

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

Insulin and Diabetes

Week # \_\_\_\_\_

Recall from last class...

- The function of the digestive system is to \_\_\_\_\_  
\_\_\_\_\_
- Food, like carbohydrates, is broken down into glucose. In the \_\_\_\_\_,  
glucose is absorbed and goes into the \_\_\_\_\_ to be used by cells of the body.

Directions: Figure 1 shows a normal person's blood glucose levels over the course of a day. Use Figure 1 to answer the questions below.

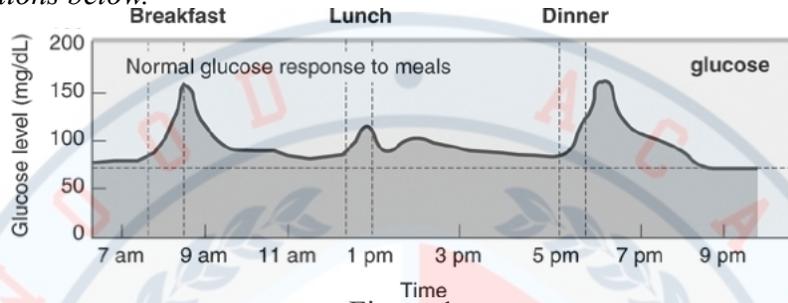


Figure 1

- What happens to the glucose levels after each meal? \_\_\_\_\_  
\_\_\_\_\_
- At lunch, the glucose level changed the least. What conclusion can you draw about the lunchtime meal the person ate? \_\_\_\_\_  
\_\_\_\_\_
- When glucose levels return to normal after each meal, this means that glucose leaves the bloodstream. Where does glucose go? \_\_\_\_\_  
\_\_\_\_\_
- Figure 1 shows only blood glucose levels. Describe the nutrient levels in blood after a meal that is high in protein. \_\_\_\_\_  
\_\_\_\_\_

Recall that glucose is a large molecule that does not freely pass through a cell's membrane, unlike smaller molecules like water. Therefore in order for a large molecule to enter a cell, hormones or chemical signals, need to act. When blood glucose levels rise, the pancreas releases a hormone called insulin. Insulin tells cells to open a channel to allow glucose to enter. Without insulin, cells would not be able to take in glucose.

- Use Figure 2 to explain Figure 1.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

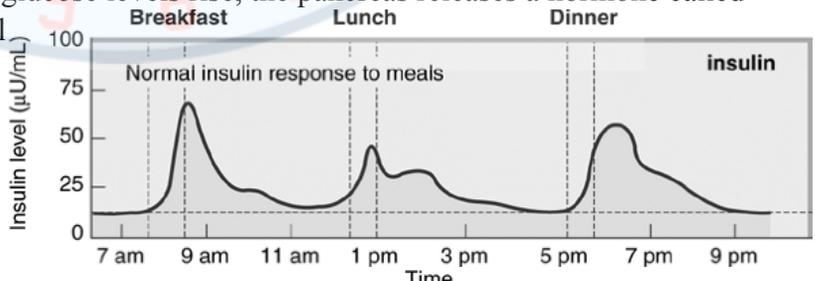


Figure 2

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

8. Recall from last class that diabetes is a condition when \_\_\_\_\_  
 \_\_\_\_\_
9. As a result, what would you expect Figure 1 to look like for a person with diabetes? \_\_\_\_\_  
 \_\_\_\_\_

There are two kinds of diabetes: Type 1 and Type 2. Type 1 diabetes is when the body's immune system attacks and destroys the cells in the pancreas that make insulin. Type 2 diabetes is when the body does not produce enough insulin or ignores insulin. Both types of diabetes result in too much glucose remaining in the bloodstream, which can damage the cells of the organs.

10. What do you think is a treatment for both types of diabetes? \_\_\_\_\_  
 \_\_\_\_\_
11. Type 2 diabetes is often called adult-onset diabetes. Those individuals who are overweight or obese have a higher risk of Type 2 diabetes. How might a poor diet (high in carbohydrates and sugars) be a risk factor for Type 2 diabetes? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

*Directions: Complete the Summary Chart that shows digestion and glucose up-take in a normal person versus a person with diabetes.*

Normal Person	Diabetic Person
<p>Food is consumed</p> <p>↓</p> <p>Mouth</p> <p>↓</p> <p>_____</p> <p>↓</p> <p>_____</p> <p>↓</p> <p>_____</p> <p>↓</p> <p>Glucose enters the _____</p> <p>↓</p> <p>Blood glucose levels _____</p> <p>↓</p> <p>_____ releases _____</p> <p>↓</p> <p>This causes _____</p> <p>↓</p> <p>Blood glucose levels _____</p>	