



**Your appointment for the Oral Glucose Tolerance Test
At Children's Hospital Colorado**

Is at _____ on _____.

**DAISY
Diabetes Autoimmunity Study in the Young**

This handout is designed to provide you with information about the Oral Glucose Tolerance Test (OGTT).

Introduction

*(The technical terms and words shown in **bold** type are defined at the end. The word "you" used in this handout refers to you or your child.)*

Subjects who are at a high risk for developing Type 1 diabetes on the basis of the presence of diabetes associated autoantibodies are eligible for the OGTT. You will be screened for abnormalities of glucose metabolism using the OGTT. The presence of the autoantibodies is a sign that your **immune system** may be attacking the insulin-producing cells (**islet cells**) in your pancreas.

Because you have shown to be positive for two or more these autoantibodies on two consecutive visits you are now eligible for the OGTT. These results show that you are more likely to develop type 1 diabetes than other people, but we still do not know just how likely. Some people with antibodies will not develop type 1 diabetes.

Oral Glucose Tolerance Test

The purpose of the OGTT is to gain a better understanding of your risk for the development of type 1 diabetes. It will also help us to improve how we determine the risk for developing diabetes. Because several tests will be performed, more information will be available to estimate your risk for developing type 1 diabetes.

There is an informed consent form which we will explain and have you sign at the hospital.

The tests will be done after an **overnight fast** which should start at **10:00pm** the night before. Your child is to not eat or drink anything other than water from 10:00pm the night before the test until the test is complete. Your child will be given food to eat as soon as the testing is finished. Be sure to have your child drink water the morning of the OGTT. The test will require that a needle be placed in a vein (**intravenous line: IV**) before the test begins, EMLA cream will be used to numb the skin and will be provided along with these instructions. All of the blood samples drawn for the tests will be taken through the IV line. Once the testing has begun your child will need to remain lying down, there is a TV with a DVD and VCR. You are welcome to bring favorite movies from home, the CRC at The Children's Hospital also has a wide selection to choose from.

The total time for this visit will be 3-3½ hours (including measurements done such as height, weight, viral cultures and questionnaires).

The tests which will be done are: (a description of each test follows this list)

- **Oral Glucose Tolerance Test (OGTT)**
- **Regular samples for DAISY**
- **HbA1C**
- **Autoantibodies**

Test Descriptions:

- **Oral Glucose Tolerance Test (OGTT):**
This test is used to diagnose diabetes. It measures how much the blood sugar rises and how much insulin the cells (islet cells) in the pancreas release after you drink a sweet liquid. The drink looks and tastes like a soda and contains a lot of sugar. The sweet drink will need to be finished within 5 minutes. Several blood samples will be drawn every 30 minutes through the IV line over a two-hour period. The samples will measure the changes in both your blood sugar and insulin levels during the test. The tests run will tell us how much insulin the pancreas is producing and how well that insulin is controlling the blood sugar.
- **Regular samples for DAISY:**
Urine sample, throat culture, rectal culture, questionnaires
- **Hemoglobin A1C (HbA1C):**
This test will measure your average blood sugar level for the past 3 months.
- **Autoantibodies:**
Autoantibodies are drawn at every visit. These are the immune system cells that damage the islet cells in the pancreas.

You will be provided with the results of the OGTT and more information on the estimated risk for developing Type 1 diabetes. The results will take 4-6 weeks.

There is still much to be learned about predicting who will develop type 1 diabetes so we cannot tell you for sure if and when you might develop diabetes. This study should help create better ways to predict diabetes.

Follow Up

Your child will continue to be tested by DAISY every 3-6 months after this testing at regular DAISY visits in the DAISY clinic. We will continue to watch your child closely for the possible development of type 1 diabetes.

We would like to repeat the OGTT every 6-12 months.

The results of this testing will be used to help us learn more about risk factors and the development of type 1 diabetes.

If your child develops type 1 diabetes, there may be an opportunity for you to participate in other studies. These studies will test treatments that may help to maintain insulin secretion in people newly diagnosed with type 1 diabetes.

Glossary

- **Autoantibodies:**

These proteins are made by the immune system of the body. The proteins are usually made when the body comes in contact with a foreign material it doesn't recognize. The purpose of antibodies is usually to protect the body from infections.

In type 1 diabetes, the immune system decides that the islet cells are "foreign" and begins its attack. When these antibodies appear in the blood, it is a sign that the immune system may be attacking the cells in the pancreas by mistake and the risk of type 1 diabetes is increased. Some children with these antibodies will never develop diabetes, some children will eventually develop diabetes and it may take many months to several years before the symptoms of diabetes appear. Signs and symptoms of diabetes are:

Excessive thirst, excessive urination, weight loss, change in appetite, decreased energy, vomiting without diarrhea or fever.

- **Hemoglobin A1C (A1C):**

This test measures your average blood sugar for the past 3 months. A value less than 6 indicates your blood sugar has been in a normal range.

- **Immune system:**

The body's defense mechanism that is involved in protecting the body against foreign invaders such as bacteria or viruses. Special types of white blood cells are programmed to recognize and attack foreign substances entering the body. Sometimes the immune system makes a mistake and identifies the islet cells in the pancreas as foreign. The immune system then begins to destroy the islet cells, which can eventually result in type 1 diabetes.

- **Intravenous line (IV):**

The word 'intravenous' means "within a vein". For the tests in this study, a soft plastic tube (line; catheter) attached to a needle is placed into a vein of your body. Once the line is inserted into the vein, substances can be given through the IV, such as glucose (IVGTT), or blood can be drawn out. Once the test is completed, the IV line will be removed.

- **Islet (pronounced 'eye-let') cells:**

Islet cells are clusters of specialized cells found scattered throughout the pancreas. These clusters include the cells that make insulin (beta cells).

- **Oral Glucose Tolerance Test (OGTT):**

This test measures how much your blood sugar rises after you drink a sweet liquid, and how much insulin your islet cells release to bring the blood sugar (glucose) level back down. This test can be used to diagnose diabetes.

Within a 5-minute period, you will drink a sweet liquid that looks and tastes like soda. Blood samples are then drawn through the IV line every 30 minutes over the next two hours. Your glucose and insulin levels will be measured in the blood samples.

- **Overnight fast:**

Ten hours before you are to have an OGTT you will need to stop eating/drinking. You can *and should* drink plain water during this time to prevent your body from becoming too dry (dehydrated).