

## **US.GLA.10.04.038\_Why\_Insulin\_MOA\_Video\_Transcript**

### **Insulin, Glucose and You**

#### **Insulin and Glucose**

When you hear the word insulin, you may think of a drug taken by people who have diabetes.

While this is true, what you may not know is that insulin is one of the many hormones created in the human body.

Insulin is important to the body. It allows blood sugar (or glucose) to get into cells to provide them with energy.

When you eat, your body breaks down food into glucose in your small intestine.

This is your body's source of energy for everything it does, from working and thinking to exercising and healing.

Glucose travels through your bloodstream, looking for individual cells that need energy.

For glucose to get into the cells, it requires insulin.

Insulin is the key that unlocks cells for glucose to enter and deliver energy.

When insulin arrives, it signals the cell to activate glucose transporters.

These transporters pull glucose through cell walls.

When glucose moves into the cell, it delivers energy.

#### **Insulin Deficiency**

Insulin is normally produced in the pancreas by specialized cells called beta cells.

When glucose enters your bloodstream, the pancreas matches it with the right amount of insulin to move glucose into your cells.

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In people with diabetes, this process doesn't work as it should. In type 1 diabetes, scientists believe the body's immune system mistakenly attacks and destroys beta cells in the pancreas. A person with type 1 diabetes loses the ability to produce insulin.

In type 2 diabetes, the pancreas is not producing enough insulin to meet the body's needs. Over time, the amount of insulin typically becomes less and less.

### **Insulin Resistance**

In some type 2 diabetes patients, cells build up a resistance to insulin. Even though there may be insulin in the bloodstream, it is not enough to unlock cells to allow glucose to enter.

As a result, it takes more insulin to find the right key to unlock the cell for glucose. This makes it more difficult for cells to get the energy they need.

### **The Effects of Diabetes**

When glucose can't get into cells—either because there isn't enough insulin or because the body is resisting it—glucose begins to build up in the bloodstream.

As a result, all that energy is wasted. It does not get to cells where it is needed. Without glucose in your cells, they lack the energy they require to keep your body working.