

Elderberry Juice May Help Support Healthier Metabolism in Adults

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STORY AT-A-GLANCE

- › A new Nutrients study shows that drinking 12 ounces of 100% elderberry juice daily for a week helped overweight adults activate more genes that regulate how the body uses energy after meals than a placebo
- › Elderberry juice turned on processes that help the body manage energy better – making it easier to switch between burning carbohydrates and fat for fuel
- › Earlier research from Washington State University showed elderberry juice improved blood sugar control, increased fat burning, and shifted energy use during meal challenges
- › Practical tip: Aim for about 12 ounces of unsweetened, 100% elderberry juice daily for seven days. Check labels to avoid added sugars, as unsweetened juice still contains about 30 to 36 grams of natural sugar per eight-ounce serving
- › Safety first: Never eat raw elderberries, check for medication interactions (such as immunosuppressants or diabetes drugs), and consult a healthcare provider before using if you are breastfeeding or have an autoimmune condition

Elderberry has long been celebrated for its bold, tangy flavor in teas, syrups, and desserts, but its story goes far beyond the kitchen. Ancient civilizations, from the Egyptians who used it for skin remedies to the Greek physician Hippocrates, who called the elder tree his "medicine chest," recognized its healing capacity.¹

Rich in antioxidants and polyphenols, elderberries have been linked to immune support and flu relief.² Elderberry juice, valued for its beneficial compounds, has gained popularity beyond a seasonal treat, sparking scientific interest and prompting further investigation into its benefits.

What Did the New Study on Elderberry Juice Actually Find?

Researchers at Washington State University (WSU) and the University of Vermont published a new paper in *Nutrients* examining whether elderberry juice could enhance metabolic flexibility in overweight adults. Metabolic flexibility is the body's ability to switch between burning carbohydrates and fat for energy smoothly — a key indicator of metabolic health. When this flexibility diminishes, it may lead to insulin resistance, weight gain, and an increased risk of Type 2 diabetes.³

- **Study design and participants** — Researchers enrolled 20 overweight adults in a randomized, placebo-controlled crossover trial. Each participant drank 12 ounces of 100% elderberry juice daily for seven days, then switched to a sugar-matched placebo. This design allows researchers to compare results within the same individuals, removing differences caused by calorie or sweetness intake.⁴
- **What the researchers measured** — Instead of focusing on weight alone, scientists analyzed blood cells using RNA sequencing to see which genes switched "on" or "off" after meals — a molecular fingerprint of how the body processes energy. They also tracked metabolic markers and changes in the gut microbiome for a fuller picture.⁵
- **Gene activation results** — The difference was striking. After one week of elderberry juice; 1,512 genes became more active, compared with just 350 genes after the placebo — over four times as many. Most of these genes help regulate how the body uses carbohydrates and fats for fuel, suggesting elderberry juice may "re-tune" energy metabolism at the genetic level.⁶

- **The key genes and pathways** — Two key genes that act like energy accelerators that support mitochondrial function and glucose transport were activated.

Meanwhile, two genes that act as fat-storage brakes were turned down, reducing signals that encourage fat hoarding. Broader pathways involved in insulin signaling and adipocytokine signaling also became more active, all of which are critical for metabolic flexibility.^{7,8}

- **What the researchers say** — One of the lead authors, Dr. Patrick Solverson, corresponding author and assistant professor at WSU's Elson S. Floyd College of Medicine, emphasized elderberry's overlooked capability:

"Elderberry is an underappreciated berry, both commercially and nutritionally. We're now beginning to recognize its value for human health, and the results are very exciting.

Food is medicine, and science is catching up to that popular wisdom. This study adds to a growing body of evidence that elderberry, which has been used as a folk remedy for centuries, has numerous benefits for metabolic and prebiotic health."⁹

How Could Elderberry Juice Support Weight Management and Metabolic Health?

Metabolic flexibility refers to your body's ability to switch fuels, such as burning carbs after meals and fat when fasting. This adaptability supports steady energy, appetite control, and a healthy weight. Elderberry juice, rich in anthocyanins, appears to influence key metabolic pathways that enhance flexibility, glucose handling, and fat oxidation.¹⁰

- **Supports metabolic flexibility** — Elderberry anthocyanins activate adenosine monophosphate-activated protein kinase (AMPK), your cell's "energy sensor," and improve insulin signaling. AMPK helps decide whether to store or burn fuel. By

nudging this switch toward fat use during fasting and carb use after meals, elderberry promotes metabolic balance.¹¹

- **Improves insulin sensitivity** — Anthocyanins may lower Homeostatic Model Assessment of Insulin Resistance (HOMA-IR), a measure of how resistant your body is to insulin. Better insulin sensitivity means glucose enters cells more efficiently, reducing blood sugar spikes, cravings, and fat storage after meals.¹²
- **Boosts fat oxidation** — Elderberry compounds upregulate a gene that promotes mitochondrial activity. More active mitochondria burn fat efficiently during fasting, supporting weight control and metabolic health.¹³
- **Modulates nutrient-sensing pathways** — Aside from activating AMPK, anthocyanins in elderberry also influence mechanistic target of rapamycin (mTOR), which helps regulate energy. By shifting these signals toward fat use and energy balance, elderberry helps maintain metabolic resilience.¹⁴

Why Is Elderberry Getting So Much Attention?

Elderberry was once mainly seen as a simple home remedy. Now, it's a focus of current studies for its role in supporting body defenses and respiratory health. Here's an overview of how this plant is used and the health conditions it can be useful for.

- **A fruit with many faces** — Elderberry refers to several species in the *Sambucus* genus, most notably [Sambucus nigra \(European black elder\)](#) and *Sambucus canadensis* (American elder). The trees grow up to 30 feet tall and produce clusters of small white blossoms and dark berries that are tart when raw and mildly sweet when cooked. The berries are used in juices, jams, teas, and syrups, while the flowers are brewed into tea or syrup for culinary and wellness uses.
- **Dense in nutrients and antioxidants** — A single cup of fresh elderberries provides roughly 52 mg of vitamin C (57 % DV) and 10 grams of fiber, plus natural polyphenols such as anthocyanins, phenolic acids, and flavonols like quercetin and

kaempferol. These compounds help neutralize free radicals that damage cells and contribute to chronic inflammation or metabolic stress.¹⁵

- **Elderberry extract may minimize flu symptoms** – A 2019 study published in the Journal of Functional Foods found elderberry juice interferes with influenza at two key stages: it blocks the virus from entering cells and slows replication after infection begins. Researchers tested elderberry serum before, during, and after infection and observed antiviral effects throughout, suggesting multiple mechanisms underlying its activity. Study author Fariba Dehghani, Ph.D., commented:¹⁶

"In addition to that, we identified that the elderberry solution also stimulated the cells to release certain cytokines, which are chemical messengers that the immune system uses for communication between different cell types to coordinate a more efficient response against the invading pathogen."

- **Boosts immune function** – Studies have shown that a combination of elderberry and echinacea, lowers cold and flu frequency by 10% to 30. These natural remedies also reduce the number of infections in children by about one-third (32.5%). Elderberry has also been shown to help adults recover from the flu four days faster.¹⁷
- **Other elderberry benefits** – Besides reducing cold and flu symptoms without side effects, elderberry offers several additional benefits, such as:
 - Promotes detoxification¹⁸
 - Helps lower the risk of sickness caused by swelling, such as diabetes and heart problems¹⁹
 - Makes skin softer and helps clear up acne²⁰
 - Calms and relieves sunburn²¹

- Help sprains and bruises heal faster²²

If you do not have access to fresh berries, consider buying elderberry juice, syrup, or supplements. If you pick your own, choose only ripe, dark berries and cook them thoroughly before eating, as raw elderberries are poisonous.

Aside from elderberry, there are other natural remedies that can help you get through flu season easily. Read about them in my article, "[Natural Herbs That Support Your Immune System Against the Flu.](#)"

How Much Elderberry Juice Should Adults Drink?

Elderberry juice is full of anthocyanins, which may help your body use sugar and fat more effectively. The right amount supports your metabolism and immune system without adding unnecessary sugar. Here's a practical guide on how to make it work for you.

- **Study-based serving size** — A good daily range is 8 to 12 ounces of 100% elderberry juice. That's the range that has been studied the most.²³
- **Why timing matters** — Elderberry juice can be enjoyed any time, but consuming it with or after meals enhances your body's ability to absorb its natural sugars gradually. Pairing the juice with foods that contain fiber or protein helps sustain steady energy levels and prevent sharp sugar spikes, especially when consumed on an empty stomach.²⁴
- **Sugar awareness** — Even pure juice contains natural fruit sugar, about 34 to 36 grams per 8 ounces. That's like unsweetened grape juice. To balance it, pair elderberry juice with protein or fiber-rich foods or mix it with sparkling water for a lighter option.²⁵

For a low-sugar elderberry spritzer, combine 4 ounces of 100% elderberry juice with 8 to 12 ounces of sparkling water and a squeeze of lemon over ice. It's a quick and easy way to create a light, refreshing drink that cuts sugar content by about two-

thirds compared to drinking 12 ounces straight.

Elderberry Juice, Syrup, or Concentrate – Which Should You Pick?

Elderberry products come in several forms, but they're not created equal. Some are naturally pure, while others are loaded with sweeteners or diluted blends. Understanding the differences helps you choose the version that genuinely supports your health goals.

- **Unsweetened 100% elderberry juice** – It gives a balanced mix of anthocyanins and nutrients in their most natural form. This is ideal for people who want real-food sources of antioxidants and prefer to skip added sugar or artificial ingredients.²⁶
- **Elderberry syrup** – This is popular because it's flavorful; however, it's often mixed with honey or cane sugar to prolong shelf life. That makes it feel more like a treat than a daily supplement, especially for those watching their sugar intake.²⁷
- **Elderberry concentrate** – A practical and efficient choice because it's convenient and long-lasting. It works well when reconstituted to 100% juice and labeled "no added sugar." Always check the label; if it says, "fruit drink" or "blend," it's watered down.²⁸
- **Oral elderberry supplements** – Capsules, drops, and gummies offer antioxidants, but potency varies widely.

Refrigerate elderberry juice after opening and follow expiration dates. Improper storage may degrade anthocyanins and increase spoilage risk, reducing both safety and nutritional value. Elderberry juice typically remains fresh for about 10 days after opening.²⁹

What Are the Side Effects and Who Should Avoid Elderberry Juice?

Elderberry juice is generally safe when prepared correctly, but there are clear situations where caution or avoidance is wise. Here are considerations to keep in mind before adding elderberry juice to your daily routine.

- 1. Avoid raw berries and uncooked plant parts** — Raw elderberries, stems, and leaves contain cyanogenic glycosides, which are compounds that release cyanide in the body. Eating them may cause nausea, vomiting, and diarrhea. Always choose properly cooked products.³⁰
- 2. Autoimmune conditions require caution** — Because elderberry has the capacity to activate immune pathways, people with autoimmune disorders should be careful. Stimulating the immune system may worsen symptoms or interfere with treatment. Always discuss elderberry use with your healthcare provider if you have an autoimmune condition.³¹
- 3. Play it safe if you're pregnant or lactating** — Modern research hasn't confirmed elderberry's safety during pregnancy or lactation. Despite its traditional use, the lack of clinical data means the safest choice is to avoid elderberry juice or seek medical advice before use.³²
- 4. Watch out for allergic reactions and digestive distress** — Even adequately prepared juice can cause mild gastrointestinal upset in some people. If you notice persistent nausea, diarrhea, or allergic symptoms, stop using it and seek medical guidance.³³

4 Fast Safety Checks for Elderberry Juice

1. Never consume raw berries or uncooked stems/leaves.
 2. Autoimmune conditions? Talk to your clinician first.
 3. Pregnant or breastfeeding? Skip it until safety is confirmed.
 4. Stop use if allergic reactions or persistent GI issues occur.
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Drinking a daily glass of pure elderberry juice may not immediately impact your health, but it offers ongoing support for your body over time. A gentle nudge toward better energy balance. Think of it as support, not a shortcut. Pair it with real food, movement, and rest, and you have a simple way to care for your health every day. Sometimes, the smallest habits – like sipping elderberry juice – make the most significant difference.

Frequently Asked Questions (FAQs) About Elderberry Juice

Q: Does elderberry juice help with weight loss?

A: Not directly. It's not a "fat-burning drink," but studies show elderberry juice improves metabolic flexibility, which is your body's ability to switch between carbs and fat for energy. This supports weight management when combined with healthy eating and activity.

Q: How much elderberry juice should adults drink per day?

A: The clinical trial used about 12 ounces (≈355 mL) of 100% elderberry juice daily for one week. If you're watching your sugar intake, consider lowering it to 8 ounces or diluting it with sparkling water.

Q: Is elderberry juice safe to drink every day?

A: Commercial, pasteurized juice is generally safe for adults. Avoid raw berries and uncooked plant parts. If you are breastfeeding or have an autoimmune condition, consult your healthcare provider.

Q: What are the side effects of elderberry juice?

A: Most people tolerate it well, but raw berries can cause nausea and diarrhea. Rarely, allergic reactions or digestive upset occur. Stop use if symptoms persist.

Q: Does elderberry juice affect blood sugar or insulin resistance?

A: Yes. Elderberry juice improved glucose tolerance and lowered insulin levels in trials, but it also contains natural sugars, so portion control matters, especially for people with diabetes or prediabetes.

Q: Elderberry juice vs elderberry syrup: which is better?

A: For metabolic benefits, 100% juice is closest to the tested product. Syrups often contain added sugar, which may offset benefits. Check labels carefully.

Q: Is elderberry juice safe during pregnancy or breastfeeding?

A: Safety hasn't been established for these groups. Until more research is available, avoid elderberry juice or seek medical advice first.

Q: What time of day should I drink elderberry juice?

A: There's no strict rule. Many people take it with meals to reduce sugar spikes or split their servings throughout the day.

Q: How many calories and how much sugar are in elderberry juice?

A: Unsweetened elderberry juice contains about 140 to 150 calories and 34 to 36 grams of sugar per 8-ounce serving.

Sources and References

- ¹ Knowledge is Growth, March 2, 2025
- ^{2, 31} Verywell Health, October 15, 2025
- ^{3, 8, 11} Nutrients, 2025;17(19):3142
- ^{4, 5, 6, 9} News-Medical, October 22, 2024
- ^{7, 13, 14, 23, 24, 26, 28} Washington State University, January 8, 2025
- ¹⁰ Karuna Wellness Studio, August 29, 2025
- ¹² Int J Mol Sci. 2016 Dec 22;18(1):13
- ^{15, 27} Healthline, February 2, 2023
- ¹⁶ ScienceDaily, April 23, 2019
- ¹⁷ Eur J Med Res 26, 33 (2021)
- ¹⁸ The Alchemist's Kitchen, October 21, 2015
- ¹⁹ Int J Mol Sci. 2017 Mar 8;18(3):584
- ²⁰ American Nutrition Association, August 6, 2017 (Archived)
- ²¹ Colloids and Surfaces B Biointerfaces 207(2):112039
- ²² Medscape, Elderberry
- ²⁵ U.S. Department of Agriculture FoodData Central, Elderberries, raw
- ²⁹ Fridge.com, October 17, 2025
- ³⁰ Molecules. 2021 Mar 4;26(5):1384
- ^{32, 33} OSF HealthCare, April 6, 2022