

## Chapter 3

# What Causes Type 1 Diabetes?



The cause of type 1 diabetes is believed to be due to three things:

**1** **Genetics:** Genes come from both mom and dad and can make someone more likely to get diabetes. Over half of the people that get type 1 diabetes have inherited the gene cell types DR3/DR4. (One is from mom and one is from dad.)

**2** **Self-Allergy (autoimmunity):**

- The immune system in the body normally protects it from possible harm.
- An allergy is a reaction by the body's immune system to something it thinks doesn't belong inside the body.
- Self-allergy is when a person's body develops an allergy against one of its own parts. In this case, the allergy is against the islet (eye-let) cells in the pancreas where insulin is made. When the islet cells have been damaged, the immune system makes something called antibodies. These antibodies are present in the blood (Islet Cell Antibodies or ICA).

Other antibodies that may be found in the blood of people with type 1 diabetes are:

- IAA (insulin autoantibody)
- GAD antibody
- ICA512 antibody

Sometimes these antibodies are present for many years before the signs of diabetes appear. Half of the people who will someday develop type 1 diabetes already have the antibodies by age five years. Being able to identify antibodies has allowed studies (which have begun in the U.S. and elsewhere) to try to prevent type 1 diabetes (see Chapter 28 on Research).

**3** **Virus or Chemical:** Having a certain gene makeup may allow a virus or chemical to get to the islet cells (where insulin is made) and cause damage. Once the damage has occurred, the self-allergy likely begins.

## TYPE 2 DIABETES

Type 2 (adult-onset) diabetes does not occur as a result of the self-allergy like type 1 diabetes. Therefore, antibodies (found in type 1 diabetes) are not present in the blood.

Type 2 has an inherited part (Chapter 4), but the genetics are different from type 1 diabetes. As noted in Chapter 2, people with type 2 diabetes may have normal or high insulin levels. The insulin just does not work well. In contrast, people with type 1 diabetes have low or no insulin. The two conditions are both called diabetes. Both result in high sugars, but they are VERY different from each other.



*Thirty minutes of exercise  
five times a week is important for  
people with type 2 diabetes.*