AsktheExperts
FOR EARLY T1D ANSWERS AND GUIDANCE

Barbara Davis Center for Diabetes
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Oral Glucose Tolerance Test (OGTT) Instructions

Visit Date: _____

1. Assess eligibility for OGTT

- Current medications: _____
  _____
- Date and time of last food or liquid intake other than water
  Date: _____ *Time:* _____*am/pm*
- Date and time of most recent moderate to vigorous physical activity
  Date: _____ *Time:* _____*am/pm*
- *Fasting glucose level:* _____*mg/dl*

	YES	NO
Taking salicylates, diuretics, anti-convulsant or oral contraceptive pills? *If taking salicylates, diuretics, anticonvulsants, or oral contraceptive pills, should consider rescheduling OGTT after stopping for 3 days under the direction of a healthcareprovider.*	☐	☐
Taking a medication known to affect glucose tolerance? *If taking a medication that can affect glucose tolerance, should consider rescheduling OGTT after a wash-out period of ~4 weeks under the direction of a healthcare provider.*	☐	☐
Food or liquid intake other than water in the last 10 hours?	☐	☐
Moderate to vigorous physical activity in the last 24 hours?	☐	☐
Illness or fever in the last two weeks?	☐	☐
Fasting glucose >200 mg/dl? *If YES, assess for symptoms of hyperglycemia and ketosis, check HbA1c to inform clinical decision making.*	☐	☐

If all answers are **NO**, then **proceed with OGTT**.
If answer to one or more questions is **YES, reschedule OGTT**.

2. Start Peripheral Intravenous Line (PIV) if using PIV instead of capillary sample from fingerstick. Strongly recommend using PIV to ensure adequate blood volumecollection, decreased hemolysis and reduced burden of repeated fingersticks.

3. Calculate Glucose Dose (Glucola)
Height_____cm Weight_____kg (lbs÷2.2=kg)

100g/300 ml Bottle
1.75g X___kg X 3=_ml Glucola
Max dose of 75grams or 225 ml

75g/300ml Bottle
1.75g X_kg X 4 =_____ml Glucola
Max dose of 75grams or 300 ml

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4. Administer OGTT

Collect glucose sample at 0 minutes. Administer Glucola, which must be consumed within 5 minutes. Then collect glucose sample at 30 minutes, 60 minutes, 90 minutes and 120 minutes (5 time points). Flush with 3cc normal saline between each draw (if PIV in place). Consider collecting c-peptide samples at each time point if considering treatment with a disease modifying agent. Keep c-peptide sample on ice and process sample within time frame specified by laboratory (usually 2 hours).

Sample Time (minutes)	Target Draw Time	Actual Draw Time	Glucose Sample Collected 1ml red top tube/SST*	C-Peptide Sample Collected 1ml red top tube/SST*	Glucometer Value (safety)
0			Yes ☐ No ☐	Yes ☐ No ☐	
Consume Glucola within 5 minutes					
30			Yes ☐ No ☐	Yes ☐ No ☐	
60			Yes ☐ No ☐	Yes ☐ No ☐	
90			Yes ☐ No ☐	Yes ☐ No ☐	
120			Yes ☐ No ☐	Yes ☐ No ☐	

* Check with the laboratory where you are sending sample to verify the tube needed for serum glucose and c-peptide measurements.

5. At time 120, check glucose with glucometer. If >200 mg/dL assess for symptoms of hyperglycemia and ketosis. Check HbA1c to inform clinical decision making. Consult (verbal conversation) with an endocrinologist to determine next steps.

6. Discontinue PIV (when applicable), offer snack, and discharge if glucose <200mg/dL.

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RESULT INTERPRETATION and NEXT STEPS

Stage 1 T1D: Normal

1. Fasting glucose <110 mg/dL
2. 2-hour blood glucose is <140 mg/dL (glucose tolerance)

Plan:

- Repeat metabolic evaluation in 6 months (children and adolescents) or in 1 year (adults)
- Remind family to do home glucose testing 1x/week 2-hours after a meal (if not wearing a CGM), with any symptoms and with all illnesses.
- Discuss treatment options: metabolic monitoring

Stage 2 T1D: Impaired

1. Fasting blood glucose, 100 – 125 mg/dL
   **ADA criteria changed in 2003. Prior to this time, impaired fasting glucose was 110-125 mg/dl which is why some clinical trials initiated prior to 2003 use this range.*
2. 2-hour blood glucose, Impaired range 140 – 199 mg/dL (glucose tolerance)

Plan:

- Repeat metabolic evaluation in 3 months (children and adolescents) or in 6 months (adults)
- Remind family to do home glucose testing 1x/week 2-hours after a meal (if not wearing a CGM), with any symptoms and with all illnesses.
- Discuss treatment options: metabolic monitoring, clinical trials or Tzield®

Stage 3 T1D: Abnormal

1. Fasting blood glucose ≥126 mg/dL
2. 2-hour blood glucose ≥200 mg/dL (abnormal, diagnostic of type 1 diabetes with symptoms, without symptoms must be repeated)

Plan:

- Assess for symptoms of hyperglycemia (polyuria, polydipsia, nocturia, weight loss/lack of weight gain) and ketosis (rapid breathing, headache, confusion, nausea/vomiting).
- Check HbA1c.

Then . . .

- If symptoms are present or 2 of the following are present (HbA1c ≥6.5%, fasting blood glucose ≥126 mg/dL, 2-hour blood glucose ≥ 200 mg/dL), then verbal consult and urgent referral to pediatric/adult endocrinology department is needed.
- If no symptoms and only 1 of the following is present (HbA1c ≥6.5%, fasting blood glucose ≥126 mg/dL, 2-hour blood glucose ≥ 200 mg/dL), then
    - Instruct family to do home glucose testing twice daily for the next week: fasting and 2 hours after eating.
    - Check blood glucose levels and ketones in urine with any illness, especially with vomiting.
    - Repeat OGTT in 1 month

Note: It is common for patients to be in different stages of type 1 diabetes depending which value is being examined (fasting glucose vs HbA1c vs OGTT). It is up to the healthcare provider to used evidence to decide the optimal follow up and treatment plan for a patient.

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PATIENT INSTRUCTIONS

This is to remind you of your/your child's appointment at _____ on _____ at _____ am for an oral glucose tolerance test (OGTT).

The oral glucose tolerance test is used to diagnose your stage of diabetes. It measures how much the blood sugar rises and how much insulin the pancreas makes after drinking a sweet liquid that is like soda pop. For the OGTT, one IV line is placed in a vein on the hand or the arm. You will be asked to drink a sweet liquid over a period of 5 minutes. Several blood samples will be taken through the IV line before and after drinking the sugar solution. This test will take approximately three hours total.

For some individuals, especially young children, this test may be stressful. To help alleviate some of this anxiety and pain, EMLA cream can be applied 30 minutes before the IV line is inserted. EMLA cream numbs the skin, and the person feels only pressure when the IV line is inserted with a needle.

To prepare for your OGTT:

- If you are taking any medications, please discuss whether to stop or continue your medication with your healthcare provider.
- Fast for 10 hours before the OGTT (if your appointment is at 8am, do not eat or drink anything but water after 10pm the night before). This means no food, coffee, tea, soda, alcohol, cigarettes, or chewing gum during the fasting period. Do not take any over-the counter medications during the fasting period.
- Avoid moderate or vigorous exercise 24 hours before the OGTT.
- Notify us of any illnesses or fevers that you have during the 2 weeks before the OGTT (for certain illnesses, we may need to reschedule your appointment).
- Drink lots of water, especially the day before and morning of the OGTT, to prevent dehydration.
- Eat plenty of carbohydrates (fruits & breads) and limit fat intake during the 3 days before your OGTT visit.
- Make sure that your sleep schedule is normal the night before your OGTT. For example, avoid a sleepover or refrain from working a night shift the night before the OGTT.