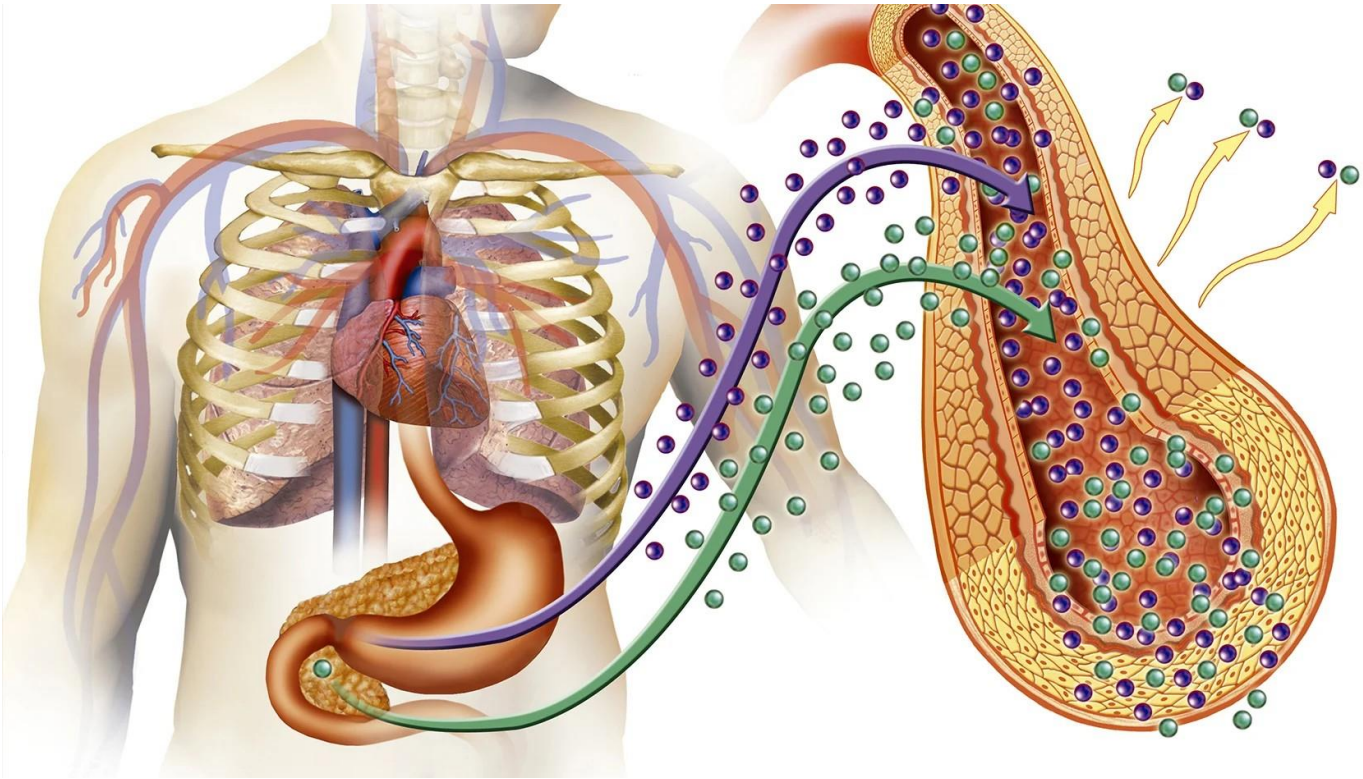

PATIENT RESOURCES

Diabetes and Endocrine Function

January 23, 2022

An estimated 30 million Americans have diabetes, a disease in which there is too much sugar in the bloodstream. About 7 million of them, however, have not yet been diagnosed with the disease.

Endocrine Connection

Diabetes occurs when the pancreas, a gland behind the stomach, does not produce enough of the **hormone insulin**, or the body cannot use insulin properly. Insulin helps carry sugar from the bloodstream into the cells. Once inside the cells, sugar is converted into energy for immediate use or stored for the future. That energy fuels many of our bodily functions.

The body produces glucose from the foods you eat. The liver also releases sugar when you are not eating. The pancreas produces the hormone insulin, which allows glucose from the bloodstream to enter the body's cells where it is used for energy. In type 2 diabetes, too little insulin is produced, or the body cannot use insulin properly, or both. This results in a build-up of glucose in the blood.

People with diabetes are at risk of developing serious health problems (**complications**). If your blood glucose level stays too high for too long, complications can include:

- Blindness
- Kidney disease and failure
- Nerve damage which can result in nerve pain or injury to the feet or other extremities without feeling pain
- Heart attacks (with or without symptoms)
- Stroke

▸ **Diagnosis and Screening**

There are three blood tests that can be used to check the levels of glucose in your blood and diagnose prediabetes or diabetes:

- **Fasting Blood Glucose Test (FBG):** Blood is drawn in the morning after you go without food overnight or for at least 8 hours.

  If the blood Glucose value is 125 mg/dl or more, it indicates Diabetes.

- **Oral Glucose Tolerance Test (OGTT):** This test is also done in the morning after going without food overnight or for at least 8 hours. Blood isdrawn before you drink 8 ounces of a sugar solution and 2 hours after. This test is more precise but less convenient than the FBG test. If the blood Glucose value at 2 hour mark is 200 or more, it is indicative of Diabetes.

- **Hemoglobin A1C Test (A1C):** This test shows what your average blood glucose levels have been over the past 3 months. You can eat and drink normally before the test. If your A1c is 6.5% or higher, you have Diabetes.

If you are living with diabetes, lifestyle is an important part of your care. It is very important that you eat a good balance of real foods every day and exercise regularly. Managing your diabetes also means taking medicine, if needed, and testing your blood sugar levels each day.

▸ **Type 1 Diabetes vs. Type 2 Diabetes**

People with both type 1 and type 2 have high blood glucose levels, but the reasons for those high levels differ. Differences between type 1 and type 2 diabetes include:

Age of diagnosis: Type 1 is typically diagnosed in children or young people (but it can be diagnosed in older individuals as well), while type 2 diabetes is generally diagnosed in adults and occasionally children.

Treatment options: For individuals with type 1 diabetes, the only effective treatment is insulin. For people with type 2 diabetes, oral medications (pills), insulin, or non-insulin injectables may be used.

Hypoglycemia: Blood sugar levels can drop to dangerously low levels in people with type I diabetes, but it can also occur in individuals with type 2 diabetes. Certain medications, such as insulin, may increase the risk of hypoglycemia.

Preventability: While certain experimental medications may postpone the development of type 1 diabetes, there are no means of preventing type 1 diabetes. Type 2 diabetes can sometimes be prevented with lifestyle changes.

Gestational Diabetes

Gestational Diabetes is a temporary form of diabetes that can occur when a woman is pregnant. During pregnancy, the placenta produces hormones that help the baby develop. These hormones also block the effects of insulinin the woman's body, increasing her blood sugar levels. Most women who have gestational diabetes have no symptoms.

If a woman has high blood sugar in pregnant, she will have to follow a special diet for the rest of the pregnancy. In some cases, she may also need to take insulin. High blood sugar in women with gestational diabetes can affect them and their baby. These risks include:

- Premature delivery and preeclampsia (pregnancy-induced high blood pressure).
- The baby grows too large. Very large babies may get stuck in the birth canal and have birth injuries. Large size also increases the chances of needing a cesarean (surgical) delivery.
- May cause stillbirth. Uncontrolled gestational diabetes also increases the risk of jaundice and breathing problems in the newborn.
- After birth, the baby may develop low blood sugar (hypoglycemia), a potentially dangerous condition. While in the womb, the baby's pancreas produces large amounts of insulin in response to the mother's high blood sugar, and it continues to do so after delivery. Without the sugar supplied by the mother, excess insulin can cause the baby's own glucose level to drop too low.

Gestational diabetes affects about 4–8 of every 100 pregnant women in the United States. Any pregnant woman can develop the condition, but some women are at greater risk than others. Among women with the below risk

factors, as many as 14 in 100 develop gestational diabetes. Known risk factors include:

- Age (older than 25 years; the risk is even greater after age 35)
- Race (occurs more often in African Americans, Hispanics, American Indians, and Asian Americans)
- Overweight and obesity
- Personal history of gestational diabetes or prediabetes
- Having delivered a baby weighing more than 9 pounds
- Family history of type 2 diabetes (in parents or siblings)