

# L-Lysine Benefits the Gut, Brain & Herpes Outbreaks

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The same building block of protein that helps treat **cold sores** can also help fight cancer. It's not a myth; it's just science — and that's just one of the many L-lysine benefits.

For years, people have been using L-lysine to treat the herpes virus and recover from workouts. But, as it turns out, this amino acid is good for more than just these two things. L-lysine benefits are extensive and include everything from anxiety to diabetes.

This essential amino acid is found in food as well as available in supplement form. Let me show you how very essential it is and all the wonderful things L-lysine benefits can do for your health.

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## What Is L-Lysine?

L-lysine is an essential amino acid. Many people know that several amino acids are known as the “building blocks of protein” and are needed in order for a huge number of proper internal functions, including growth.

Of the few hundred [amino acids](#) found in nature, 20 are necessary for protein creation and growth, and only 10 of those 20 can be produced by the body. The remaining 10 are known as “essential” amino acids because humans must consume them for proper health. Amino acid deficiencies cause a degradation of internal cells and can lead to huge problems, so it's important to get enough of them in your diet.

Essential amino acids are most often stereoisomers, meaning they exist in two variations that are identical to one another as mirror images. There are both D- and L- forms of these amino acids, and the L- form is used in protein synthesis and therefore the form found in food and supplements. Because of this, most people simply refer to this nutrient as “lysine” for short.

There are many incredible L-lysine benefits, from its use as a common treatment for cold sores to a potential anti-anxiety supplement. As is true with most nutrients available in supplement form, L-lysine can be taken orally but is absorbed best into the body when consumed through food. It's found in large amounts in various kinds of meat, beans, cheeses and eggs.

Specifically, L-lysine is very important in the creation of [carnitine](#), which converts fatty acids into energy and also [lowers cholesterol](#) levels. L-lysine also seems to play a role in absorbing calcium and helps the body form [collagen](#), which aids in the growth and maintenance of bones and connective tissue (including skin). (1)

As a natural disease-fighting agent, L-lysine benefits the human body in a variety of ways, many of which are only recently undergoing research.

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## L-Lysine Benefits

### 1. May Decrease Outbreak and Frequency of Herpes Viruses

If you've heard of L-lysine before, it's probably in conjunction with a natural cold sore remedy. Cold sores are a result of the [herpes](#) simplex-1 virus, also referred to as HSV-1, and around 67 percent of people under 50 are infected with the virus, even if they never display symptoms. HSV-2 is the herpes virus responsible for genital herpes, which 85 percent of carriers are unaware they even have.

While research is inconsistent on the subject, most individuals who use L-lysine to treat cold sores rate it as very effective. (2) Some studies support that L-lysine can help reduce the number of HSV outbreaks someone has, while others say that outbreaks happen at the same frequency but last a shorter period of time. Experts generally agree that L-lysine is unlikely to completely stop outbreaks altogether but may aid in lessening their severity and/or frequency.

One study using a cream combining L-lysine with herbs and zinc found that 87 percent of patients found their cold sores gone by day six of treatment, although these outbreaks usually last about 21 days. (3)

The way this nutrient may fight cold sores is not entirely clear, but one such reason may be the way that it interacts with arginine, another amino acid that's produced in small amounts within the body. [Arginine](#) has been shown to increase the replication rate of herpes virus cells, and high amounts of L-lysine in the body decrease the activity of arginine because they work against one another.

Along with the HSV-1 virus that causes cold sores, L-lysine may potentially help alleviate [genital herpes](#) caused by HSV-2 using this same mechanism, although research is still unclear.

### 2. May Help in the Treatment of Cancer

One reason many scientists search for [natural cancer treatments](#) has to do with the way conventional treatments, like chemotherapy and radiation, negatively impact healthy cells along

with diseased ones. Amazingly, there have been huge strides recently in this area, as researchers discover more and more ways that nutrients found in our food and in nature may potentially do just what we desire — target malignant cells without killing good ones.

In 2007, scientists at Florida State University studied the effects of “lysine conjugates” on damaged strands of DNA, like the ones found in cancer. Basically, this substance can locate a damaged strand by identifying “cleavage” in it (a damaged spot) and cause the rest of the strand to cleave (tear apart) as well. The cell is usually unable to repair this damage, leading to apoptosis, the suicidal death of cells.

What’s most fascinating about the potential of this treatment is how it works alongside specific types of light. The cancer-killing ability of lysine conjugates are only activated when exposed to particular types of light, which allows researchers, and potentially doctors, to inject or place the treatment into the most concentrated location of cancer cells and activate them at their most potentially effective spots.

The scientists conducting the study found results ranging from 25 percent all the way to 90 percent of destroyed cancer cells, which is astounding! (4)

A lysine oxidase was tested against instances of **colorectal cancer** in mice in 2014. In this study, the injection of lysine oxidase was associated with zero deaths and shrunk solid tumors in significant amounts, signifying this may be a promising form of cancer treatment for colorectal cancer in the future. (5)

Cancers related to the bone marrow, such as leukemia, may also meet their match with L-lysine, according to preliminary research. In one study, L-lysine injection helped prevent genotoxicity (DNA and RNA damage) in cells exposed to a cancer-causing substance. (6)

### **3. Reduces Anxiety and Other Psychological Symptoms**

Along with eating foods high in B vitamins, magnesium and omega-3 fatty acids, you can also try increasing your L-lysine intake to minimize anxiety. Because L-lysine may help your body absorb calcium, which is another beneficial nutrient for anxiety sufferers, this may be one of the primary ways in which it helps **treat anxiety**.

In addition to helping you absorb calcium more efficiently, L-lysine behaves like a serotonin receptor antagonist. That’s a wordy phrase that means it partially binds to serotonin receptors in order to partially prevent anxiety responses. This research, in particular, found that L-lysine helps reduce stress-induced anxiety responses, including **diarrhea**. (7)

This is especially important in developing countries in which wheat is the primary staple food. People living in these environments are much more likely than those in first-world countries to be deficient in L-lysine. Fortifying diets of people in wheat-dependent countries can help reduce both stress-induced anxiety and diarrheal responses. (8)

It's possible that L-lysine benefits those with schizophrenia as well, which manifests in extremely serious symptoms often related to anxiety. Preliminary findings suggest that L-lysine supplementation along with conventional therapy can help decrease negative and general symptoms of schizophrenia, although dosing and long-term effects have not yet been determined. (9)

#### 4. Increases Absorption of Calcium

Consuming L-lysine is associated with better absorption of calcium, which leads some to believe that it can help people with or at risk for [osteoporosis](#). No studies have been done to date on the link between L-lysine and osteoporosis, but because of the important role calcium plays in bone health, logic suggests it may be a beneficial nutrient to supplement those with brittle bones.

In fact, [calcium](#) is good for more than just your bones — consuming appropriate amounts of calcium is associated with healthy weight, cancer prevention, PMS symptom reduction, dental health, nerve and muscle health, and the prevention of diabetes.

Athletes often take L-lysine as a protein supplement to improve performance. This, too, may be related to the way L-lysine causes your body to absorb calcium.

#### 5. Reduces Diabetes-Related Problems

One of the most difficult things patients with diabetes experience is an increased risk for infection and other diabetes-related conditions. In the past several years, much attention has been given in this context to the large presence of advanced glycation end products, referred to as AGEs for short.

These AGEs are part of the aging process in the body in all people, but they're in very high concentrations in diabetic patients. They're implicated in many diabetes-related health conditions, leading scientists to study therapies that involve stopping AGEs from collecting in large numbers. (10)

It seems one of the L-lysine benefits for diabetics may be to prohibit the formation of AGEs in those with diabetes by preventing specific paths of glycation that lead to these products, helping to stave off infection. (11) Thus, the addition of L-lysine benefits those following a [diabetic diet plan](#) if lysine foods are included.

#### 6. Supports a Healthy Gut

An extremely common problem that millions of people have, many of whom aren't even aware of it, is [leaky gut syndrome](#). This condition is the permeating of your digestive tract lining, allowing larger-than-intended particles to get out of your digestive system and into the rest of your body. This causes allergic reactions, low energy, joint pain, autoimmune diseases and thyroid disease.

A form of L-lysine known as poly-L-lysine very recently was found to have anti-inflammatory effects on the lining of your gut, hopefully leading to more extensive research on how this amino acid may help improve the health of this lining and possibly prevent leaky gut. (12)

Although not necessarily directly related to leaky gut syndrome, L-lysine has also been found to suppress pancreatitis, an inflammation of the pancreas, another important part of the **digestive system**. (13)

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## Dosages and Food Sources of L-Lysine

I'm definitely a proponent of getting your nutrients from food rather than supplements whenever possible. This way, your body absorbs more of the nutrients, and you don't risk overdosing. However, supplements can be extremely beneficial in cases where you know you aren't able to meet your daily value recommendations of specific nutrients.

The average person (around 150 pounds) should get between 800–3,000 milligrams of L-lysine in his or her diet each day. Dosage recommendations for treating herpes outbreaks are suggested at one to three grams daily of an additional L-lysine supplement. (14)

Lysine is also available in cream form, often used to apply to cold sores.

When eating lysine-rich foods, remember that conventional preparation methods can decrease the nutritive value of the lysine. These include methods like reducing with a sugar-based substance, heating foods in the presence of yeast or sucrose, and cooking with the absence of moisture.

### Top 10 Highest L-Lysine Foods

The top 10 foods highest in lysine are: (15)

1. Lean beef and lamb — 3,582 milligrams/100 grams, 171 percent DV
2. Parmesan cheese — 3,306 milligrams/100 grams, 157 percent DV
3. Turkey and chicken — 3,110 milligrams/100 grams, 148 percent DV
4. **Pork** — 2,757 milligrams/100 grams, 131 percent DV
5. Roasted soy beans — 2,634 milligrams/100 grams, 125 percent DV
6. Tuna — 2,590 milligrams/100 grams, 123 percent DV
7. **Shrimp** — 2,172 milligrams/100 grams, 103 percent DV
8. **Pumpkin seeds** — 1,386 milligrams/100 grams, 66 percent DV
9. Eggs — 912 milligrams/100 grams, 43 percent DV
10. White beans — 668 milligrams/100 grams, 32 percent DV

While these are all rich in lysine, I do caution to avoid pork, soy and shrimp as much as possible, as these foods are often contaminated with toxins. As for the meat, cheese and eggs, always make sure you consume grass-fed, free-range and organic whenever possible.

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## L-Lysine History and Interesting Facts

L-lysine was first discovered by a scientist known only as Dreschel in 1889, who was able to isolate the amino acid from **casein**, or milk protein. The exact structure of the molecule was recorded just three years later. Research of L-lysine continued in 1928 when Vickery and Leavenworth prepared it in crystalline form, then completed by Fischer and Weigert when it was completely synthesized.

This substance has appeared in some interesting pop culture spots as well. “Jurassic Park,” both the fictional 1993 film and 1990 book, cited the “lysine contingency” as a way to prevent dinosaurs from living outside the park. This faulty scientific logic stated that geneticists creating these dinosaurs made the beasts incapable of producing lysine so they would die without supplements from their caretakers.

Of course, L-lysine is an essential amino acid not produced in any animal’s body, but which *is* found in nature – still, a clever plot line.

Lysine was also the subject of the largest ever U.S. price-fixing court case, garnering a massive \$100 million settlement and three convicted executives who served prison time for the offense. The case was the subject of “The Informant!” — the 2009 film starring Matt Damon.

Speaking of celebrities, Sheldon Cooper shows the love for L-lysine when he names it his “favorite amino acid” on season 2, episode 13 of the nerdy science sitcom, “The Big Bang Theory.”

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## Potential Side Effects and Caution with Lysine

L-lysine supplements have been known to cause some minor side effects, although consuming foods rich in lysine is not proven to have the same effect. These side effects include stomach pain and diarrhea. There has also been one report of kidney disease linked with lysine supplements, so patients with kidney and liver impairment should use caution and consult with their health care providers before beginning to take lysine supplements.

Because its effects on pregnant mothers has not been researched at length, those who are pregnant and/or nursing should avoid taking L-lysine supplements.

While L-lysine benefits those with a large number of diseases, there is evidence that it can increase the viral load of HIV patients. For this reason, those diagnosed with HIV/AIDS should not take L-lysine supplements and consume high-lysine foods only (which probably do not produce the same results). On the positive side, scientists discovering this phenomenon are now able to use this to speed up testing of HIV-fighting treatments. (16)

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## **Final Thoughts on L-Lysine Benefits**

- L-lysine is the L- form of lysine, which is the form absorbed by the body to build proteins.
- This essential amino acid cannot be produced by the human body and must be consumed in food and/or supplement form. It's also found in topical cream form.
- The most commonly practiced use of L-lysine is in the treatment of the herpes simplex virus.
- L-lysine has various mechanisms and variations through which it may be able to fight cancer, reducing tumor size and causing cell death in cancer cells without damaging nearby healthy cells.
- Other L-lysine benefits include increasing calcium absorption, reducing diabetes-related illnesses and improving gut health.
- Eating foods high in lysine is the most effective way to absorb this nutrient and obtain those L-lysine benefits.
- The average person needs between 800 and 3,000 milligrams of L-lysine each day.