

biotin and pantothenic acid

It's surprising that these two B vitamins don't get more attention. They work together at the most basic level to produce enzymes that trigger many bodily functions, and they may assist in the treatment of various diseases.

COMMON USES

Biotin

- Promotes healthy nails and hair.
- Helps the body use carbohydrates, fats, and protein.
- May improve blood sugar control in people with diabetes.

Pantothenic acid

- Promotes a healthy central nervous system.
- Helps the body use carbohydrates, fats, and protein.
- May improve chronic fatigue syndrome, migraines, heartburn, and allergies.

FORMS

- Capsule
- Tablet
- Softgel
- Liquid

CAUTION!

- **Reminder:** If you have a medical condition, talk to your doctor before taking supplements.

Biotin (left) and pantothenic acid (right) are important B vitamins.

What it is

The names of these two vitamins suggest their widespread presence in the body. Both words have Greek roots: *pantothenic* from *pantos*, which means "everywhere," and *biotin* from *bios*, which means "life." Because these vitamins are in many foods, deficiencies are virtually nonexistent. Biotin is also produced by intestinal bacteria, though this form may be difficult for the body to use. Multivitamins and B-complex vitamins usually include biotin and pantothenic acid (also called vitamin B₅) and both are also available as individual supplements. The main form of biotin is d-biotin. Pantothenic acid comes in two forms: pantethine and calcium pantothenate; the latter is suitable for most purposes and is less expensive than pantethine.

What it does

Both biotin and pantothenic acid are involved in the breakdown of carbohydrates, fats, and protein from foods and in the production of various enzymes. Biotin plays a special role in helping the body use glucose, its basic fuel, and it also promotes healthy nails and hair. The body needs pantothenic acid to maintain proper communication between the brain and nervous system and to produce certain stress hormones.

★ **MAJOR BENEFITS:** Biotin improves the quality of weak and brittle fingernails and may help slow hair loss, if it is due to a biotin deficiency. Research suggests the overproduction of stress hormones during long periods of emotional upset, depression, or anxiety increases the need for pantothenic acid, which is used to manufacture these hormones. Because stress is a factor in quitting smoking, migraines, and chronic fatigue, pantothenic acid may be useful for these conditions. In combination with the B vitamins choline and thiamin, pantothenic acid can be an effective heartburn remedy; it also helps reduce the nasal congestion of allergies.

★ **ADDITIONAL BENEFITS:** In very high doses, biotin may help people with diabetes, increasing the body's response to insulin so blood sugar (glucose) levels stay low. In addition, it may protect against the nerve damage that sometimes occurs in diabetes (diabetic neuropathy).



How much you need

There is no RDA for biotin or pantothenic acid, but experts recommend that you get 30 to 100 mcg of biotin and 4 to 7 mg of pantothenic acid a day. These amounts appear to be enough to maintain normal body functioning, but for the treatment of specific diseases or disorders, higher doses may be needed.

⊖ **IF YOU GET TOO LITTLE:** Deficiencies of biotin or pantothenic acid are virtually unknown in adults. Long-term use of antibiotics or antiseizure medications, however, can lead to less-than-optimal levels of biotin.

⊕ **IF YOU GET TOO MUCH:** There are no known serious adverse effects from high doses of biotin or pantothenic acid. Some people report diarrhea when taking doses of 10 grams a day or more of pantothenic acid.

How to take it

🔗 **DOSEAGE:** *For hair and nails:* Take 1,000 to 1,200 mcg of biotin a day. *To aid in quitting smoking:* Take 500 mg of pantothenic acid twice a day. *During periods of stress:* Take 100 mg of pantothenic acid a day as part of a vitamin B complex. *For migraines:* Take 400 mg of pantothenic acid twice a day. *For chronic fatigue syndrome:* Take 500 mg of pantothenic acid twice a day. *For chronic heartburn:* Take 1,000 mg of pantothenic acid twice a day along with 500 mg of thiamin first thing in the morning and 500 mg choline three times a day. *For allergies:* Take 500 mg of pantothenic acid three times a day. *For diabetes:* Talk with your doctor about taking high doses of biotin to help or even prevent diabetic neuropathy.

🔗 **GUIDELINES FOR USE:** Most people will get enough biotin and pantothenic acid from a multivitamin or a B-complex supplement. Individual supplements are necessary only to treat a specific disorder. In most cases, take individual supplements with meals.

Other sources

Biotin is found in liver, soy products, nuts, oatmeal, rice, barley, legumes, cauliflower, and whole wheat. Organ meats, fish, poultry, whole grains, yogurt, and legumes are the best sources of pantothenic acid.

FACTS & Tips

- If you eat a lot of processed foods, you should consider taking a supplement with pantothenic acid, because this vitamin is easily destroyed in processing. Bread and cereal, for example, contain half the pantothenic acid found in the original whole grains. Even more pantothenic acid (70%) is lost when poultry or fish is frozen and thawed or when beans are canned (80%).
- Biotin helps keep hair healthy, but—except in rare cases of biotin deficiency—it can't prevent baldness as some claim. Nor can pantothenic acid forestall the normal graying of hair that occurs with age.

LATEST FINDINGS

- Biotin can increase the thickness of nails by an average of 25%, according to a study from Switzerland. Six months of biotin supplements improved brittle nails in two-thirds of the study's participants.

Did You Know?

You'd have to eat 2½ cups of wheat germ to get 7 mg of pantothenic acid.

