

# Methylmalonic Acid (Urine)



## Does this test have other names?

Urinary methylmalonic acid (MMA), urinary MMA

## What is this test?

This test measures the amount of a substance called methylmalonic acid (MMA) in your urine.

MMA is typically made in tiny amounts when you digest protein. Your body makes large amounts of MMA if you have a decrease in the amount of vitamin B-12. MMA passes out of your body in your urine.

Your body needs B-12 to make red blood cells. B-12 also helps your central nervous system work as it should. Low levels of B-12 can cause anemia. This is when your body does not make enough red blood cells.

Foods that can increase B-12 levels include red meats, shellfish, fish, dairy, and cereals fortified with the vitamin. If you are a strict vegetarian, you may be at higher risk for a B-12 deficiency. If you are pregnant and are a vegetarian, you may want to take a B-12 supplement. This is important if you plan to breastfeed your baby. Otherwise, your child may also be more likely to have a B-12 deficiency.

This test is used to diagnose a mild and early shortage of vitamin B-12. A high level of MMA can mean that you have a low level of B-12. Vitamin B-12 deficiency is the most common cause of MMA production.

## Why do I need this test?

You may have this test if your healthcare provider suspects that you have a vitamin B-12 deficiency. You may also have this test if you have symptoms of nerve damage (neuropathy) such as numbness or weakness.

Other symptoms of B-12 deficiency include:

- Difficulty walking
- Mood swings
- Depression
- Irritability
- Forgetfulness
- Insomnia
- Numbness in your hands or feet
- Trouble thinking clearly
- Tiredness (fatigue)
- Headaches

You may also have this test if your healthcare provider suspects that you have methylmalonic acidemia. This is an uncommon metabolic disorder in which the body can't process certain fats and proteins. The disease is usually diagnosed in babies. It can be mild or life-threatening.

## What other tests might I have along with this test?

Your healthcare provider may also order a urine creatinine test. Creatinine is a waste product stored in the muscles and excreted by your kidneys. The urine MMA-creatinine ratio is an accurate way of testing for B-12 deficiency.

Your healthcare provider might also order these tests:

- **Folic acid test.** You may have this blood test because the symptoms of a folic acid deficiency are similar to the symptoms of a B-12 deficiency.
- **Complete blood cell count (CBC).** This test looks for megaloblastic anemia, a disorder of abnormally large red blood cells. A vitamin B-12 deficiency can be one cause of megaloblastic anemia.

## What do my test results mean?

Test results may vary depending on your age, gender, health history, and other things. Your test results may be different depending on the lab used. They may not mean you have a problem. Ask your healthcare provider what your test results mean for you.

High levels of urine MMA may mean that your vitamin B-12 levels are low.

## How is this test done?

This test needs either a random or 24-hour urine sample. For a 24-hour urine sample, you must collect all of your urine for 24 hours. Empty your bladder completely first thing in the morning without collecting your urine. Note the time. Then collect your urine every time you go to the bathroom over the next 24 hours.

For a one-time urine sample, have nothing to eat or drink overnight except water. Throw out the first morning urine and collect the second sample.

## Does this test pose any risks?

This test poses no known risks.

## What might affect my test results?

Other factors aren't likely to affect your results.

## How do I get ready for this test?

Don't drink alcohol before the test. Be sure your healthcare provider knows about all medicines, herbs, vitamins, and supplements you are taking. This includes medicines that don't need a prescription and any illegal drugs you may use.

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