# Glucose-6-Phosphate Dehydrogenase

## Does this test have other names?

glucose-6-phosphate dehydrogenase deficiency test, G6PD deficiency test, G6PDD test

## What is this test?

This is a blood test to find out if you have low amounts of an enzyme called glucose-6-phosphate dehydrogenase. Experts estimate that 400 million people worldwide have a G6PD deficiency. This enzyme deficiency is a genetic disorder that affects mostly males. A change (mutation) in the G6PD gene causes the red blood cells to break down before they should. Early blood cell destruction is called hemolysis. Some people who have the defective gene never have any symptoms. Others have varying degrees of hemolytic anemia. This means that red blood cells are destroyed faster than new ones can be made.

Most of the time, if you have a moderate deficiency of glucose-6-phosphate dehydrogenase, you feel fine. But triggers can set off hemolysis. The effect is the sudden destruction of older, more deficient red blood cells. These triggers include:

- Bacterial infections
- Viral infections
- Certain antibiotics
- Antimalarial medicines
- Eating fava beans or inhaling pollen from a fava plant
- Certain sulfa medicines

## Why do I need this test?

You may need this test if you have some of these symptoms:

- Pale or yellow skin
- Yellowing in the whites of the eyes (jaundice)
- Dark urine
- Rapid heart rate
- Shortness of breath
- Severe tiredness (fatigue)
- Belly or back pain

A newborn with G6PD deficiency can be born with jaundice. A baby might have this test if symptoms such as dark urine, pale stools, and increasing bilirubin levels continue after the second week of life.

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

If you have only a mild to moderate deficiency and you have an important reason to take a medicine that will trigger hemolysis, your healthcare provider may offer you a low dose of the trigger medicine and keep track of

your blood count closely. The monitoring test is called a complete blood count.

## 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.

Here are some general results:

- A normal test result tells your healthcare provider about G6PD activity in your blood cells. A normal—or no G6PDD—result for adults is 8.6 to 18.6 units/gram of hemoglobin.
- Less than 10% of normal means that you have severe deficiency and chronic hemolytic anemia.
- Others with severe enzyme deficiency may not have chronic hemolytic anemia but will have intermittent anemia.
- Those with moderate deficiency, meaning 10% to 60% of normal ranges, may have intermittent hemolytic anemia that is often linked to certain medicines or infection.

## How is this test done?

The test is done with a blood sample. A needle is used to draw blood from a vein in your arm or hand.

## Does this test pose any risks?

Having a blood test with a needle carries some risks. These include bleeding, infection, bruising, and feeling lightheaded. When the needle pricks your arm or hand, you may feel a slight sting or pain. Afterward, the site may be sore.

## What might affect my test results?

If you take this blood test during, or just after, a hemolysis episode, the result could be falsely normal. The false-negative result could happen because most of the blood cells with greater G6PD deficiency (the older ones) have already been destroyed and the remaining blood cells are not, or not yet, G6PD-deficient. If your healthcare provider believes you have a false-negative result, you will most likely have your blood checked again in about 3 months. At this point, you'll have had time to develop blood cells of various ages.

## How do I get ready for this test?

You don't need to prepare for this test. Tell your healthcare provider 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.