



L-arginine

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What is it?

L-arginine is a chemical building block called “an amino acid.” It is obtained from the diet and is necessary for the body to make proteins. L-arginine is found in red meat, poultry, fish, and dairy products. It can also be made in a laboratory and used as medicine.

L-arginine is used for heart and blood vessel conditions including congestive heart failure (CHF), chest pain, high blood pressure, and coronary artery disease. L-arginine is also used for recurrent pain in the legs due to blocked arteries (intermittent claudication), decreased mental capacity in the elderly (senile dementia), erectile dysfunction (ED), and male infertility.

Some people use L-arginine for preventing the common cold, improving kidney function after a kidney transplant, high blood pressure during pregnancy (pre-eclampsia), improving athletic performance, boosting the immune system, and preventing inflammation of the digestive tract in premature infants.

L-arginine is used in combination with a number of over-the-counter and prescription medications for various conditions. For example, L-arginine is used along with ibuprofen for migraine headaches; with conventional chemotherapy drugs for treating breast cancer; with other amino acids for treating weight loss in people with AIDS; and with fish oil and other supplements for reducing infections, improving wound healing, and shortening recovery time after surgery.

Some people apply L-arginine to the skin to speed wound healing and for increasing blood flow to cold hands and feet, especially in people with diabetes. It is also used as a cream for sexual problems in both men and women.

How effective is it?

Natural Medicines Comprehensive Database rates effectiveness based on scientific evidence according to the following scale: Effective, Likely Effective, Possibly Effective, Possibly Ineffective, Likely Ineffective, Ineffective, and Insufficient Evidence to Rate.

The effectiveness ratings for **L-ARGININE** are as follows:

Possibly effective for...

- **Improving recovery after surgery.** Taking L-arginine with ribonucleic acid (RNA) and eicosapentaenoic acid (EPA) before surgery or afterwards seems to help reduce the recovery time, reduce the number of infections, and improve wound healing after surgery.
- **Congestive heart failure.** Taking L-arginine along with usual treatment seems to help eliminate extra fluids that are a problem in congestive heart failure. But taking L-arginine doesn't always improve exercise tolerance or quality of life. L-arginine should not be used instead of the usual treatments ordered by a healthcare provider.
- **Chest pain associated with coronary artery disease (angina pectoris).** Taking L-arginine seems to decrease

symptoms and improve exercise tolerance and quality of life in people with angina. But L-arginine doesn't seem to improve the disease itself.

- **Bladder inflammation.** Taking L-arginine seems to improve symptoms, but it may take up to three months of treatment to see improvement.
- **Wasting and weight loss in people with HIV/AIDS, when used with hydroxymethylbutyrate (HMB) and glutamine.** This combination seems to increase body weight, particularly lean body mass, and improve the immune system.
- **Preventing loss of effect of nitroglycerin in people with angina pectoris.**
- **Problems with erections of the penis (erectile dysfunction).**
- **Improving kidney function in kidney transplant patients taking cyclosporine.**
- **Preventing inflammation of the digestive tract in premature infants.**
- **Cramping pain and weakness in the legs associated with blocked arteries (intermittent claudication).**

Possibly ineffective for...

- **Heart attack.** Taking L-arginine does not seem to help prevent a heart attack. It also doesn't seem to be beneficial for treating a heart attack after it has occurred. In fact, there is concern that L-arginine might be harmful for people after a recent heart attack. Don't take L-arginine if you have had a recent heart attack.
- **Pre-eclampsia, an increase in blood pressure during pregnancy.** Taking L-arginine doesn't seem to lower diastolic blood pressure (the second number) in women with pre-eclampsia in their 28th to 36th week of pregnancy.

Insufficient evidence to rate effectiveness for...

- **Migraine headache.** Taking L-arginine by mouth along with the painkiller ibuprofen seems to be effective for treating migraine headache. This combination sometimes starts to work within 30 minutes. But it's hard to know how much of the pain relief is due to L-arginine, since ibuprofen can relieve migraine pain on its own.
- **Decreased mental function in the elderly (senile dementia).** Limited research suggests that L-arginine might improve senile dementia.
- **Improving healing of diabetic foot ulcers.** There is interest in using L-arginine for preventing diabetic foot ulcers. Applying L-arginine to the feet seems to improve circulation in people with diabetes, which might be helpful in preventing ulcers. But if there is already an ulcer on the foot, injecting L-arginine under the skin near the ulcer doesn't seem to shorten healing time by much or lower the chance of needing an amputation in the future.
- **High blood pressure.** There is some evidence that taking L-arginine can slightly lower blood pressure in healthy people and in people with type 2 diabetes who have mild high blood pressure.
- **Male infertility.**
- **Prevention of the common cold.**
- **Improving athletic performance.**
- **Breast cancer when used in combination with chemotherapy.**
- **Wound healing.**
- **Female sexual problems.**
- **Sickle cell disease.**
- **Improving the immune system in people with head and neck cancer.**

More evidence is needed to rate L-arginine for these uses.

How does it work?

L-arginine is converted in the body into a chemical called nitric oxide. Nitric oxide causes blood vessels to open wider for improved blood flow. L-arginine also stimulates the release of growth hormone, insulin, and other substances in the body.

Are there safety concerns?

L-arginine is **POSSIBLY SAFE** for most people when taken appropriately by mouth short-term. It can cause some side effects such as abdominal pain, bloating, diarrhea, gout, blood abnormalities, allergies, airway inflammation, worsening of asthma, and low blood pressure.

Special precautions & warnings:

Pregnancy and breast-feeding: L-arginine is **POSSIBLY SAFE** when used appropriately short-term in pregnancy. Not enough is known about using L-arginine long-term in pregnancy or during breast-feeding. Stay on the safe side and avoid use.

Children: L-arginine is **POSSIBLY SAFE** when used by mouth in premature infants in appropriate doses. When used in high doses, L-arginine is **POSSIBLY UNSAFE**. Doses that are too high can cause serious side effects including death in children.

Allergies or asthma: L-arginine can cause an allergic response or make swelling in the airways worse. If you decide to take L-arginine, use it with caution.

Herpes: There is a concern that L-arginine might make herpes worse. There is some evidence that L-arginine is needed for the herpes virus to multiply.

Low blood pressure: L-arginine might lower blood pressure. This could be a problem if you already have low blood pressure.

Recent heart attack: There is a concern that L-arginine might increase the risk of death after a heart attack, especially in older people. If you have had a heart attack recently, don't take L-arginine.

Surgery: L-arginine might affect blood pressure. There is a concern that it might interfere with blood pressure control during and after surgery. Stop taking L-arginine at least 2 weeks before a scheduled surgery.

Are there interactions with medications?

Major

Do not take this combination.

Medications for high blood pressure (Antihypertensive drugs)

L-arginine seems to decrease blood pressure. Taking L-arginine along with medications for high blood pressure might cause your blood pressure to go too low.

Some medications for high blood pressure include captopril (Capoten), enalapril (Vasotec), losartan (Cozaar), valsartan (Diovan), diltiazem (Cardizem), amlodipine (Norvasc), hydrochlorothiazide (HydroDIURIL), furosemide (Lasix), and many others.

Medications that increase blood flow to the heart (Nitrates)

L-arginine increases blood flow. Taking L-arginine with medications that increase blood flow to the heart might increase the chance of dizziness and lightheadedness.

Some of these medications that increase blood flow to the heart include nitroglycerin (Nitro-Bid, Nitro-Dur, Nitrostat), and isosorbide (Imdur, Isordil, Sorbitrate).

Moderate

Be cautious with this combination.

Sildenafil (Viagra)

Sildenafil (Viagra) can lower blood pressure. L-arginine can also lower blood pressure. Taking sildenafil (Viagra) and L-arginine together might cause the blood pressure to go too low. Blood pressure that is too low can cause dizziness and other side effects.

Are there interactions with herbs and supplements?

Xylitol

L-arginine can cause an organ in the body called the pancreas to release a hormone called glucagon. Glucagon comes to the rescue when blood sugar levels are too low. Glucagon makes the liver convert stored sugar to useable sugar that is released into the bloodstream. Using L-arginine along with xylitol can keep L-arginine from stimulating the pancreas to release glucagon.

Are there interactions with foods?

There are no known interactions with foods.

What dose is used?

The following doses have been studied in scientific research:

BY MOUTH:

- For congestive heart failure: doses range from 6-20 grams per day, as three divided doses.
- For chest pain associated with coronary artery disease (angina pectoris): 3-6 grams three times per day for up to one month.
- For preventing the loss of the effectiveness of nitroglycerin in relieving pain in people with chest pain due to coronary artery disease (angina pectoris): 700 mg four times daily.
- For organic erectile dysfunction (ED): 5 grams per day. Taking lower doses might not be effective.
- For preventing inflammation of the digestive tract in premature infants: 261 mg/kg added to oral feedings daily for the first 28 days of life.

Other names

2-Amino-5-guanidinopentanoic Acid, (2S)-2-Amino-5-[[amino (imino) methyl]amino]pentanoic Acid, Acide 2-Amino-5-guanidinopentanoïque, Arg, Arginine, Arginine Ethyl Ester, Arginine Ethyl Ester Dihydrochloride, Arginine Ethyl Ester HCl, Arginine HCl, Arginine Hydrochloride, Di-Arginine Malate, Di-Arginine Orotate, Di-L-Arginine-L-Malate, DI-Arginine, L-Arginina, L-Arginine Ethyl Ester Dichloride, L-Arginine HCl, L-Arginine Hexanoate, L-Arginine Hydrochloride, L-Arginine Ketoisocaproic Acid, L-Arginine L-Pyroglutamate, L-Arginine Pyroglutamate, L-Arginine Taurinate, Malate de Di-Arginine, Orotate de Di-Arginine, R-Gen 10.

Methodology

To learn more about how this article was written, please see the *Natural Medicines Comprehensive Database* methodology (<http://www.nlm.nih.gov/medlineplus/druginfo/natural/methodology.html>).

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Last reviewed - 03/21/2012

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