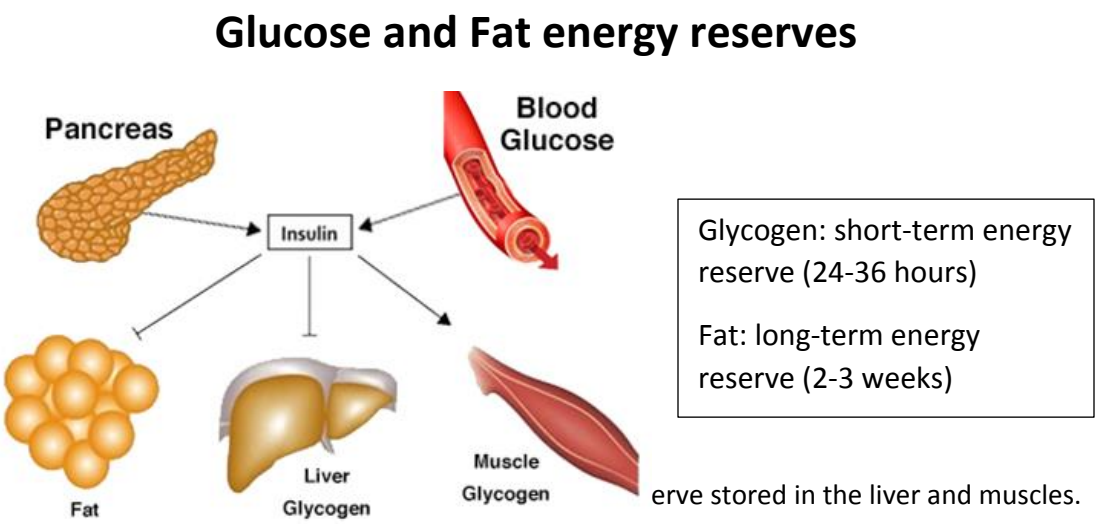
Insulin Hormone and the Body Energy

Insulin is the primary hormone for producing energy in the body cells from glucose. Without insulin hormone, a human cannot survive for more than a few days. Two types of energy get produced from glucose with the help of insulin:

1. ***Energy for immediate use by the cells***. Glucose from the ingested food provides glucose energy for the cells for a period of 1-3 hours based on the type of meal consumed.

2. ***Reserve Energy***. The glucose in the blood left over after immediate energy usage gets converted into reserve energy to be used later when there is no glucose coming from the digestive tract. There are two types of reserve energy:



Glycogen: short-term energy reserve (24-36 hours)

Fat: long-term energy reserve (2-3 weeks)

- erve stored in the liver and muscles. Glycogen can be rapidly broken down into glucose for immediate supply, like a tap on the storage water tank. Glycogen reserves can provide energy for 18-36 hours, such as during overnight fasting period and between meals. Blood sugar is always high in the morning between 4-7 AM as the liver releases glucose to meet the demand for wake-up energy. The glucose for wake-up energy comes from glycogen stores in the liver. Muscle glycogen stores get used for physical exercise. The glycogen stores in the liver and muscles get depleted when someone fasts for 16-18 hours exercises.

- ***Fat reserve energy.*** After the glycogen reserves are filled up, extra glucose left over is converted to reserve energy fat. Fats get stored in the liver, abdominal cavity (abdominal obesity or potbelly), muscles, and under the skin. Body fat is a long-term energy reserve on which humans can survive for weeks of starvation. Unfortunately, the modern human has easy access to refined carbohydrates and sugary beverages which promote obesity by excessive fat synthesis. The capacity of the human body to store fat and get obese is unlimited. The only way to use up fat reserve energy is by fasting for greater than 16 hours.