

Title: Oral Glucose Tolerance Test (OGTT)

Document LIC-BIO-DFTGTT
Revision: 2

Diabetes in the non-pregnant state can usually be established or excluded from a fasting or random glucose measurement¹. The OGTT should only be used to confirm or exclude the diagnosis of diabetes in those individuals with impaired fasting glucose results (6.1 - 6.9 mmol/L) or below 6.1 mmol/L if clinical suspicion is high.

In pregnancy the OGTT is used to diagnose gestational diabetes in those individuals with positive screening test results during pregnancy.

Patient Preparation

The patient must fast for 10-16 hours before the test. A small amount of water or black tea/coffee is permitted but no milk or sugar. Prior to this the patient should have eaten their normal diet for at least three days, since carbohydrate restriction would affect the test results.

Other factors can weaken the diagnostic power of the test and should be avoided as far as possible. These include severe inactivity over the preceding weeks, bed rest for several days, medical or surgical stress, fear of venepuncture, smoking during the test, and certain drugs including thiazides, β -blockers, glucocorticoids and phenytoin.

Test Procedure

The test should be administered in the morning and the patient must rest during the test period.

1. Take a fasting sample into a fluoride/oxalate tube and mix well. Check that the tube is correctly labelled with the sample time. The fluoride inhibits the metabolism of glucose by the red blood cells, but only if the tube is well mixed. Otherwise a falsely low result may be found by the time the sample is measured.
2. Prepare the Polycal* by pouring 113 mL into a 300mL measuring cylinder, and dilute to 250 mL with water. Administer the drink over the course of five minutes. The patient must rest quietly without exercise.
3. Two hours (2hr) after the Polycal take a second sample into a fluoride/oxalate tube and mix well. Check the tube is labelled with the correct sample time and send to the laboratory.
4. The patient should be advised to have something to eat and drink before leaving the department.

* If GTT is being done in a primary care setting, 410 mL of Lucozade Original (**not** Sports Lucozade) may be used instead of Polycal.

Interpretation

- Diabetes is confirmed if the 2hr glucose is >11.1 mmol/L.
- Impaired glucose tolerance (IGT) if the 2hr glucose is between 7.8 mmol/L and 11.1 mmol/L.

In pregnancy, gestational diabetes is confirmed if the 2hr glucose is 7.8 mmol/L or more.

References

1. Alberti KGMM, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part 1: diagnosis and classification of diabetes mellitus. Provisional report of a WHO consultation. *Diabetic Medicine* 1998; 15: 539-53