

About Glucose Challenge Tests

A glucose challenge test is a blood test used to screen for gestational diabetes. The test evaluates the body's ability to metabolize glucose (blood sugar). A person with undiagnosed diabetes will have an abnormally high blood glucose level.

The American Diabetes Association recommends that all women be screened for diabetes during pregnancy. However, some physicians prefer to test only high-risk women, such as those who are overweight or have a family history of diabetes.

The glucose challenge test is typically ordered between the 24th and 28th week of pregnancy. Pregnant women who are at a particularly high risk of developing gestational diabetes may be screened earlier, between the 12th and 14th week of pregnancy.

During pregnancy, hormones from the placenta begin to temporarily block the action of the mother's insulin. Gestational diabetes usually appears around the 24th week of pregnancy, a time when the placenta begins producing large quantities of these hormones. The glucose challenge test is used to determine if the mother's body is able to overcome the insulin resistance on its own, or if glucose is building up in the blood, causing hyperglycemia. High blood glucose can lead to health problems for the mother and the fetus.

The terms "Glucose Challenge Test" and "Oral Glucose Tolerance Test" (OGTT) are sometimes used interchangeably. However, the OGTT is a more involved blood test that requires fasting and other preparation.

It can be used in diagnosing type 2 diabetes and impaired glucose tolerance (pre-diabetes) in addition to gestation diabetes

Before and during the test

A glucose challenge test requires little preparation. It may be given at any time regardless of the patient's meal schedule. A physician may recommend withholding certain medications. The test may be performed at the physician's office or at a laboratory.

On the day of the test, the procedure will be explained and patients will have the opportunity to ask questions. The medical professional will also ask questions about the patient's medical history before the test, to determine if the patient is taking any medications that will interfere with the test's accuracy. The patient will also be asked about any medical problems she may have.

The patient will drink 50 grams of a glucose solution within a few minutes. The solution is extremely sweet and may cause nausea or vomiting in some patients. If vomiting occurs, the test is usually rescheduled for another day. An hour after the patient has ingested the glucose solution, blood will be drawn, usually from a vein (venipuncture) from the inside of the elbow or the back of the hand.

First the puncture site is sterilized with antiseptic and an elastic band is wrapped around the patient's upper arm. As a result, the pressure restricts blood flow through the vein and causes the veins below the band to fill with blood.

A needle is then inserted into a vein. Occasionally more than one puncture is necessary to locate a vein. Some people may feel some discomfort when the needle is inserted, but most only feel a prick or stinging sensation. Once the needle is inserted into a vein, a tube is attached to collect the blood as it begins to flow out. The elastic band is then removed.

The needle is withdrawn after the blood is collected and a small cotton ball is applied with light pressure over the puncture site. After several minutes a small bandage will be placed on the puncture wound. The entire process takes less than 10 minutes. The sample is sent to a laboratory for analysis and results are returned in several days.

Despite the precautions taken to avoid bruising and soreness, it does sometimes occur. Typically, this is not a cause for concern. To minimize soreness, patients may apply a warm compress to the puncture site and repeat the application every three hours until the discoloration or pain subsides.

After the test

After the test, the sample of blood is analyzed for its glucose (blood sugar) content and compared to a range of blood glucose levels that indicate whether the patient's results are normal, or indicate gestational diabetes. The patient will typically visit the physician to obtain the test results.

A blood glucose level below 140 milligrams per deciliter (mg/dL) is considered normal. A patient with a normal test result will usually require no further testing. However, a woman being tested early, between the 12th and 14th week of pregnancy, will require another test around the 24th week of pregnancy.

A blood glucose level of 140 mg/dL or above is considered abnormal and may indicate gestational diabetes. However, not all women with abnormal test results have diabetes. To diagnose gestational diabetes, a physician will order a three-hour *oral glucose tolerance test*.

For additional information, please consult Dr Ross Tanner at Diabetes and Lipid Clinic of Alaska