Glucose (Cerebrospinal Fluid)

Does this test have other names?

Glucose CSF. This test is usually part of a test called cerebrospinal fluid analysis.

What is this test?

This test measures the amount of sugar (glucose) in your cerebrospinal fluid (CSF). This is the fluid that surrounds the brain and spinal cord. People with serious infections of the brain or spinal cord usually have lower glucose levels in their CSF than healthy people do.

This test is usually part of an overall look at CSF. It is used to help diagnose central nervous system infections. It may also be used to help diagnose some other conditions. Your brain is normally protected from any germs in your bloodstream by a thin barrier. This is called the blood-brain barrier. But when you are sick, this blood-brain barrier can become leaky. This lets bacteria and other substances pass through. Bacteria, viruses, and other germs can then reach your spinal cord and brain. This can cause brain swelling and nervous system infection.

Why do I need this test?

You may need this test if you have symptoms of a possible brain or central nervous system infection, such as meningitis. These include:

- Severe headache
- Nausea
- Vomiting
- Irritability
- Sensitivity to light
- Confusion
- Changes in consciousness
- Severe stiff neck making it difficult to bend your head forward

Babies also often have their CSF tested if a healthcare provider suspects they have a serious infection that could cause swelling and damage the brain.

What other tests might I have along with this test?

Your healthcare provider may also order other tests on the CSF sample, depending on what condition you have. These tests include:

- **CSF gram stain.** A sample of CSF is treated with a special stain and checked with a microscope.
- **CSF culture.** A sample is grown to check for bacteria or viruses.
- **Viral testing.** Lab tests, including cultures are done to check for viruses.
- **CSF/plasma ratio.** Glucose levels in CSF are compared with blood plasma levels of glucose.
- **CSF protein concentration.** Increases may mean brain or spinal cord disease.

- **CSF leukocyte, or white blood cell, count.** It's usually high if you have an infection.
- **Other CSF tests to check for specific infections.** For example, the sample may be tested for tuberculosis, syphilis, or infections from parasites.
- **Blood culture.** A sample of blood is grown to check for microorganisms.

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.

Results are given in milligrams per deciliter (mg/dL). Normal levels of glucose in the CSF are greater than 50 mg/dL to 75 mg/dL. If your levels are lower, you may have an infection.

Your healthcare provider will look at your CSF glucose level along with the other CSF tests, and possibly other tests, to better understand what your results mean.

How is the test done?

This test needs a sample of your cerebrospinal fluid. Your healthcare provider will take the sample through a lumbar puncture using a thin needle. The needle will be placed into your lower back, and fluid will be removed.

Does this test pose any risks?

A lumbar puncture carries these possible risks:

- Headaches
- Infection
- Bleeding
- Numbness

What might affect my test results?

Some medicines, foods, and beverages may affect the results.

How do I prepare for the test?

Just before the test, you may be asked to empty your bladder. You will then be placed into a certain position so that your healthcare provider can more easily get the CSF sample.

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 illicit drugs you may use.