

Biotin Affects Some Blood Test Results



This article was **last modified** on March 20, 2019.

Did You Know?

Excess biotin in the blood from supplements can cause some, but not all, lab test results to be either falsely increased or falsely decreased, causing healthcare practitioners to misdiagnose and mistreat their patients.

Find out [what supplements contain biotin](#), about [common tests affected by biotin](#) and [how healthcare professionals can prepare you for testing if you take biotin](#)

Biotin: Friend and Foe

Biotin can interfere with some test results. What can you do?

- **You can continue taking supplements that contain biotin.** It is a nutrient your body needs.
- **Tell your healthcare practitioner if you take biotin** or supplements containing biotin.
- **Be proactive:** know exactly what is in your supplements by carefully reading all labels.
- **Talk to your healthcare practitioner** or pharmacist if you are not sure if something contains biotin.
- **Follow instructions from your healthcare practitioner** who may advise you to avoid taking biotin before a scheduled blood draw.
- **Alert your health care practitioner** if you forget and take biotin before a scheduled blood draw.

Watch Video - Biotin: Friend and Foe. Learn how a patient almost had a costly and unnecessary procedure due to test results impacted by biotin interference.



About Biotin

What is Biotin?

0:00 / 3:38



Biotin, also called vitamin B7, vitamin H and Coenzyme R, is a nutrient that the body requires in small amounts (micronutrient). It is a coenzyme that is necessary for fat, protein, and carbohydrate metabolism—it helps turn the food you eat into energy. It also has a role in hormone production. The average daily recommended amount of biotin for healthy adults is 30 micrograms/day. Biotin is found naturally in foods such as meat, fish, eggs, seeds, nuts and certain vegetables, such as sweet potatoes, spinach, and broccoli.

Biotin Pills and Supplements

Biotin is an ingredient in many over-the-counter multivitamin pills and nutritional supplements and has specific uses in the medical field. It is recommended that pregnant women take prenatal vitamins that contain biotin for healthy fetal development. Additionally, high doses of biotin (e.g. 5,000 to 10,000 micrograms /day) have been prescribed for some health conditions, such as biotinidase deficiency and some types of alopecia (an autoimmune condition resulting in hair loss). Some new studies suggest that mega doses of biotin (300,000 micrograms/day) could be used to treat nervous system disorders like multiple sclerosis. Because some specialists who treat MS patients expect approval from the FDA soon, they are already prescribing these mega doses for their patients. More recently, biotin has been promoted for hair, skin, and nail health. More and more consumers are taking high doses of biotin for these benefits, particularly because there is no evidence that biotin is harmful to your body.

Biotin and Your Lab Tests

With the growing trend of more biotin users (in the millions), laboratories are alert to the increased risk of test interference. Recently, the Food and Drug Administration (FDA) published a safety alert to raise awareness that biotin can "significantly interfere with certain lab tests and cause incorrect test results..." This alert states that there has been "an increase in the number of reported adverse events [injuries associated with medical care] related to biotin interference with lab tests."

Biotin Q & A

What supplements contain biotin?

Biotin is found in many over-the-counter supplements in concentrations that may interfere with laboratory tests. Labels for supplements may refer to biotin in a number of different ways. Examples include:

- B-complex vitamins
- Coenzyme R
- Dietary supplements for hair, skin, or nail growth
- Multivitamins
- Prenatal vitamins
- Vitamin B7 supplements
- Vitamin H

In addition, labels may list the concentration of biotin contained in supplements in different ways. Some labels may use milligrams (mgs) and others may use micrograms (mcg or μg). One milligram is the same as 1000 micrograms. For example, a label may list the concentration of biotin as 3 mgs or 3000 mcgs, yet they are the same concentrations.

Know what is in your supplements

An important way to be proactive is to know exactly what is in the supplements you are taking. It's not always obvious that a supplement contains biotin—for example, vitamins labeled for healthier hair, nails, and skin may only list biotin as an ingredient on the back label, in small print. Be sure to carefully read the labels of all vitamins and supplements you take, whether they are prescribed or over-the-counter. If you are unsure whether a supplement contains biotin, ask your pharmacist or healthcare practitioner.

How does biotin affect laboratory tests?

When you take biotin, it is absorbed by your body and circulates in your blood. The level of biotin in your blood increases soon after you take a dose and can affect your test results for hours or days later (depending on the dose). Increased concentrations of biotin in blood can affect certain types of laboratory tests called immunoassays because some of these tests use biotin as part of the testing

method. Excess biotin in blood interferes with the biotin used in some, but not all, immunoassays and can cause results to be either falsely increased or falsely decreased. These inaccurate test results can cause healthcare practitioners to misdiagnose and mistreat their patients.

What are some common tests that may be affected by biotin?

Biotin can affect a wide variety of laboratory tests. Examples include tests for:

- Troponin—a test used to help diagnose heart attacks
- Thyroid hormone tests, such as thyroid stimulating hormone (TSH), thyroxine (T4) and triiodothyronine (T3) tests
- Other hormones, such as parathyroid hormone (PTH), cortisol, follicle -stimulating hormone (FSH) and luteinizing hormone (LH)
- Vitamin D levels

Some laboratory platforms use methods that do not experience interference from biotin, even for the examples listed above. Tests that employ methods free from biotin interference can sometimes be used for re-testing samples from patients in whom biotin interference is suspected, similar to what is seen in the video above, *Biotin: Friend and Foe*. Alternatively, re-testing may be done at a later time, after the patient has refrained from taking biotin.

Should I tell my doctor if I take biotin? If I must go to the ER, should I tell that healthcare practitioner?

Yes. Doctors and other healthcare practitioners including emergency room personnel typically ask patients about medications as well as supplements when they discuss their medical histories. As with any medication or supplement, you should give a complete history and tell your healthcare practitioner if you are taking biotin or a supplement containing biotin. Your healthcare practitioner can use the information to inform the testing laboratory that biotin interference is a possibility and to help when interpreting your results. If your test results don't seem to make sense, your healthcare practitioner can consider the possibility that biotin is the cause.

How do I prepare for my lab tests if I take biotin?

Your healthcare practitioner may advise you to discontinue taking biotin supplements a few days before having lab tests done.

If you are prescribed biotin for medical reasons, you should follow the directions of your healthcare practitioner.

How quickly biotin is cleared from your body depends on factors such as the amount taken (dose) and the health of your kidneys—biotin is eliminated from the body through the kidneys. The level of biotin in the blood is highest about 1 to 3 hours after taking a dose. Biotin can affect your lab results for hours to days after taking a dose, depending on these factors.

Use [this guide](#) to talk with your doctor about biotin and your blood tests.

I was advised to refrain from taking biotin before my test but forgot and took a dose the day of my test. What should I do?

You should tell your healthcare practitioner so that he or she can interpret your results correctly. Your healthcare practitioner can consider the possibility that biotin was the cause if one or more of your test results don't seem to make sense. You can also tell the person who draws your blood sample, so the information can be relayed to the testing laboratory.

How can healthcare practitioners prepare patients for testing?

The FDA advises healthcare practitioners to ask their patients if they are taking any biotin supplements and inform the testing laboratory if interference from biotin is a possibility. They should also consider biotin interference as a potential reason for lab results not matching with a patient's signs and symptoms and/or suspected health condition.

Recommended Reading

For Patients

Resources

[Biotin Doctor Patient Conversation Guide](#)

Tests

[B Vitamins](#)

Articles

[Deciphering Your Lab Report](#)

[Test Preparation: Your Role](#)

In the News

[FDA Warns that Biotin May Affect Some Lab Test Results](#)

(January 2, 2018)

Additional Related Resources

[National Institutes of Health, Office of Dietary Supplements, Biotin Factsheet for Consumers](#)

[Linus Pauling Institute: Biotin](#)

[Abbott Core Laboratory: Why are Physicians and Laboratories worried about Biotin?](#)

For Health Care Professionals

[Biotin Education for Health Professionals](#)

[Abbott Core Laboratory: Why are Physicians and Laboratories worried about Biotin?](#)

[Biotin and Laboratory Testing: Recognizing Interferences and Preventing Misdiagnosis: Webinar for Health Professionals](#) (September 2017)

[The Unintended Consequences of Biotin Supplementation: Spurious Immunoassay Results Lead to Misdiagnoses, Bench Matters](#) (December 2016)

[Beware Biotin Supplementation](#), CLN Stat (December 2016)

Sources

(28 November 2017) Food and Drug Administration. Biotin (Vitamin B7): Safety Communication – May Interfere with Lab Tests. Available online at www.fda.gov/Safety/MedWatch/SafetyInformation/SafetyAlertsforHumanMedicalProducts/ucm586641.htm Accessed June 2018.

(March 2018) Colon P, Greene D, Biotin Interference with Clinical Immunoassays, Mini-Review, *J Appl Lab Med.*, Vol. 2, Issue 5.

(3 October 2017) National Institutes of Health, Office of Dietary Supplements. Biotin Fact Sheet for Consumers. Available online at <https://ods.od.nih.gov/factsheets/Biotin-Consumer/>. Accessed June 2018.

(December 1, 2016) Barbesino, G. The Unintended Consequences of Biotin Supplementation: Spurious Immunoassay Results Lead to Misdiagnoses. *Clinical Laboratory News*. Available online at <https://www.aacc.org/publications/cln/articles/2016/december/bench-matters-december-2016>. Accessed

June 2018.

(Reviewed September 2015) Mock D, Linus Pauling Institute, Micronutrient Information Center, Biotin. Available online at <http://lpi.oregonstate.edu/mic/vitamins/biotin>. Accessed June 2018.

Biotin Interference in Diagnostic Tests. *Clinical Chemistry* Feb 2017, 63 (2) 619-620. Available online at <http://clinchem.aaccjnls.org/content/63/2/619>. Accessed June 2018.

Institute of Medicine. Food and Nutrition Board. Dietary Reference Intakes: Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. Washington, DC: National Academy Press; 1998. Available pdf at www.ncbi.nlm.nih.gov/books/NBK114310/pdf/Bookshelf_NBK114310.pdf. Accessed June 2018.