

TYPE 1 DIABETES (T1D)

FREQUENTLY ASKED QUESTIONS

WHAT IS TYPE 1 DIABETES (T1D)?

The beta cells in the pancreas make insulin. In T1D the immune system makes a mistake. It thinks the beta cells are “foreign” and attacks them. This is called autoimmunity. We can tell when this is happening by testing the blood for autoantibodies. If the autoimmune attack destroys too many beta cells, the person gets T1D.

WHAT CAUSES T1D?

We don't know exactly what causes a person's immune system to attack the beta cells. Both a person's genes and a person's environment seem to play a part. Studies like TEDDY [The Environmental Determinants of Diabetes in the Young] are helping us learn more about this.

WHAT ARE T1D STAGES?

In 2015, the Juvenile Diabetes Research Foundation (JDRF), the American Diabetes Association (ADA) and the Endocrine Society adopted a statement that recognizes the disease process leading to T1D starts before people have symptoms or high blood sugar levels. The statement recognizes **3 STAGES of T1D**.

IMMUNE ACTIVATION

The immune system of some people who are at increased risk for T1D may attack the beta cells in the pancreas. We can tell this is happening by doing a blood test and looking for autoantibodies.

GENETIC RISK

9 of 10 people with T1D do not have a family member with T1D. People who have certain genes or a close relative with T1D have a 10-15x higher risk of developing T1D.

STAGE 1 T1D

- Islet autoantibodies
- Normal glucose
- No symptoms

STAGE 2 T1D

- Islet autoantibodies
- Abnormal glucose
- No symptoms

STAGE 3 T1D

- Islet autoantibodies
- High glucose
- Symptoms

SEE REVERSE SIDE...





Islets with beta cells



Islets with beta cell loss



Increased beta cell loss



Most beta cells lost

TYPE 1 DIABETES (T1D)

3 STAGES OF T1D

STAGE 1

Stage 1 of T1D starts when a person has two or more autoantibodies. The immune system has started to attack the beta cells in the pancreas that make insulin.

At this time, there are a lot of healthy beta cells left. The body is able to produce enough insulin to keep blood sugars normal. There are no symptoms.

People with stage 1 of T1D should learn the signs and symptoms of T1D, monitor blood sugars as recommended and have regular visits with a healthcare professional to monitor for progression of T1D.

7 out of 10 people in this stage will get to stage 3 (symptomatic) T1D within 10 years. Almost everyone will develop stage 3 T1D during their lifetime.

STAGE 2

Stage 2 of T1D starts when beta cells are not working well enough to keep blood sugars normal all of the time. In the later part of stage 2, there is a large loss of beta cells. At this stage, people do not notice any symptoms.

High blood sugar may appear in response to a sugar challenge like a large meal or an oral glucose tolerance test (OGTT).

People with stage 2 of T1D should know the signs and symptoms of T1D, monitor blood sugars as recommended and have regular visits with a healthcare professional to monitor for progression of T1D using tests such as hemoglobin A1c (HbA1C), oral glucose tolerance test (OGTT) and continuous glucose monitor (CGM).

Half of people in this stage will get to Stage 3 (symptomatic) T1D in 2 years.

STAGE 3

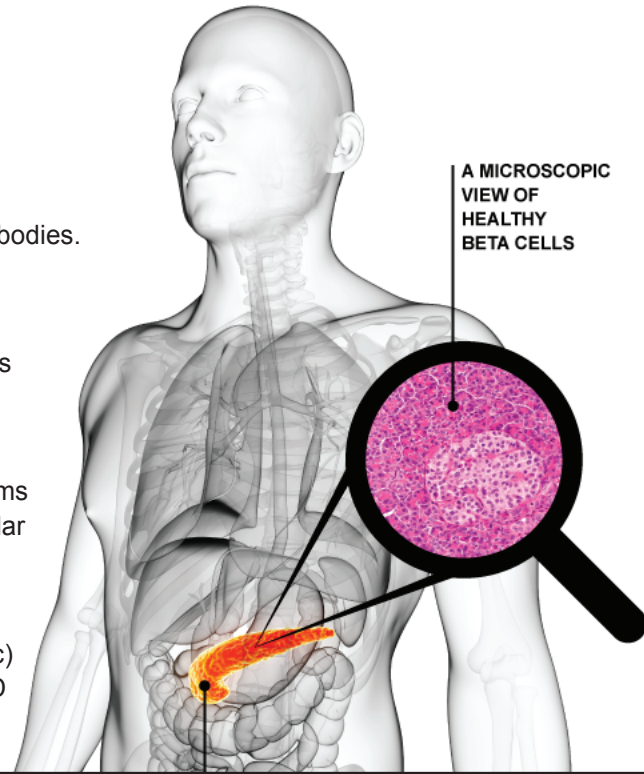
In stage 3, most of the beta cells have been destroyed. The beta cells that are left cannot produce enough insulin to keep the blood sugars normal. Symptoms of T1D occur, become more severe over time, and are life-threatening if medical treatment is not started.

Most common symptoms include:

- **Excessive thirst**
- **Frequent urination** or getting up at night to urinate
- **Wetting the bed** in a child who was previously dry
- **Unexplained weight loss** or poor weight gain
- **Change in appetite**

+ Additional symptoms people experience include: low energy, blurred vision, yeast infections, mood changes, behavior changes

+ Symptoms that require urgent attention include: heavy breathing, vomiting and confusion



A MICROSCOPIC VIEW OF HEALTHY BETA CELLS

LOCATION OF THE PANCREAS, WHICH CONTAINS BETA CELLS