

**Oral Glucose Tolerance Test, Gestational**

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Review by: Clayton Wilburn, MD  
Date Reviewed: April 11, 2018

**Principle:**

Gestational Diabetes Mellitus is defined as variably severe carbohydrate intolerance first detected during the second or third trimester of pregnancy. It is also associated with increased risks for mother and fetus. It is reasonable to test women with increased factors for Type 2 Diabetes at their initial prenatal visit using standard diagnostic criteria. Women with diabetes in the first trimester would be classified as having Type 2 Diabetes. Pregnant women not previously known to be diabetic should be screened for gestational diabetes with a screening glucose tolerance test done between 24 and 28 weeks gestation. In this test an oral dose of glucose is given without regard to the time of the last meal. An abnormal screening test is an indication for a formal 3-hour oral glucose tolerance test. The three-hour test requires that the patient fast overnight (water is allowed).

A significant number of patients experience a critically low serum glucose level following this procedure. Please encourage your patients to bring a snack for after the procedure.

**Protocol:**

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

**Screening Gestational Glucose Tolerance Test (non-fasting)**

1. Give an oral 50gram dose of glucose.
2. Measure plasma glucose at 1 hour.

**Gestational 3-Hour Glucose Tolerance Test (fasting)**

1. Collect a fasting blood sample.
2. Give 100gram glucose dose (Reference: O'Sullivan & Mahan).
3. Collect blood glucose samples at 1 hour, 2 hours and 3 hours.
4. LABEL ALL SAMPLES WITH DATE AND TIME OF COLLECTION (i.e. 1 HR).
5. Submit samples with Requisition marked GESTATIONAL GLUCOSE TOLERANCE TEST.

**Reference Ranges:**

1-Hour Test: 1-hour plasma glucose	less than 135 mg/dL
3-Hour Test: fasting plasma glucose	less than 95 mg/dL
1 hour plasma glucose	less than 180 mg/dL
2 hour plasma glucose	less than 155 mg/dL
3 hour plasma glucose	less than 140 mg/dL

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**Interpretation:**

**Screening Gestational Glucose Tolerance Test-1 Hour Test:**

A 1-hour glucose greater than or equal to 135 mg/dl indicates the need for a formal 3 hour glucose tolerance test.

**Gestational Glucose Tolerance Test 3-Hour Test (Reference: Carpenter Coustan):**

The diagnosis of diabetes is made if two or more of the glucose values exceed the reference range.

**References:**

1. Diabetes Care, 2015; 38 (Suppl.1): 58-516.
2. Diabetes Care, Vol. 14 (Suppl. 2), March 1994. Official guide to Diagnosis and Classification of Diabetes Mellitus and Other Categories of Glucose Tolerance.
3. Influences of Diagnostic Criteria on the Incidence of Gestational Diabetes and Perinatal Morbidity. M. Magee, et al. JAMA, 269(5) pp. 609-615, 1993
4. Criteria for screening tests for gestational diabetes. Carpenter, Marshall W. et al. American Journal of Obstetrics & Gynecology , Volume 144 , Issue 7 , 768 - 773