ORAL GLUCOSE TOLERANCE TEST (OGTT)

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HOW THE TEST IS PERFORMED?

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there are two type of glucose tolerance test (Oral and IV)

The most common glucose tolerance test is the oral glucose tolerance test (OGTT).

The test detect how quickly glucose is metabolized from the bloodstream for use by cells as energy source. The normal rate of glucose clearing depends on the amount of glucose ingested.

- The most common glucose tolerance test is the oral glucose tolerance test (OGTT).
- Before the test begins, a sample of blood will be taken.
- You will then be asked to drink a liquid containing a certain amount of glucose (usually 75 grams). Your blood will be taken again every 30 to 60 minutes after you drink the solution.
- The test takes up to 3 hours.
- A similar test is the IV glucose tolerance test (IGTT). It is rarely used, and never used to diagnose diabetes. In this test, glucose is injected into your vein for 3 minutes. Blood insulin levels are measured before the injection, and again at 1 and 3 minutes after the injection.

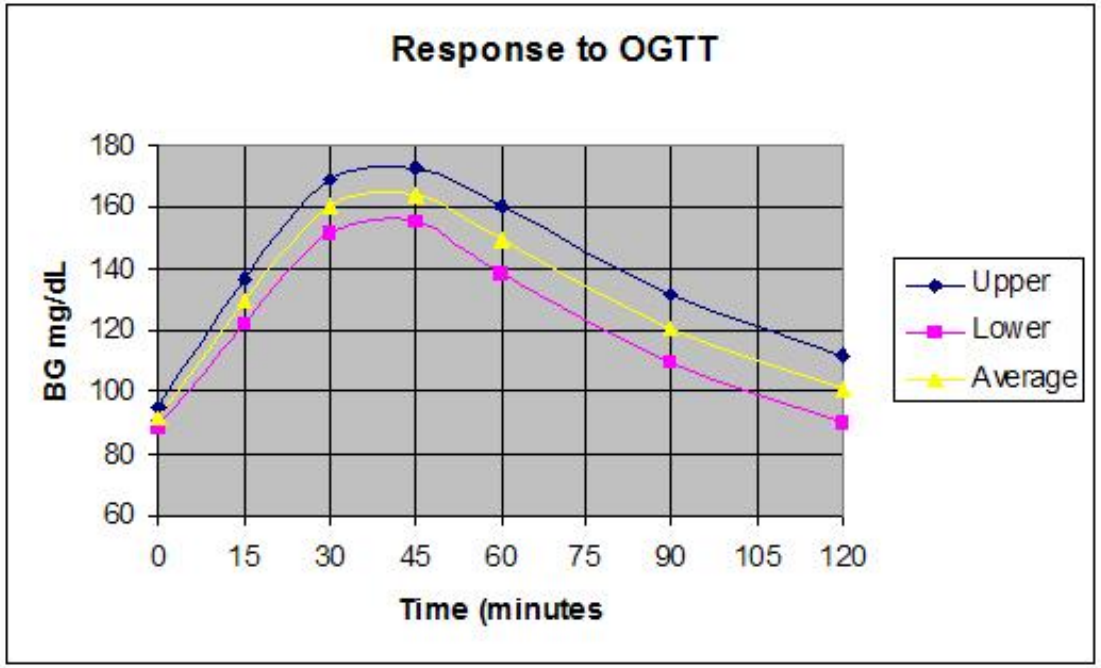
CONSIDERATIONS

- Stress due to, for example, trauma, stroke, heart attack, or surgery can raise your blood glucose level. Vigorous exercise can lower your blood glucose level.
- carbohydrate intake ,time of pervious food intake
- Some medicines can raise or lower blood glucose level.
- Medicines that can cause glucose intolerance, include:
- Corticosteroids
- Hormone Therapy (Epinephrine, Estrogens , Glucagon)

NORMAL RESULTS

- Normal blood values for a 75-gram oral glucose tolerance test used to check for type 2 diabetes in those who are not pregnant:
  - **Fasting: 80 to 100 mg/dL**
  - **1 hour: less than 200 mg/dL**
  - **2 hours: less than 140 mg/dL**

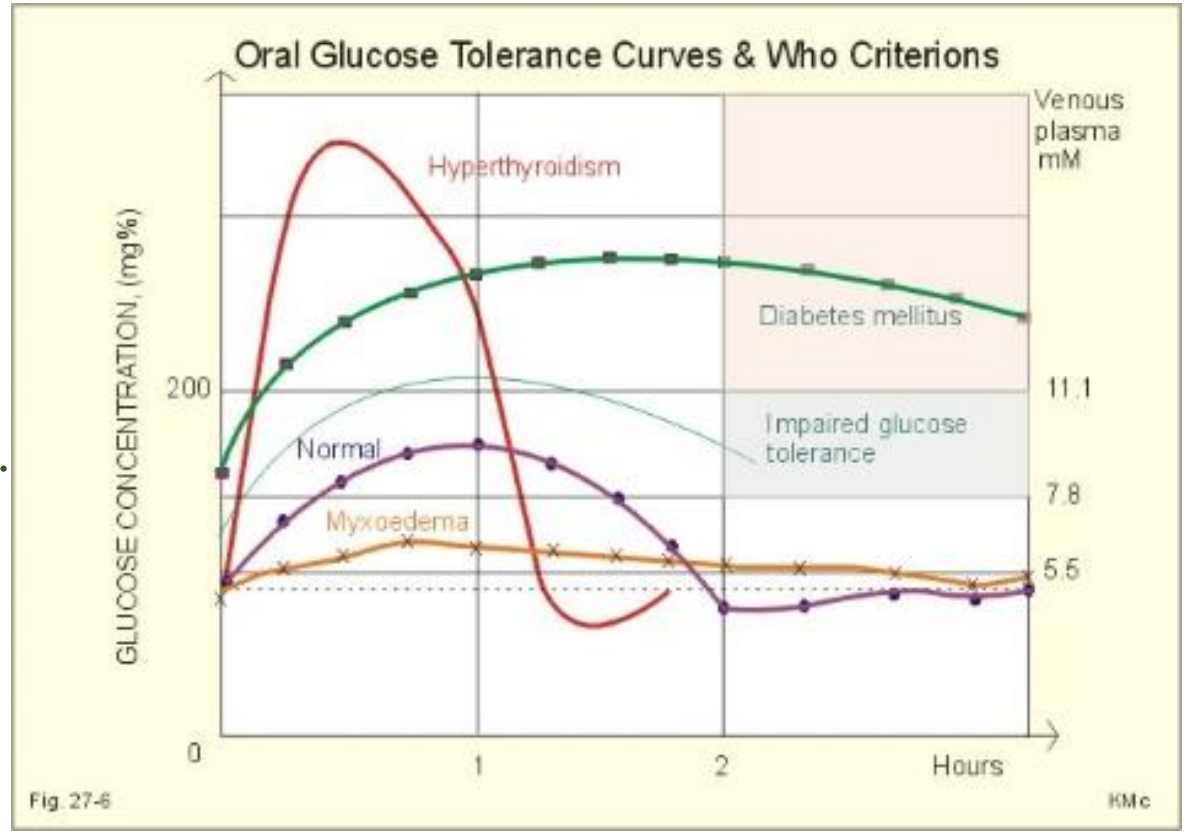
  Note: mg/dL = milligrams per deciliter
- The examples above are common measurements for results of these tests. Normal value ranges may vary slightly among different laboratories. Some labs use different measurements or test different samples.



NormalOGTT

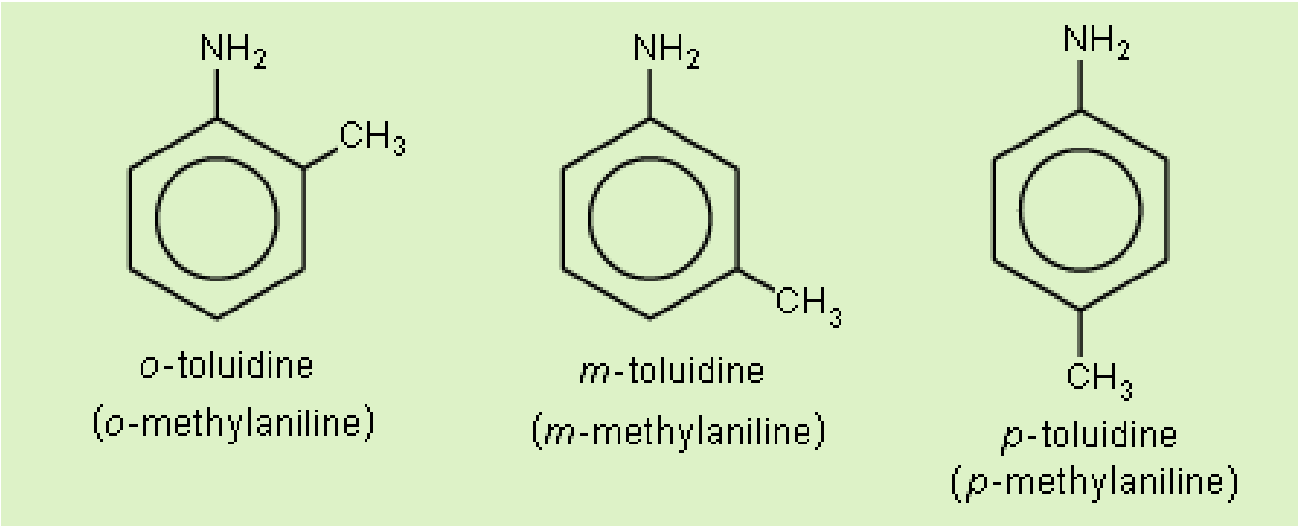
WHAT ABNORMAL RESULTS MEAN?

- A glucose level than is higher than normal may mean you have prediabetes, diabetes, or gestational diabetes.
- Between 140 and 200 mg/dL is called impaired glucose tolerance. Your doctor may call this "prediabetes." It means you are at increased risk of developing diabetes over time.
- A glucose level of 200 mg/dL or higher is a sign of diabetes.
- A high glucose level may be related to another medical problem (for example, hyperthyrodisim).



PRINCIPLE

When Glucose heated with *O*- toluidine and glacial actic acid, glucose react with *O*- toluidine and form N-glycosylamin. This compound has a green color and its absorbance can be measured, at 630 nm .



Toluidine_isomers

METHOD :

Chemical	Fasting		After 1 hour		After 2 hour		standard		Blank
	1	2	3	4	5	6	7	8	
Fasting	0.1 ml	0.1 ml	-	-	-	-	-	-	-
After 1 hour	-	-	0.1 ml	0.1 ml	-	-	-	-	-
After 2 hour	-	-	-	-	0.1 ml	0.1 ml			-
Working standard	-	-	-	-	-	-	0.1 ml	0.1 ml	
Distilled water	-	-	-	-	-	-	-	-	0.1 ml
O-toluidine reagent	7 ml	7 ml	7 ml	7 ml	7 ml	7 ml	7 ml	7 ml	7 ml

- Cover all tube by aluminum foil then place all tube in water bath at boiling degree for 5 min.
- Read the absorption of 6 tubes against blank at 630 nm. and record your result

CALCULATION:

Amount of glucose in plasma = $\frac{\text{Means Ab Test}}{\text{Means Ab Standard}}$ X Concentration of STD = mg/dl

Means of Standard =.....

Means of fasting sample= .....

Means of After 1 hour sample= .....

Means of After 2 hour sample= .....

Concentration of Standard = 50 mg/dl

Glucose concentration in Fasting plasma.....

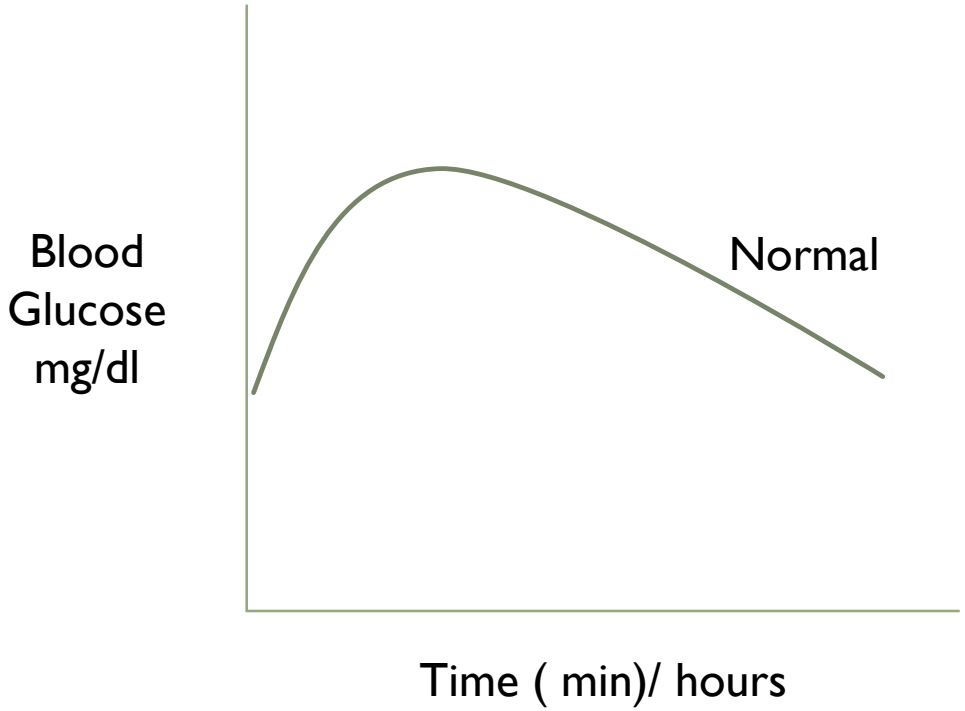
Glucose concentration after 1 hour.....

Glucose concentration after 2 hour.....

RESULTS

Test tube		Absorption at 630nm
Fasting	Test 1	
	Test 2	
After 1 hour	Test 3	
	Test 4	
After 2 hour	Test 5	
	Test 6	
Working standard	Test 7	
	Test 8	

oral glucose tolerance test curve



REFERENCES

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