

Department:	Biochemistry		
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Oral Glucose Tolerance Test

In normal individuals pancreatic insulin secretion maintains blood glucose within a tight concentration range following an oral glucose load. Failure of insulin secretion, or resistance to insulin action, will result in an elevation in blood glucose.

Indications

Investigation of impaired glucose tolerance or diabetes mellitus.

The diagnosis of diabetes is made on the basis of repeatedly elevated fasting plasma glucose. The use of the oral glucose tolerance test is to clarify borderline elevations in fasting plasma glucose and for those conditions where diagnosis using HbA1c is contraindicated.

Contra-indications

- Patients who are under physical stress e.g. post surgery, trauma or infection or extreme psychological stress as these may give misleading results.
- Patients with hypokalaemic periodic paralysis.

Side Effects

Some subjects feel nauseated and may have vasovagal symptoms during this test.

Requirements

- POLYCAL 113mL or 75g anhydrous glucose made up to 200 mL with water plus 100mL cold water, total 300mL
- 2 x yellow top fluoride EDTA tubes

Procedure

PATIENT PREPARATION

- Patients should be advised to eat a normal carbohydrate diet (>150g daily) for at least 3 days prior to the test and undertake normal physical activity.
- Patients must fast from midnight prior to this test but may drink small volumes of plain water.
- Smoking and physical exercise should NOT be allowed in the morning prior to, and during, the test.

This test should be performed in the morning. Patients should remain at rest during the test.

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TEST

Minutes	Procedure	Samples
0	Take sample for glucose	1 x yellow top fluoride EDTA (glucose)
0	Polycal should be drunk over 5 minutes followed by the water	
120	Take sample for glucose	1 x yellow top fluoride EDTA (glucose)

Interpretation of results

	Plasma Glucose (mmol/L)		
	0 minute		120 minute
Non Diabetic	<6.1	and	<7.8
Impaired fasting glucose	6.1 - 6.9	and	<7.8
Impaired glucose tolerance	<7.0	and	7.8 - 11.0
Diabetes mellitus	7.0 or greater	and/or	11.1 or greater
In pregnancy according to MFT GDM (HAPO) guidelines 2021:			
Consistent with Gestational diabetes mellitus	5.3 or greater	and/or	8.5 or greater