of **nattokinase** and **French maritime pine bark extract** has been shown in a **clinical trial** to lower the risk of developing clots, when used in combination with an exercise program, in people on long (seven- to eight-hour) **airplane** flights.⁸

The Risks of Prolonged Sitting

Sitting for extended periods can increase risk of **deep vein thrombosis (DVT)**.⁹ Even those who exercise regularly may be at risk if they have other risk factors, including spending excessive time **seated**.¹⁰

That's because sitting **immobilizes the calf muscles**, preventing them from contracting to transport deoxygenated blood back up to the heart.^{11,12}

This can reduce **blood flow** by up to **two-thirds** in the legs, leading to blood pooling in vessels.¹³ This stagnant blood can then **form a clot** in the veins deep in the body.¹⁴

Symptoms may include swelling, pain, or warmth in the affected leg.

Air travel is a major risk factor for deep vein thrombosis. The risk of DVT persists for over **two weeks** after extended flights.¹⁵

Other risk factors for deep vein thrombosis include advanced age, pregnancy, bed rest after an injury or surgery, diabetes, hormonal imbalances, dehydration, obesity, and smoking.^{9,14,16}

Those **over 75** are at dramatically increased risk compared to those **under 40** because of impaired clotting mechanisms.¹⁷

Scientists have identified two ingredients that can support healthier blood flow and inhibit venous blood clots: the **enzyme nattokinase** and an **extract of French maritime pine bark**.¹⁸⁻²⁰

Nattokinase Fights Clotting

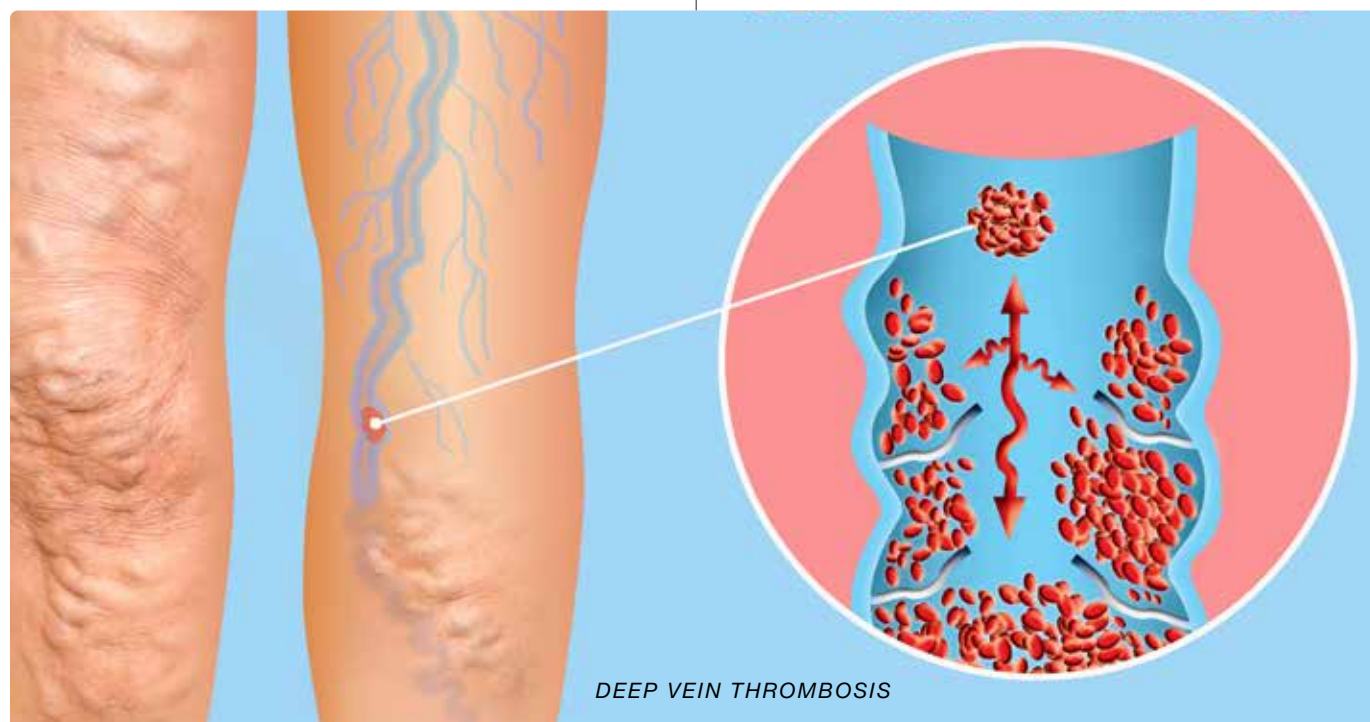
Natto, a traditional Japanese food contains an **enzyme** called **nattokinase**.¹⁹ Researchers found, two decades ago, that nattokinase is a more powerful **anti-clotting agent** than 173 other foods tested.²¹

Nattokinase helps fight dangerous clots by:^{18,19,22-26}

- Dissolving **fibrin**, the protein that binds clots together,
- Reducing activation of **pro-clotting factors**,
- Lowering the amount of **fibrinogen**, a protein that is converted into fibrin,
- Suppressing **platelet accumulation** to decrease clot formation, and
- Decreasing **high blood pressure**.

In a **placebo-controlled** study, these anti-clotting properties were detected in the blood samples of participants within **two to five hours** of taking a single dose of **2,000 fibrinolytic units of nattokinase**.²³

In another study of 153 adults who sought treatment for **deep vein thrombosis** or related vascular issues, all subjects were given either a daily dose of **2,000 fibrinolytic units of nattokinase** after vascular surgery or a month-long course of an anticoagulant **drug**.





Help Prevent Deep Vein Thrombosis

- Sitting for long periods can lead to **deep vein thrombosis**, which may cause a fatal pulmonary embolism.
- The enzyme **nattokinase** helps prevent this dangerous clotting.
- An extract of **French maritime pine bark** also prevents deep vein thrombosis and reduces leg swelling.
- In a clinical study, a combination of these ingredients prevented deep vein thrombosis and reduced ankle swelling in high-risk passengers on **long flights**.

Nattokinase reduced deep vein thrombosis difficulties beyond the previous drug or surgery, leading to **complete remission** of remaining vascular symptoms. It worked without side effects such as internal bleeding, a common effect of anticoagulant drugs.^{18,27,28}

Maritime Pine Bark Protects Veins

French maritime pine bark extract contains compounds called **procyanidins**.²⁹

Procyanidins offer anti-inflammatory and platelet-modulating benefits that help contribute to **vascular protection**.^{8,29-31}

The extract also stimulates the synthesis of **nitric oxide** in the inner lining of blood vessels.²⁹ Nitric oxide is found in the **endothelium** (lining) of blood vessels that promotes **vascular elasticity**.³²

In a preclinical screening of **13** polyphenol-rich plant extracts, *only* French maritime pine bark *improved* **nitric oxide** availability in both healthy and dysfunctional endothelial cells of **veins**.³³

Those at risk of deep vein thrombosis often suffer from lower leg swelling, or **edema**.

Leg veins contain **one-way valves** which prevent blood from backflowing. These valves can become damaged, causing blood and fluids to remain in the lower legs, leading to swelling.³⁴

Medical professionals frequently advise the use of **compression socks** or stockings to relieve this swelling. However, patients report multiple challenges with consistently using compression stockings, including difficulty putting them on, discomfort wearing them (especially in hot weather), and appearance.³⁵

Research conducted over a 12-month period showed that French maritime pine bark extract was roughly as effective as **compression stockings** in reducing leg edema, and that the combination of the two was superior.³⁶

Reducing Future DVT Risk

Roughly **one-third** of those who suffer from **deep vein thrombosis** are likely to have *another* episode within a decade, especially within the first year.¹⁶

In addition, **up to 50%** of those with DVT suffer from **post-thrombotic syndrome** as long-term sequelae. Symptoms include chronic leg discomfort, persistent swelling, skin discoloration, and heaviness of the affected limb.³⁷

In a study of 815 participants, each subject was tested twice a year for **six years** following their initial thrombosis. All subjects adhered to a **standard treatment** involving compression stockings, weight management, and regular exercise.

Some subjects also took either aspirin, prescription anticoagulants, or **200 mg** of French maritime **pine bark extract**.³⁸

The rate of a **deep vein thrombosis recurrence** or **post-thrombotic syndrome** was:

- **14.9%** in those receiving only standard treatment,
- **12.9%** in those taking aspirin,
- Between **6.7%** and **10.7%** in those taking anticoagulants, and
- Just **3.6%** in those taking French maritime pine bark.

French maritime pine bark extract was by far the most effective way to prevent future clotting problems.

Powerful Combination

Combining **nattokinase** with **French maritime pine bark extract** offers significant protection against deep vein thrombosis.⁸

In a study of 204 **high-risk** passengers traveling long distances by air, half took **nattokinase** and **French maritime pine bark extract** two hours before their flight, with a second dose six hours later. The rest received placebos.⁸

While **5.4%** of the placebo group suffered flight-induced deep vein thrombosis, there were **no cases** in those taking the nattokinase-pine bark combination.⁸

Furthermore, the **placebo** group had a **12% increase** in lower **leg edema** (swelling) score, compared to a **15% reduction** in the treatment group.⁸

Together, these two ingredients relieved swelling and helped prevent thrombosis.⁸

Summary

Sitting too much greatly increases one's risk of a dangerous clotting condition, **deep vein thrombosis**.

Research has shown that the enzyme **nattokinase** and an extract of **French maritime pine bark** can reduce the risk of clotting and of deep vein thrombosis.

These compounds protect vein health by inhibiting blood clots and promoting healthy blood flow. •



References

- Matthews CE, Carlson SA, Saint-Maurice PF, et al. Sedentary Behavior in U.S. Adults: Fall 2019. *Med Sci Sports Exerc.* 2021 Dec 1;53(12):2512-9.
- Available at: <https://www.bls.gov/news.release/atus.nr0.htm>. Accessed November 20, 2023.
- de Oliveira da Silva Scaranni P, Griep RH, Pitanga FJG, et al. Work from home and the association with sedentary behaviors, leisure-time and domestic physical activity in the ELSA-Brasil study. *BMC Public Health.* 2023 Feb 10;23(1):305.
- Available at: <https://www.cdc.gov/physicalactivity/data/inactivity-prevalence-maps/index.html>. Accessed November 20, 2023.
- Kurosawa Y, Nirengi S, Tabata I, et al. Effects of Prolonged Sitting with or without Elastic Garments on Limb Volume, Arterial Blood Flow, and Muscle Oxygenation. *Med Sci Sports Exerc.* 2022 Mar 1;54(3):399-407.
- Available at: <https://www.health.harvard.edu/pain/the-dangers-of-sitting>. Accessed November 20, 2023.
- Available at: <https://www.cdc.gov/ncbddd/dvt/infographic-impact.html>. Accessed November 20, 2023.
- Cesarone MR, Belcaro G, Nicolaides AN, et al. Prevention of venous thrombosis in long-haul flights with Flite Tabs: the LONFLIT-FLITE randomized, controlled trial. *Angiology.* 2003 Sep-Oct;54(5):531-9.
- Benjamin Wedro M, FACEP, FAAEM. Deep Vein Thrombosis (DVT, Blood Clot in the Legs). *MedicineNet.* 2021.
- Available at: <https://www.uclahealth.org/news/athletes-at-risk-for-deep-vein-thrombosis>. Accessed November 20, 2023.
- Tansey EA, Montgomery LEA, Quinn JG, et al. Understanding basic vein physiology and venous blood pressure through simple physical assessments. *Adv Physiol Educ.* 2019 Sep 1;43(3):423-9.
- Houghton DE, Ashrani A, Liedl D, et al. Reduced calf muscle pump function is a risk factor for venous thromboembolism: a population-based cohort study. *Blood.* 2021 Jun 10;137(23):3284-90.
- Kucharzewski M, Duda K, Doman A, et al. The Awareness of Airline Passengers About the Risk of Deep Venous Thrombosis during an Aeroplane Flight. *Phlebological Review.* 2021;29(1):26-31.
- Available at: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/pulmonary-embolism>. Accessed November 20, 2023.
- Cazaubon M. Deep vein thrombosis and air travel: Risk management in 2015. *Phlebology.* 2015 01/01;22:25-32.
- Beckman MG, Hooper WC, Critchley SE, Ortel TL. Venous thromboembolism: a public health concern. *Am J Prev Med.* 2010 Apr;38(4 Suppl):S495-501.
- Tschan SL, Bolliger D. Coagulation and Aging: Implications for the Anesthesiologist. *Current Anesthesiology Reports.* 2021 11/19;11(4):387-95.
- Gallelli G, Di Mizio G, Palleria C, et al. Data Recorded in Real Life Support the Safety of Nattokinase in Patients with Vascular Diseases. *Nutrients.* 2021 Jun 13;13(6).
- Chen H, McGowan EM, Ren N, et al. Nattokinase: A Promising Alternative in Prevention and Treatment of Cardiovascular Diseases. *Biomark Insights.* 2018;13:1177271918785130.
- Rohdewald P. Pleiotropic Effects of French Maritime Pine Bark Extract to Promote Healthy Aging. *Rejuvenation Res.* 2019 Jun;22(3):210-7.
- Sumi H, Hamada H, Nakanishi K, Hiratani H. Enhancement of the fibrinolytic activity in plasma by oral administration of nattokinase. *Acta Haematol.* 1990;84(3):139-43.
- Hsia CH, Shen MC, Lin JS, et al. Nattokinase decreases plasma levels of fibrinogen, factor VII, and factor VIII in human subjects. *Nutr Res.* 2009 Mar;29(3):190-6.
- Kurosawa Y, Nirengi S, Homma T, et al. A single-dose of oral nattokinase potentiates thrombolysis and anti-coagulation profiles. *Sci Rep.* 2015 Jun 25;5:11601.
- Jang JY, Kim TS, Cai J, et al. Nattokinase improves blood flow by inhibiting platelet aggregation and thrombus formation. *Lab Anim Res.* 2013 Dec;29(4):221-5.
- Jensen GS, Lenninger M, Ero MP, Benson KF. Consumption of nattokinase is associated with reduced blood pressure and von Willebrand factor, a cardiovascular risk marker: results from a randomized, double-blind, placebo-controlled, multicenter North American clinical trial. *Integr Blood Press Control.* 2016;9:95-104.
- Kim JY, Gum SN, Paik JK, et al. Effects of nattokinase on blood pressure: a randomized, controlled trial. *Hypertens Res.* 2008 Aug;31(8):1583-8.
- Braun G. [Management of bleeding in patients on antithrombotic therapy]. *Med Klin Intensivmed Notfmed.* 2021 Sep;116(6):491-8.
- Rivera-Caravaca JM, Camelo-Castillo A, Ramirez-Macias I, et al. Antithrombotic Therapy in Patients with Peripheral Artery Disease: A Focused Review on Oral Anticoagulation. *Int J Mol Sci.* 2021 Jul 1;22(13).
- Lichota A, Gwozdzinski L, Gwozdzinski K. Therapeutic potential of natural compounds in inflammation and chronic venous insufficiency. *Eur J Med Chem.* 2019 Aug 15;176:68-91.
- Golanski J, Muchova J, Golanski R, et al. Does pycnogenol intensify the efficacy of acetylsalicylic acid in the inhibition of platelet function? In vitro experience. *Postepy Hig Med Dosw (Online).* 2006;60:316-21.
- Grimm T, Schafer A, Hogger P. Antioxidant activity and inhibition of matrix metalloproteinases by metabolites of maritime pine bark extract (pycnogenol). *Free Radic Biol Med.* 2004 Mar 15;36(6):811-22.
- Hartono F, Yusuf I, Suhadi B, et al. Trauma magnitude of the metapophyseal cancellous affects the incidence of deep vein thrombosis. A prospective cohort study on the dynamic of Collagen I, Collagen IV, Tissue factor, P-Selectin and Nitric Oxide in the thrombus formation following hip and knee surgeries. *Ann Med Surg (Lond).* 2021 Mar;63:102190.
- Jones HS, Papageorgiou M, Gordon A, et al. Physiologically relevant screening of polyphenol-rich commercial preparations for bioactivity in vascular endothelial cells and application to healthy volunteers: A viable workflow and a cautionary tale. *Biochem Pharmacol.* 2020 Mar;173:113754.
- Available at: <https://www.uptodate.com/contents/lower-extremity-chronic-venous-disease-beyond-the-basics/print>. Accessed November 20, 2023.
- Gong JM, Du JS, Han DM, et al. Reasons for patient non-compliance with compression stockings as a treatment for varicose veins in the lower limbs: A qualitative study. *PLoS One.* 2020;15(4):e0231218.
- Erriichi BM, Belcaro G, Hosoi M, et al. Prevention of post thrombotic syndrome with Pycnogenol(R) in a twelve month study. *Panminerva Med.* 2011 Sep;53(3 Suppl 1):21-7.
- Farrell JJ, Sutter C, Tavri S, Patel I. Incidence and interventions for post-thrombotic syndrome. *Cardiovasc Diagn Ther.* 2016 Dec;6(6):623-31.
- Belcaro G, Dugall M, Hu S, et al. Prevention of recurrent venous thrombosis and post-thrombotic syndrome. *Minerva Cardioangiol.* 2018 Jun;66(3):238-45.



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References

1. *Nutrients*. 2023. 6 30;15(13):2995.
2. *Muscles*. 2023. 2(2), 204-217.
3. *Nutrients*. 2017 3; 9(3): 290.
4. *J Pharm Pharmacol*. 2011 10;63(10):1290-4.
5. *J Int Soc Sports Nutr*. 2012; 9 27;9(1):46.



Terminalia bellerica





Fruit Extract Protects KIDNEYS in People with High URIC ACID

BY MARK FULTON

Uric acid is a waste product that is normally produced by the body in small amounts.

When uric acid blood levels get too *high*, this is associated with problems including **gout**, **kidney stones**, and certain types of kidney disorders.¹

Data from 2007–2016 show that roughly **20%** of U.S. adults had elevated uric acid levels, and about **4%** were diagnosed with **gout**.²

Up to two-thirds of people with **high** uric acid levels don't show any symptoms.³

Medications to lower uric acid levels come with potential **side effects**.³

Scientists have discovered that an extract of the fruit of the *Terminalia bellerica* tree can safely reduce elevated uric acid levels in **humans**.⁴

In a study of patients with **chronic kidney disease** and elevated uric acid, a dosage regimen of *Terminalia bellerica* extract reduced uric acid by nearly **20%** and improved markers of **kidney** health.⁵

In the same study, elevated **creatinine** levels, a marker of impaired kidney function, decreased by over **11.5%**.⁵

In a clinical study, *Terminalia bellerica* offered kidney protection for individuals with high **uric acid** levels.

Causes of Elevated Uric Acid

Uric acid is a normal product of metabolism.

In a healthy body, the small amount of uric acid that is produced is easily filtered by the kidneys and removed from the body in urine.

High levels of uric acid, called **hyperuricemia**, can lead to a painful arthritic condition known as **gout**.

Risk factors for gout include, high blood pressure and obesity, as well as excess intake of alcohol and certain foods (including organ meats, bacon, turkey, and sardines).³

Individuals with impaired **kidney function** are not able to properly filter waste products from the blood, and this results in buildup of those **waste products**. This includes uric acid. Even in people without kidney disease, kidney function wanes with age, so less uric acid is eliminated.⁶

Dangers of Hyperuricemia

Only about **4%** of the population suffers from **gout**, but at least **21%** of adults have high uric acid levels.²

Even *asymptomatic* hyperuricemia has been found to be significantly associated with risk of health-related issues including hypertension, chronic kidney disease, cardiovascular disease, and insulin resistance syndrome.⁷

Uric acid tends to **crystalize** when its concentration is too great. The formation of solid crystals in the joints between bones causes inflammation and pain, known as **gout**.

Crystals can also form in the urine, causing painful **kidney stones**.³

Reduce Uric Acid

High uric acid levels can lead to many other significant problems.

Long-term elevated uric acid can damage the linings of blood vessels and accelerate the development of **cardiovascular disease**.^{5,8,9}

It is also associated with metabolic diseases, including **metabolic syndrome** and **type II diabetes**.^{5,8,9}

A few medications help reduce uric acid, most notably **allopurinol** and **febuxostat**. However, they can lead to various side effects, including **cardiovascular** and **liver** abnormalities and even **renal failure**. Incredibly, some gout medicines can precipitate gout symptoms.¹⁰

Scientists investigating ways to safely reduce uric acid levels focused on *Terminalia bellerica*, a tree native to Southeast Asia. Its fruit has been used for centuries in Indian Ayurvedic medicine to promote overall health.



Reduce Uric Acid for Kidney Health

- **Uric acid** is a metabolic waste product. High blood levels of uric acid are common in adults and can cause painful **gout** and **kidney stones**.
- An extract of the fruit of the *Terminalia bellerica* tree safely and effectively reduced high uric acid levels in human studies.
- A clinical trial in patients with **chronic kidney disease** and elevated uric acid levels found that one dosage of *Terminalia bellerica* extract improved markers of kidney function, reducing **creatinine** levels by over **11.5%** and improving the kidneys' blood-filtering activity.



Terminalia bellerica

Research suggested that bioactive compounds in the *Terminalia bellerica* fruit provide anti-inflammatory effects.¹¹ This tannin-rich extract is believed to inhibit xanthine oxidase, an *enzyme* involved in the synthesis of **uric acid**.⁴

In a pilot study on patients without chronic kidney disease but with **hyperuricemia**,⁴ groups receiving *Terminalia bellerica* **extract** had a significant reduction in serum uric acid levels starting at four weeks. Levels continued to drop for 16 weeks, then stabilized at a lower level.

On average, those receiving **500 mg** of *Terminalia bellerica* extract **twice a day** had a **28.4%** uric acid reduction.

This reduced uric acid blood levels *below* **6 mg/dL**, which is the therapeutic target doctors aim for in treating patients with **gout**.¹²

Terminalia bellerica may help prevent many different kinds of health problems caused by elevated uric acid.

Clinical Trial Shows Additional Benefits

After early studies showed *Terminalia bellerica*'s ability to lower uric acid, scientists decided to evaluate whether it could help patients who had both **chronic kidney disease** and elevated **uric acid**.⁵

In a trial of patients with **chronic kidney disease** and **elevated uric acid**, participants were randomized to receive:

- the gout/uric acid medication febuxostat **40 mg**, once daily, or
- **two different** dosages of *Terminalia bellerica* extract.

After 24 weeks, reduced **uric acid** and **creatinine** levels were seen in all the groups along with beneficial *increases* in renal filtration rate.

The fruit extract *lowered* uric acid levels starting at just four weeks in all participants.

The *higher* dosage of **1,000 mg** twice a day *lowered* uric acid by almost **20%** by the end of the 24-week treatment period.⁵

People with chronic kidney disease have compromised kidney function—meaning their kidneys have difficulty keeping up with regular housekeeping and clearing out waste. Reducing **uric acid** *production* may have lowered the kidney workload in trial participants.

This may explain in part why in this trial, *Terminalia bellerica* extract improved measures of kidney function.

In those taking **1,000 mg** twice a day of *Terminalia bellerica*, **creatinine** levels decreased by over **11.5%** by the end of the study. Creatinine is a widely used marker of kidney function.

Terminalia bellerica also significantly lowered **CRP** (C-reactive protein), a marker of systemic inflammation, and led to improvements in **endothelial function**, a sign of blood vessel health.¹³

The **estimated glomerular filtration rate (eGFR)**, a measure of the blood-filtering capacity of the kidneys, increased, indicating a boost in kidney function.

These data sets indicate potential benefits for those with kidney disease and high uric acid levels.

Summary

Elevated levels of **uric acid** in the blood are common in adults and tend to worsen with age.

This can lead to **gout** and **kidney stones**. Uric acid elevations are also associated with **chronic kidney disease** and other long-term health problems.



Studies show that extracts of the fruit of the *Terminalia bellerica* tree can be effective at reducing uric acid levels in humans.

In patients with **kidney disease** and elevated **uric acid**, *Terminalia bellerica* was able to improve multiple markers of **kidney function**. •

References

1. Available at: <https://www.uptodate.com/contents/uric-acid-kidney-diseases>. Accessed November 21, 2023.
2. Chen-Xu M, Yokose C, Rai SK, et al. Contemporary Prevalence of Gout and Hyperuricemia in the United States and Decadal Trends: The National Health and Nutrition Examination Survey, 2007-2016. *Arthritis Rheumatol*. 2019 Jun;71(6):991-9.
3. Available at: <https://www.uptodate.com/contents/gout-beyond-the-basics>. Accessed November 21, 2023.
4. Usharani P, Nutalapati C, Pokuri VK, et al. A randomized, double-blind, placebo-, and positive-controlled clinical pilot study to evaluate the efficacy and tolerability of standardized aqueous extracts of Terminalia chebula and Terminalia bellerica in subjects with hyperuricemia. *Clinical Pharmacology: Advances and Applications*. 2016;8:51-9.
5. Pingali U, Nutalapati C, Koilagundla N, Taduri G. A randomized, double-blind, positive-controlled, prospective, dose-response clinical study to evaluate the efficacy and tolerability of an aqueous extract of Terminalia bellerica in lowering uric acid and creatinine levels in chronic kidney disease subjects with hyperuricemia. *BMC Complement Med Ther*. 2020 Sep 15;20(1):281.
6. Wang Y, Zhang W, Qian T, et al. Reduced renal function may explain the higher prevalence of hyperuricemia in older people. *Scientific Reports*. 2021 2021/01/14;11(1):1302.
7. Available at: https://www.uptodate.com/contents/asymptomatic-hyperuricemia?search=hyperuricemia%20causes&source=search_result&selectedTitle=1~150&usage_type=default&display_rank=1. Accessed November 21, 2023.
8. Gliozzi M, Malara N, Muscoli S, Mollace V. The treatment of hyperuricemia. *Int J Cardiol*. 2016 Jun 15;213:23-7.
9. Nishizawa H, Maeda N, Shimomura I. Impact of hyperuricemia on chronic kidney disease and atherosclerotic cardiovascular disease. *Hypertens Res*. 2022 Apr;45(4):635-40.
10. Available at: https://www.uptodate.com/contents/pharmacologic-urate-lowering-therapy-and-treatment-of-tophi-in-patients-with-gout?search=gout%20medicine%20side%20effect&source=search_result&selectedTitle=4~150&usage_type=default&display_rank=4#H2830779235. Accessed November 21, 2023.
11. Xu Y, Tang G, Zhang C, et al. Gallic Acid and Diabetes Mellitus: Its Association with Oxidative Stress. *Molecules*. 2021 Nov 24;26(23).
12. Perez- Ruiz F, Lioté F. Lowering serum uric acid levels: What is the optimal target for improving clinical outcomes in gout? *Arthritis Care & Research*. 2007 Oct 15;57(7):1324-8.
13. Pingali U, Nutalapati C, Koilagundla N, Taduri G. A randomized, double-blind, positive-controlled, prospective, dose-response clinical study to evaluate the efficacy and tolerability of an aqueous extract of Terminalia bellerica in lowering uric acid and creatinine levels in chronic kidney disease subjects with hyperuricemia. *BMC Complementary Medicine and Therapies*. 2020 Sep 15;20(1):281.

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References

1. Available at: <https://www.mayo.edu/research/clinical-trials/cls-20438802>. Accessed June 22, 2020,
2. Available at: <https://pubmed.ncbi.nlm.nih.gov/36304817/>

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REVIEW

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*European Journal of Nutrition. 2011;50(5):387-389.

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References

1. JAMA Ophthalmol. 2015;133(12):1415-24.
2. Nutrients. 2013 April;5(4):1169-85.
3. Nutrition. 2011 Sep;27(9):960-6.
4. Free Radic Biol Med. 2012;53(6):1298-307.
5. J Ophthalmol. 2015;2015:523027.

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Vitamin C and Gum Disease

BY LAURIE MATHENA



Periodontitis is a gum infection that damages the soft tissue around teeth, leading to **tooth loss**.

It has been connected to an increased risk of cardiovascular and respiratory diseases, arthritis, premature births, and other serious conditions.^{1,2}

Diabetics are at a high risk for periodontitis.²

Nearly half of adults over age 30 have some form of periodontal disease, while in those over age 65 the prevalence rises to over **70%**.³

Vitamin C is an essential nutrient for the health of gum and periodontal tissues.

Recent studies on the link between vitamin C and the risk and severity of gum disease have found the following:

- **Vitamin C deficiency is a risk factor for periodontitis.**⁴ In an observational study of patients with periodontitis, vitamin C levels were *significantly lower* in those with **Stage IV** periodontitis (the most severe stage, with the potential for loss of all teeth) as compared to the people with early stages of disease. This led researchers to conclude that vitamin C *deficiency* could increase risk of periodontitis.

- **Higher vitamin C intake is associated with less plaque.**⁵

Another observational study revealed that patients with periodontitis did not meet the recommended intake levels of vitamin C. However, the *higher* the intake of vitamin C, the *lower* the **plaque index value** (an assessment of the levels and rate of plaque formation on tooth surfaces). These results reinforce evidence that vitamin C could help protect against the onset of periodontal disease.

- **Poor dietary intake of vitamin C and other nutrients increases risk of periodontal disease.**⁶

A systematic review of research databases found that lower intake of vitamin C (as well as vitamin E, beta-carotene, and calcium) was associated with increased risk of periodontal disease in older adults.

- **Smoking could increase periodontitis by reducing vitamin C levels.**⁷ Smokers have a higher prevalence and severity of periodontal disease than nonsmokers. Smokers also require almost two-fold higher intake of vitamin C than nonsmokers to reach adequate vitamin C concentration.⁸ One study investigated the association between smoking and vitamin C levels and its impact on periodontal condition in older adults. The researchers found that subjects with the *highest* prevalence of periodontal issues had the lowest vitamin C levels; this may be influenced by smoking status.⁷

The above evidence suggests that **vitamin C** intake when used in conjunction with daily oral health—proper brushing and flossing—and regular periodontal checkups may help combat gum disease, reduce plaque, and support oral health. •



References

1. Available at: <https://www.ada.org/en/resources/research/science-and-research-institute/oral-health-topics/periodontitis>. Accessed November 28, 2023.
2. Martínez-García M, Hernández-Lemus E. Periodontal Inflammation and Systemic Diseases: An Overview. *Front Physiol.* 2021;12:709438.
3. Available at: <https://www.cdc.gov/oralhealth/conditions/periodontal-disease.html>. Accessed November 22, 2023.
4. Assaf M, Rabi H. Assessment of Vitamin C Levels in Periodontal Patients: A Cross-Sectional Study in Palestine. *J Pharm Bioallied Sci.* 2022 Jul;14(Suppl 1):S903-S6.
5. Guasti L, Cianferotti L, Pampaloni B, et al. Evaluation of food and nutrient intake in a population of subjects affected by periodontal disease with different levels of bone mineral density. *Front Endocrinol (Lausanne).* 2023;14:1098366.
6. O'Connor JP, Milledge KL, O'Leary F, et al. Poor dietary intake of nutrients and food groups are associated with increased risk of periodontal disease among community-dwelling older adults: a systematic literature review. *Nutr Rev.* 2020 Feb 1;78(2):175-88.
7. Yoshihara A, Nakashima K, Suwama K, et al. Interaction between serum vitamin C levels and smoking on the periodontal condition in older adults. *J Periodontal Res.* 2022 Jun;57(3):587-93.
8. Carr AC, Lykkesfeldt J. Factors Affecting the Vitamin C Dose-Concentration Relationship: Implications for Global Vitamin C Dietary Recommendations. *Nutrients.* 2023 Mar 29;15(7).



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comprehensive formula
support healthy memory
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CAUTION: Do not use if you are of childbearing age, pregnant
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Item #02396

60 vegetarian tablets



Item #02397

60 vegetarian tablets



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THiNK ZiNC FOR IMMUNE HEALTH

**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.



Item #01813

50 mg • 90 vegetarian capsules



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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"Great product, works well."

Lloyd

VERIFIED CUSTOMER REVIEW



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GLUTEN
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1
DAILY

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GMO
LE CERTIFIED

Item #01778

100 vegetarian capsules

Each bottle provides a supply that lasts
more than three months.

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fine health food stores everywhere.

Selenium promotes the body's production of **glutathione**, a cellular antioxidant. It also encourages healthy cell division, thyroid health, and immune function.

Super Selenium Complex combines three complementary forms of selenium with vitamin E for additional benefits.

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What is MSM?

BY LAURIE MATHENA



MSM (methylsulfonylmethane) is a compound found in some fruits, vegetables, and grains.¹

Boosting the body's supply of MSM has been shown to reduce joint pain and **swelling** in people with **osteoarthritis**, while improving physical function and mobility.

These properties make MSM a popular nutrient for those seeking to support joint health.

Reducing Joint Pain

Human and animal model studies have shown beneficial effects of bathing in sulfur-rich thermal mineral waters.

MSM is a sulfur-containing compound.²

An animal study showed significantly improved **joint mobility** in a treatment group that received baths in sulfur-rich water as compared to a control group that received no treatment, and another control group that was bathed in plain tap water. The sulfur-bath group also had decreased cartilage degeneration compared to controls.³

A human study of participants with osteoarthritis of the hand also showed similar improvements in joint pain and overall quality of life in the treatment group after three months of sulfur water bathing, compared to a control group that bathed in tap water.⁴

Human studies have found that **oral intake** of **MSM** can reduce joint **pain** and improve **physical function** in people suffering from osteoarthritis:

- A randomized, placebo-controlled trial in adults with knee osteoarthritis found that taking **1,125 mg** of **MSM** three times a day for 12 weeks resulted in some improvement in pain and physical function.⁵
- In individuals with knee osteoarthritis, taking **3,000 mg** of MSM twice a day for 12 weeks decreased pain and reduced physical impairment, compared to a placebo.⁶ The MSM group also reported improvements in performing daily activities.
- In people with hip and/or knee osteoarthritis, taking **6,000 mg** of MSM daily for 26 weeks decreased pain and improved functional performance, compared with a placebo.⁷
- In a randomized controlled trial in Japanese people with mild knee joint pain, taking **2,000 mg** of MSM daily for 12 weeks led to a significant reduction in pain as well as improvements in systemic health conditions as compared to placebo.⁸

These results indicate that MSM reduces *arthritis-related joint pain*.

Anti-Inflammatory Effects

Osteoarthritis leads to degradation of joint **cartilage** that cushions the ends of bones, leading to pain, stiffness, and loss of mobility. **Inflammation** is one of the factors that contributes to the destruction of cartilage.



MSM combats osteoarthritis by:¹

1. Fighting inflammation, and
2. Helping prevent cartilage damage.

In preclinical and clinical studies, MSM has well-documented anti-inflammatory effects, which include:

- Inhibiting the inflammation-promoting protein complex NF-kB,
- Inhibiting the release of inflammatory signaling proteins,^{1,9}
- Increasing levels of glutathione,¹ the body's "master antioxidant."

In a preclinical study, MSM supplementation in mice with osteoarthritis resulted in significantly decreased cartilage joint surface degeneration.¹⁰

In a clinical trial of physically active men, participants were randomized to receive **3,000 mg** of MSM or placebo 28 days prior to a knee exercise regimen. It was observed that in the group that

received MSM, there was a reduction of inflammation-inducing **IL-1 beta** as well as a small decrease in proinflammatory cytokines.¹¹

IL-1 beta is a key mediator of inflammatory response that is, along with other proinflammatory molecules, implicated in the destructive process of cartilage.¹

This clinical study in physically active men demonstrated the potential of MSM to help prevent **joint degeneration** in arthritis.

Boosts Effects of Glucosamine and Chondroitin

MSM *enhances* the effects of two popular supplements for joint pain treatment: **glucosamine** and **chondroitin**.

Human studies have shown significant improvement in arthritis-associated pain and stiffness through the use of glucosamine, chondroitin sulfate, and MSM.^{12,13}

A randomized controlled double-blind trial compared glucosamine and chondroitin either alone or combined with **MSM**. The group that received the combination that included **MSM** had significant improvements in pain and physical function after just four weeks.¹⁴

In another randomized, placebo-controlled trial, patients with osteoarthritis took one of the following for 12 weeks:¹⁵

- Glucosamine **1,500 mg** alone,
- **MSM 1,500 mg** alone,
- A combination of the Glucosamine and MSM, or
- A placebo.

Compared with the **placebo**, all treatments led to impressive improvements in pain and swelling.

However, in the group taking glucosamine *plus* **MSM**, there was an astounding **79%** reduction in the average **pain** score. The combination also worked *faster* than either treatment alone.

Summary

MSM (methylsulfonylmethane) helps support muscle and joint comfort, promoting joint mobility and function.

Oral intake of MSM can help combat inflammation that contributes to cartilage damage.

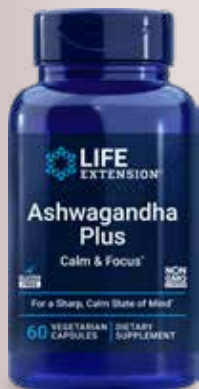
In clinical studies of people with osteoarthritis and joint discomfort, MSM reduces pain and swelling and improves physical function and joint mobility. •

References

1. Butawan M, Benjamin RL, Bloomer RJ. Methylsulfonylmethane: Applications and Safety of a Novel Dietary Supplement. *Nutrients*. 2017 Mar 16;9(3).
2. Muizzuddin N, Benjamin R. Beauty from within: Oral administration of a sulfur-containing supplement methylsulfonylmethane improves signs of skin ageing. *Int J Vitam Nutr Res*. 2022 Jul;92(3-4):182-91.
3. Vaamonde-García C, Vela-Anero Á, Hermida-Gómez T, et al. Effect of balneotherapy in sulfurous water on an in vivo murine model of osteoarthritis. *Int J Biometeorol*. 2020 Mar;64(3):307-18.
4. Kovacs C, Pecze M, Tihanyi A, et al. The effect of sulphurous water in patients with osteoarthritis of hand. Double-blind, randomized, controlled follow-up study. *Clin Rheumatol*. 2012 Oct;31(10):1437-42.
5. Debbi EM, Agar G, Fichman G, et al. Efficacy of methylsulfonylmethane supplementation on osteoarthritis of the knee: a randomized controlled study. *BMC Complement Altern Med*. 2011 Jun 27;11:50.
6. Kim LS, Axelrod LJ, Howard P, et al. Efficacy of methylsulfonylmethane (MSM) in osteoarthritis pain of the knee: a pilot clinical trial. *Osteoarthritis Cartilage*. 2006 Mar;14(3):286-94.
7. Pagonis T. The Effect of Methylsulfonylmethane on Osteoarthritic Large Joints and Mobility. *International Journal of Orthopaedics*. 2014;1(1):1-6.
8. Toguchi A, Noguchi N, Kanno T, Yamada A. Methylsulfonylmethane Improves Knee Quality of Life in Participants with Mild Knee Pain: A Randomized, Double-Blind, Placebo-Controlled Trial. *Nutrients*. 2023 Jun 30;15(13):2995.
9. Joung YH, Darvin P, Kang DY, et al. Methylsulfonylmethane Inhibits RANKL-Induced Osteoclastogenesis in BMMs by Suppressing NF-kappaB and STAT3 Activities. *PLoS One*. 2016;11(7):e0159891.
10. Ezaki J, Hashimoto M, Hosokawa Y, Ishimi Y. Assessment of safety and efficacy of methylsulfonylmethane on bone and knee joints in osteoarthritis animal model. *J Bone Miner Metab*. 2013 Jan;31(1):16-25.
11. van der Merwe M, Bloomer RJ. The Influence of Methylsulfonylmethane on Inflammation-Associated Cytokine Release before and following Strenuous Exercise. *J Sports Med (Hindawi Publ Corp)*. 2016 2016/10/23;2016:7498359.
12. Nakasone Y, Watabe K, Watanabe K, et al. Effect of a glucosamine-based combination supplement containing chondroitin sulfate and antioxidant micronutrients in subjects with symptomatic knee osteoarthritis: A pilot study. *Exp Ther Med*. 2011 Sep;2(5):893-9.
13. Vidyasagar S. Efficacy and Tolerability of Glucosamine Chondroitin Sulphate - Methyl Sulfonyl Methane (MSM) in Osteoarthritis of Knee in Indian Patients. *Iranian Journal of Pharmacology and Therapeutics*. 2004 31-Dec-2004;3.
14. Lubis AMT, Siagian C, Wonggokusuma E, et al. Comparison of Glucosamine-Chondroitin Sulfate with and without Methylsulfonylmethane in Grade I-II Knee Osteoarthritis: A Double Blind Randomized Controlled Trial. *Acta Med Indones*. 2017 Apr;49(2):105-11.
15. Usha PR, Naidu MU. Randomised, Double-Blind, Parallel, Placebo-Controlled Study of Oral Glucosamine, Methylsulfonylmethane and their Combination in Osteoarthritis. *Clin Drug Investig*. 2004;24(6):353-63.



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Each capsule contains:

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Item #02519

60 vegetarian capsules

References:

1. J Amer Nutraceutical Assoc. 2008;11:1.
2. J Altern Complement Med. 2018 Jan;24(1):37-47.
3. J Int Soc Sports Nutr. 2018 Dec 12;15(1):58.
4. Nutr Res. 2019 Apr;64:24-38.



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Liposomal-Hydrogel™

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24
HOURS
A DAY

VITAMIN

"I feel better about my
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Mary

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Buffered **ascorbate** encased in two plant extracts (liposomes plus hydrogel fenu-greek) 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

Just one vegetarian tablet daily provides **around-the-clock** vitamin C support.

1. Akay Internal Study. Liposomal hydrogel vitamin C pharmacokinetics. Data on file. 2021.

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It is our most advanced prostate health supplement.

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If you’re looking to support mind, memory and encourage healthy recall speeds, check out Neuro-Mag® Magnesium L-Threonate.

These sugar-free* gummies come in a tasty orange flavor.

*Not a low-calorie food.



Item #02520
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16 FIGHT BACK AGAINST COLDS AND FLU

In clinical trials, **elderberry** extract significantly *resolved* cold/flu symptoms up to **four days** sooner compared to **placebo**.



24 OPTIMIZE THE BENEFITS OF BROCCOLI

Mature broccoli contains relatively little **sulforaphane**. Researchers combined a sulforaphane precursor with an *enzyme* that delivers more sulforaphane to the digestive tract.



32 RELIEF FOR WOMEN'S URINARY SYMPTOMS

In a clinical study, three plant extracts improved women's daytime and nighttime **urinary** symptoms, with **79%** of women reporting improvements.



42 CLEAR AWAY BRAIN FOG

Two plant ingredients, in separate clinical trials, reduced mental fatigue, boosted attention levels and improved aspects of memory



60 RECONNECT AGING BRAIN CELLS

MIT researchers developed a form of **magnesium** that was shown to reverse measures of **brain aging** and improve **synaptic density**.



91 WHAT IS MSM?

MSM, rich in sulfur, has been shown to *reduce* **joint pain**, while improving function and mobility in clinical trials of **osteoarthritis** patients.