



Vitamin H (Biotin)

Overview

Vitamin H, more commonly known as biotin, is part of the B complex group of vitamins. All B vitamins help the body to convert food (carbohydrates) into fuel (glucose), which is used to produce energy. These B vitamins, often referred to as B complex vitamins, also help the body metabolize fats and protein. B complex vitamins are needed for healthy skin, hair, eyes, and liver. They also help the nervous system function properly.

Your body needs biotin to metabolize carbohydrates, fats, and amino acids, the building blocks of protein. Biotin is often recommended for strengthening hair and nails and it's found in many cosmetic products for hair and skin.

Like all B vitamins, it is a water-soluble vitamin, meaning the body does not store it. However, bacteria in the intestine can make biotin. It is also available in small amounts a number of foods. Biotin is also important for normal embryonic growth, making it a critical nutrient during pregnancy.

It's rare to be deficient in biotin. Symptoms include hair loss, dry scaly skin, cracking in the corners of the mouth (called cheilitis), swollen and painful tongue that is magenta in color (glossitis), dry eyes, loss of appetite, fatigue, insomnia, and depression. People who have been on parenteral nutrition -- nutrition given through an IV -- for a long period of time, those taking antiseizure medication or antibiotics long-term, and people with conditions like Crohn's disease that make it hard to absorb nutrients are more likely to be deficient in biotin.

There are not many good quality studies evaluating biotin. Many of its proposed uses are based on weak evidence or case reports:

Hair and Nail Problems

Very weak evidence suggests that biotin supplements may improve thin, splitting, or brittle toe and fingernails, as well as hair. Biotin, combined with zinc and topical clobetasol propionate, has also been used to combat alopecia areata in both children and adults.

Cradle Cap (Seborrheic Dermatitis)

Infants who don't have enough biotin often develop this scaly scalp condition. However, no studies have shown that biotin supplements -- given in formula or breast milk -- effectively treat cradle cap. Always ask your doctor before taking any vitamin, herb, or supplement if you are breastfeeding.

Diabetes

Preliminary research indicates that a combination of biotin and chromium might improve blood sugar

control in some people with type 2 diabetes, but biotin alone doesn't seem to have the same effect. More research is needed to know for sure whether biotin has any benefit.

Peripheral Neuropathy

There have been reports that biotin supplements improve the symptoms of peripheral neuropathy for some people who developed this condition from either diabetes or ongoing dialysis for kidney failure. Peripheral neuropathy is nerve damage in the feet, hands, legs, or arms. Numbness, tingling, burning or strange sensations, pain, muscle weakness, and trouble walking are some symptoms. However, there aren't any studies that evaluate whether biotin really helps treat peripheral neuropathy.

Dietary Sources

Biotin can be found in brewer's yeast; cooked eggs, especially egg yolk; sardines; nuts (almonds, peanuts, pecans, walnuts) and nut butters; soybeans; other legumes (beans, blackeye peas); whole grains; cauliflower; bananas; and mushrooms.

Raw egg whites contain a protein called *Avidin* that interferes with the body's absorption of biotin.

Food-processing techniques can destroy biotin. Less-processed versions of the foods listed above contain more biotin.

Available Forms

Biotin is available in multivitamins and B-vitamin complexes, and as individual supplements.

Standard preparations are available in 10 mcg, 50 mcg, and 100 mcg tablets and contain either simple biotin or a complex with brewer's yeast.

How to Take It

As with all supplements, check with a health care provider before giving biotin to a child.

Adequate daily intakes for biotin from food, according to the National Academy of Sciences, are listed below.

Pediatric

- Infants birth - 6 months: 5 mcg
- Infants 7 - 12 months: 6 mcg
- Children 1 - 3 years: 8 mcg
- Children 4 - 8 years: 12 mcg
- Children 9 - 13 years: 20 mcg
- Adolescents 14 - 18 years: 25 mcg

Adult

- 19 years and older: 30 mcg
- Pregnant women: 30 mcg

- Breastfeeding women: 35 mcg

Precautions

Because of the potential for side effects and interactions with medications, you should take dietary supplements only under the supervision of a knowledgeable health care provider.

That said, biotin has not been associated with side effects, even in high doses, and is considered to be non-toxic.

Possible Interactions

Although there is no evidence that biotin interacts with any medication, there are some medications that may lower biotin levels. If you are being treated with any of the following medications, you should not use biotin without first talking to your health care provider.

Antibiotics -- Long-term antibiotic use may lower biotin levels by destroying the bacteria in the gut that produces biotin.

Antiseizure Medications -- Taking antiseizure or anticonvulsants medications for a long time can lower biotin levels in the body. Valproic acid can cause biotinidase deficiency, which may be helped by biotin supplements. Ask your doctor before taking any supplements, however. Anticonvulsant medications include:

- Carbamazepine (Carbatrol)
- Phenobarbital
- Phenytoin (Dilantin)
- Primidone (Mysoline)

Supporting Research

Baez-Saldana A, Zendejas-Ruiz I, Revilla-Monsalve C, et al. Effects of biotin on pyruvate carboxylase, acetyl-CoA carboxylase, propionyl-CoA carboxylase, and markers for glucose and lipid homeostasis in type 2 diabetic patients and nondiabetic subjects. *Am J Clin Nutr.* 2004;79:238-43.

Fiume MZ, Cosmetic Ingredient Review Expert Panel. Final report on the safety assessment of biotin. *Int J Toxicol.* 2001;20 Suppl 4:1-12.

Gulati S, Passi GR, Kumar A, Kabra M, Kalra V, Verma IC. Biotinidase deficiency -- a treatable entity. *Indian J Pediatr.* 2000;67(6):464-466.

Head KA. Peripheral neuropathy: pathogenic mechanisms and alternative therapies. *Altern Med Rev.* 2006 Dec;11(4):294-329. Review.

Keligman: *Nelson Textbook of Pediatrics, 18th ed.* Philadelphia, PA: Saunders Elsevier; 2007.

McCarthy MF. Toward practical prevention of type 2 diabetes. *Med Hypotheses.* 2000;54(5):786-793.

Mock DM, Quirk JG, Mock NI. Marginal biotin deficiency during normal pregnancy. *Am J Clin Nutr.*

2002;75(2):295-299.

National Academy of Sciences. Dietary Reference Intakes (DRIs): Recommended Intakes for Individuals, Vitamins. Accessed June 1, 2011.

Said HM. Biotin: the forgotten vitamin. [editorial] *Am J Clin Nutr*. 2002;75(2):179-180.

Schulpis KH, Karikas GA, Tjamouranis J, Regoutas S, Tsakiris S. Low serum biotinidase activity in children with valproic acid monotherapy. *Epilepsia*. 2001;42(10):1359-1362.

Singer GM, Geohas J. The effect of chromium picolinate and biotin supplementation on glycemic control in poorly controlled patients with type 2 diabetes mellitus: a placebo-controlled, double-blinded, randomized trial. *Diabetes Technol Ther*. 2006 Dec;8(6):636-43.

Taniguchi A, Watanabe T. Roles of biotin in growing ovarian follicles and embryonic development in domestic fowl. *J Nutr Sci Vitaminol*. 2007;53(6):457-63.

Taniguchi A, Watanabe T. Transplacental transport and tissue distribution of biotin in mice at midgestation. *Congenit Anom*. 2008;48(2):57-62.

Wolverton: *Comprehensive Dermatologic Drug Therapy, 2nd ed*. Philadelphia, PA: Saunders Elsevier; 2008.

Alternative Names

Biotin

Version Info

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