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Homocysteine Test

What is a homocysteine test?

A homocysteine test measures the amount of homocysteine in a sample of your blood. Homocysteine is an amino acid. Amino acids are molecules that your body uses to make proteins.

Normally, your homocysteine levels are low. That's because your body uses vitamin B12, vitamin B6 [https://medlineplus.gov/bvitamins.html] , and folic acid [https://medlineplus.gov/folicacid.html] (also called folate or vitamin B9) to quickly break down homocysteine and change it into other substances that your body needs. High levels of homocysteine in your blood may be a sign that this process isn't working properly or that you're lacking certain B vitamins.

High levels of homocysteine can damage the inside of your arteries and increase your risk of forming blood clots [https://medlineplus.gov/bloodclots.html] . This may increase your risk for heart attack [https://medlineplus.gov/heartattack.html] , stroke [https://medlineplus.gov/stroke.html] , and other heart diseases [https://medlineplus.gov/heartdiseases.html] and blood vessel disorders [https://medlineplus.gov/vasculardiseases.html] .

Other names: total homocysteine, plasma total homocysteine

What is it used for?

A homocysteine test may be used to:

- **Find out if you're lacking vitamin B6, B12, or folic acid.** These vitamins break down homocysteine. So if you don't have enough of them, your homocysteine levels will increase. A homocysteine test may be done with a blood test to measure your vitamin B [https://medlineplus.gov/lab-tests/vitamin-b-test/] levels.
- **Help diagnose** homocystinuria [https://medlineplus.gov/genetics/condition/homocystinuria/] **.** Homocystinuria is a rare, genetic disease [https://medlineplus.gov/geneticdisorders.html] that prevents your body from using a certain amino acid to make important proteins. Symptoms usually show up in the first year of life, but they may not appear until childhood or later. Common symptoms include problems with eyesight, blood clots, and weak bones [https://medlineplus.gov/osteoporosis.html] . In the U.S., most newborns have a routine screening test [https://medlineplus.gov/newbornscreening.html] to check for homocystinuria.
- **Better understand your risk for heart attack or stroke if you already have an increased risk.** Your health care provider may order a homocysteine test if you have been diagnosed with heart or

blood vessel disease or if you have conditions that increase your risk for heart and blood vessel disease, such as:

- High blood pressure [https://medlineplus.gov/highbloodpressure.html]
- High cholesterol [https://medlineplus.gov/cholesterol.html]
- Diabetes [https://medlineplus.gov/diabetes.html]

Medical experts don't recommend routine homocysteine testing to screen for heart disease risk in everyone. That's because researchers aren't sure how much homocysteine levels affect heart and blood vessel diseases. And so far, studies have shown that lowering homocysteine levels *doesn't* reduce the risk of heart attack or stroke.

Why do I need a homocysteine test?

You may need this test if you have symptoms that suggest you lack vitamin B12 or folic acid. The symptoms may be very mild to severe and may include:

- Dizziness [https://medlineplus.gov/dizzinessandvertigo.html]
- Fatigue [https://medlineplus.gov/fatigue.html] and/or weakness
- Headache [https://medlineplus.gov/headache.html]
- Heart palpitations (racing or pounding heart)
- Changes in the color of your skin or fingernails
- Sores on your tongue or in your mouth
- Tingling or numbness in your hands, feet, arms, and/or legs

Your provider may order this test if you have a high risk for low levels of vitamin B12 or folic acid because you:

- Have malnutrition [https://medlineplus.gov/malnutrition.html] .
- Are an older adult. Older people often can't absorb enough vitamin B12 from food.
- Have alcohol use disorder [https://medlineplus.gov/alcoholusedisorderaud.html] or a drug addiction [https://medlineplus.gov/druguseandaddiction.html] .

Your provider may recommend this test if you:

- Have had a heart attack or stroke
- Have one or more conditions that increase your risk for heart attack or stroke, such as high LDL "bad" cholesterol [https://medlineplus.gov/ldlthebadcholesterol.html] or high blood pressure

What happens during a homocysteine test?

A health care professional will take a blood sample from a vein in your arm, using a small needle. After the needle is inserted, a small amount of blood will be collected into a test tube or vial. You may feel a little sting when the needle goes in or out. This usually takes less than five minutes.

Will I need to do anything to prepare for the test?

You may need to fast [https://medlineplus.gov/lab-tests/fasting-for-a-blood-test/] (not eat or drink) for 8–12 hours before a homocysteine test. Some medicines and supplements may affect your test results.

So, tell your provider about all medicines and supplements you take, especially vitamin B. But never stop taking any medicines unless your provider tells you to.

Are there any risks to the test?

There is very little risk to having a blood test. You may have slight pain or bruising at the spot where the needle was put in, but most symptoms go away quickly.

What do the results mean?

A high homocysteine level may be a sign that:

- You are not getting enough vitamin B12 or folic acid in your diet.
- You (or your child) have homocystinuria. You will probably need more testing to rule out or confirm a diagnosis of homocystinuria.
- You may have a higher risk of heart disease, stroke, or other blood vessel disorders.

Higher than normal homocysteine levels may also happen with other conditions, such as osteoporosis [https://medlineplus.gov/osteoporosis.html] , chronic kidney disease [https://medlineplus.gov/chronickidneydisease.html] , hypothyroidism [https://medlineplus.gov/hypothyroidism.html] , or Alzheimer's disease [https://medlineplus.gov/alzheimersdisease.html] or other types of dementia [https://medlineplus.gov/dementia.html] .

If your homocysteine levels are high, it doesn't always mean you have a medical condition that needs treatment. Your results may be affected by:

- Your age. Homocysteine levels may get higher as you get older.
- Your sex. Males usually have higher homocysteine levels than females, but levels in females increase after menopause [https://medlineplus.gov/menopause.html] .
- Smoking [https://medlineplus.gov/smoking.html]

If you have questions about your results, talk with your provider.

Learn more about laboratory tests, reference ranges, and understanding results [https://medlineplus.gov/lab-tests/how-to-understand-your-lab-results/] .

Is there anything else I need to know about a homocysteine blood test?

If you have high homocysteine levels, your provider may suggest that you make changes in the foods you eat. Eating a balanced diet can help you get the right amount of vitamins. If you're considering taking vitamin supplements [https://medlineplus.gov/dietarysupplements.html] , talk with your provider first. Research has not shown that reducing homocysteine levels can reduce your risk of heart attack or stroke.

References

1. Cleveland Clinic: Health Library: Diagnostics & Testing [Internet]. Cleveland (OH): Cleveland Clinic; c2022.Homocysteine; [reviewed 2021 May 7; cited 2022 June 15]; [about 10 screens]. Available from: https://my.clevelandclinic.org/health/articles/21527-homocysteine [https://my.clevelandclinic.org/health/articles/21527-homocysteine]

2. Cleveland Clinic: Health Library: Diagnostics & Testing [Internet]. Cleveland (OH): Cleveland Clinic; c2022. Homocysteine Test; [reviewed 2022 Feb 2; cited 2022 June 15]; [about 11 screens]. Available from: https://my.clevelandclinic.org/health/diagnostics/22393-homocysteine-test [https://my.clevelandclinic.org/health/diagnostics/22393-homocysteine-test]
3. Mayo Clinic: Mayo Medical Laboratories [Internet]. Mayo Foundation for Medical Education and Research; c1995-2022. Test ID: HCYSS: Homocysteine, Total, Serum: Clinical and Interpretative; [cited 2022 Jun 15]; [about 7 screens]. Available from: https://www.mayocliniclabs.com/test-catalog/overview/35836#Clinical-and-Interpretive [https://www.mayocliniclabs.com/test-catalog/overview/35836#Clinical-and-Interpretive]
4. Merck Manual Consumer Version [Internet]. Kenilworth (NJ): Merck & Co. Inc.; c2022. Homocystinuria; [reviewed 2021 Dec; cited 2022 Jun 15]; [about 3 screens]. Available from: https://www.merckmanuals.com/home/children-s-health-issues/hereditary-metabolic-disorders/homocystinuria [https://www.merckmanuals.com/home/children-s-health-issues/hereditary-metabolic-disorders/homocystinuria]
5. National Center for Advancing Translational Sciences/Genetic and Rare Diseases Information Center [Internet]. Gaithersburg (MD): U.S. Department of Health and Human Services; Homocystinuria; [updated 2021 Nov 8; cited 2022 Jun 15]; [about 7 screens]. Available from: https://rarediseases.info.nih.gov/diseases/10770/homocystinuria [https://rarediseases.info.nih.gov/diseases/10770/homocystinuria]
6. National Institutes of Health: Office of Dietary Supplements [Internet]. Bethesda (MD): U.S. Department of Health and Human Services; Vitamin B12: Fact Sheet for Consumers [updated 2021 Jul 7; cited 2022 Jun 15]; [about 10 screens]. Available from: https://ods.od.nih.gov/factsheets/VitaminB12-Consumer/#h6 [https://ods.od.nih.gov/factsheets/VitaminB12-Consumer/#h6]
7. National Institutes of Health: Office of Dietary Supplements [Internet]. Bethesda (MD): U.S. Department of Health and Human Services; Folate: Fact Sheet for Consumers [updated 2021 Mar 22; cited 2022 Jun 15]; [about 11 screens]. Available from: https://ods.od.nih.gov/factsheets/Folate-Consumer/#h6 [https://ods.od.nih.gov/factsheets/Folate-Consumer/#h6]
8. Son P, Lewis L. Hyperhomocysteinemia. [Updated 2022 May 8; cited 2022 Jun 15]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK554408/ [https://www.ncbi.nlm.nih.gov/books/NBK554408/]
9. Testing.com [Internet]. Seattle (WA).: OneCare Media; c2022. Homocysteine; [modified 2021 Nov 9; cited 2022 Jun 15]; [about 11 screens]. Available from: https://www.testing.com/tests/homocysteine/ [https://www.testing.com/tests/homocysteine/]
10. University of Rochester Medical Center [Internet]. Rochester (NY): University of Rochester Medical Center; c2022. Health Encyclopedia: Homocysteine; [cited 2022 Jun 15]; [about 4 screens]. Available from: https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=167&ContentID=homocysteine [https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=167&ContentID=homocysteine]
11. UW Health [Internet]. Madison (WI): University of Wisconsin Hospitals and Clinics Authority; c2022. Homocysteine [updated 2021 Dec 27; cited 2022 Jun 15]; [about 7 screens]. Available from: https://patient.uwhealth.org/healthwise/article/en-us/tu2008 [https://patient.uwhealth.org/healthwise/article/en-us/tu2008]

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Last updated September 28, 2022