

Oral Glucose Tolerance Test, Non-Gestational

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Principle: Diabetes Mellitus is a metabolic disease characterized by insufficient insulin secretion or increased cellular resistance to insulin. Fasting glucose is the recommended screening test; however, a glucose challenge may be needed to confirm the diagnosis. Many other conditions can cause hyperglycemia so patients should be ambulatory and otherwise healthy to ensure meaningful results.

Protocol: Outpatient tests are scheduled through Laboratory Customer Service (802)847-5121. Inpatient tests are administered on the inpatient floor by the house staff.

Patients should be instructed to maintain normal activity and to consume a diet that provides at least 150g of carbohydrate per day for three days prior to testing. If possible, all medications should be discontinued. Testing is performed in the morning after a 10 to 16 hour fast (water is allowed).

Non-pregnant Adults: 2-hour glucose tolerance test.

1. Collect a fasting blood sample. A urine sample is unnecessary.
2. Give 75gram dose of glucose (10-fl. oz.).
3. Collect a blood glucose sample at 2 hours.
4. Label both samples with time of collection.
5. Submit samples with Requisition marked Glucose Tolerance Test.

Children: 2-hour glucose tolerance test.

1. Collect a fasting blood sample. A urine sample is unnecessary.
2. Give glucose dose of 0.8gram of glucose per lb. body weight (1.75 g/kg ideal weight) to a maximum of 75 gram. Children weighing more than 95 lbs receive 75gram of glucose. Refer to the chart on page 19.
3. Collect blood glucose sample at 2 hours.
4. Label both samples with time of collection.
5. Submit samples with Requisition marked GLUCOSE TOLERANCE TEST.

Reference Ranges for Oral Glucose Tolerance Test, Non-Gestational:

	<u>Normal</u>	<u>Impaired Fasting Glucose</u>	<u>Diabetes Mellitus</u>
Fasting glucose	less than 100 mg/dl	greater than or equal to 100 mg/dl and less than 125 mg/dl	greater than or equal to 126 mg/dl*
Random glucose	less than 140 mg/dl	-----	greater than or equal to 200 mg/dl* *With classic symptoms
OGTT-- fasting*	less than 100 mg/dl	-----	-----
OGTT-- 2 hour*	less than 140 mg/dl	greater than or equal to 140 mg/dl but less than 199 mg/dl	greater than or equal to 200 mg/dl*

*Requires confirmation on a subsequent day, see interpretation section.

Interpretation for Oral Glucose Tolerance Test, Non-Gestational: Criteria for diagnosis according to the American Diabetes Association, revised January, 2011.

Diabetes Mellitus (non-gestational): The diagnosis may be made by any of the following three findings. All findings must be confirmed by documenting any one of the three findings on a subsequent day.

- Random plasma glucose greater than or equal to 200 mg/dl and classic symptoms (polydipsia, polyuria, weight loss).
- Fasting plasma glucose greater than or equal to 126 mg/dl.
- Oral glucose tolerance test with 2-hour plasma glucose greater than or equal to 200 mg/dl.
- Hemoglobin A1C greater than or equal to 6.5%.

Impaired Fasting Glucose

- Fasting glucose greater than or equal to 100 mg/dl and less than 125 mg/dl.
or
- Two hour oral glucose tolerance test with 2 hour glucose greater than or equal to 140 mg/dl but greater than 199 mg/dl.

References:

1. American Diabetes Association: The Physician's Guide to Type II Diabetes (NIDDM). Diagnosis and Treatment, 1984.
2. Diabetes Care, Vol. 20, No. 7. July 1997, pp. 1183-1197. Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus.

Oral Glucose Tolerance Test Dose for 75 gram bottle

Patients receive a glucose dose of 75 grams for adults (1.75 gram/kg body weight or 0.8-g/lb-body weight). Patients weighing more than 95 lbs. receive 75 grams of glucose (10 fl. oz.)

WEIGHT		GLUCOSE		DOSE	
LBS	KG	GMS	Fl. oz	CC (mL)	Discard CC(mL)
95	43	75	10	300	--
90	41	72	9.6	288	12
85	38	68	9.1	273	27
80	36	64	8.5	255	45
75	34	60	8.0	240	60
70	32	56	7.4	222	78
65	30	52	6.9	207	93
60	27	48	6.4	192	108
55	25	44	5.9	177	123
50	23	40	5.3	159	141
45	20	36	4.8	144	156
40	18	32	4.3	129	171
35	16	28	3.7	111	189
30	14	24	3.2	96	204
25	12	20	2.7	81	219
20	9	16	2.1	63	237
15	7	12	1.6	48	252
10	5	8	1.0	30	270

Oral Glucose Tolerance Test Dose for 100 gram bottle

Patients receive a glucose dose of 75 grams for adults (1.75 gram/kg body weight or 0.8-g/lb-body weight). Patients weighing more than 95 lbs. receive 75 grams of glucose (7.5 fl. oz.)

WEIGHT		GLUCOSE		DOSE Discard	
LBS	KG	GMS	Fl. oz	CC (mL)	CC(mL)
95	43	75	7.6	300	71
90	41	72	7.2	213	83
85	38	68	6.8	201	95
80	36	64	6.4	189	107
75	34	60	6.0	177	119
70	32	56	5.6	166	130
65	30	52	5.2	154	142
60	27	48	4.8	142	154
55	25	44	4.4	130	166
50	23	40	4.0	118	178
45	20	36	3.6	107	189
40	18	32	3.2	95	201
35	16	28	2.8	86	210
30	14	24	2.4	71	225
25	12	20	2.0	59	237
20	9	16	1.6	47	249
15	7	12	1.2	36	260
10	5	8	0.8	24	272