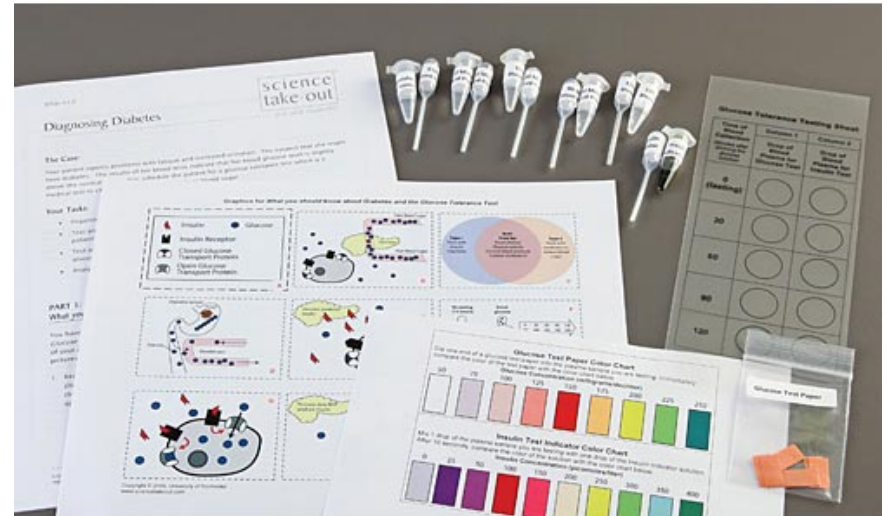


# Diagnosing Diabetes

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# The Case



The patient reports problems with fatigue and increased urination. You suspect she might have diabetes. The results of her blood tests indicate that her blood glucose level is slightly above normal range. You schedule the patient for a glucose tolerance test which is a medical test to check how the body metabolizes blood sugar.

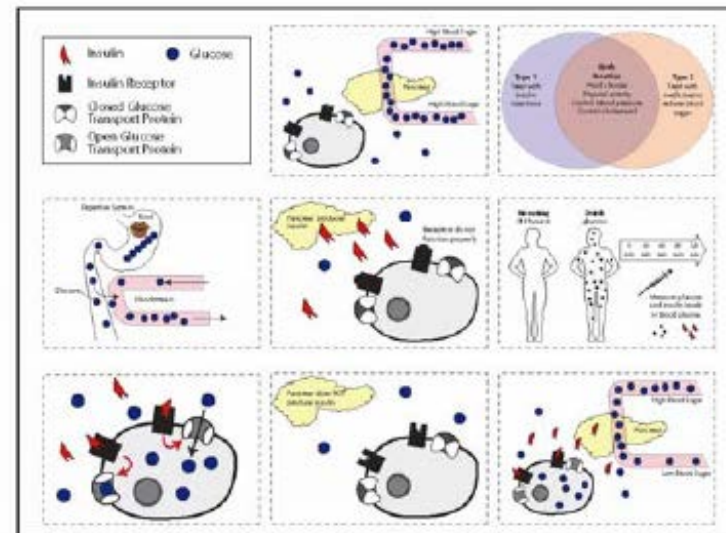
## PART 1:

# What you should know about diabetes and the glucose tolerance test

You have a patient information sheet called *What You Should Know About Diabetes and the Glucose Tolerance Test*, that explains diabetes and the glucose tolerance test. However, many of your patients have difficulty reading this information sheet. You would like to add some pictures that you have collected to illustrate the information in the brochure.

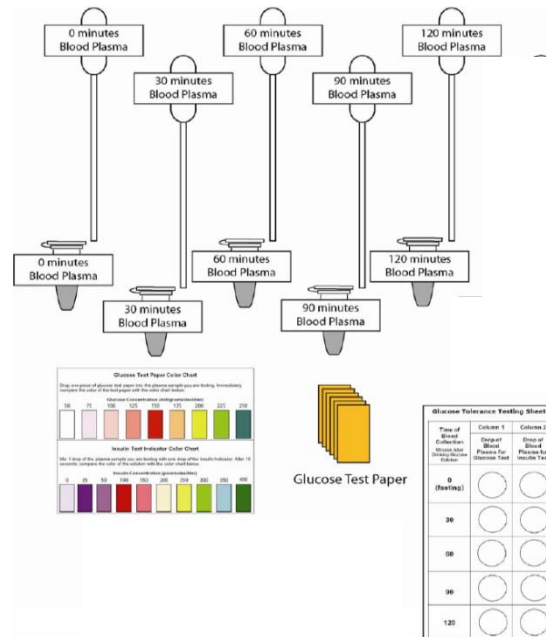
1. Read the **patient information sheet on the next three pages—*What You Should Know About Diabetes and the Glucose Tolerance Test***. For each paragraph, select the color graphic on the separate handout that illustrates the information. Cut and paste the graphics in the appropriate boxes on the information sheet.

What You Should Know About Diabetes and the Glucose Tolerance Test	
1. Key to the Diagrams	
2. Most of the food you eat is turned into glucose, or sugar, for your body to use for energy. Your blood carries the glucose to all the cells in your body. Your blood always has some glucose in it because your body needs glucose for energy to keep you going. But too much glucose in the blood isn't good for your health. To maintain homeostasis, you need to keep a normal level of glucose in your blood.	
3. Healthy people have a <b>feedback (control) mechanism</b> that maintains homeostasis by keeping blood glucose levels relatively constant and within a normal range. A high blood glucose level acts as a stimulus for the pancreas. The pancreas responds to this stimulus by secreting <b>insulin</b> , a chemical messenger (hormone). Insulin helps the glucose from food diffuse out of the blood and into your cells. This lowers blood sugar levels.	

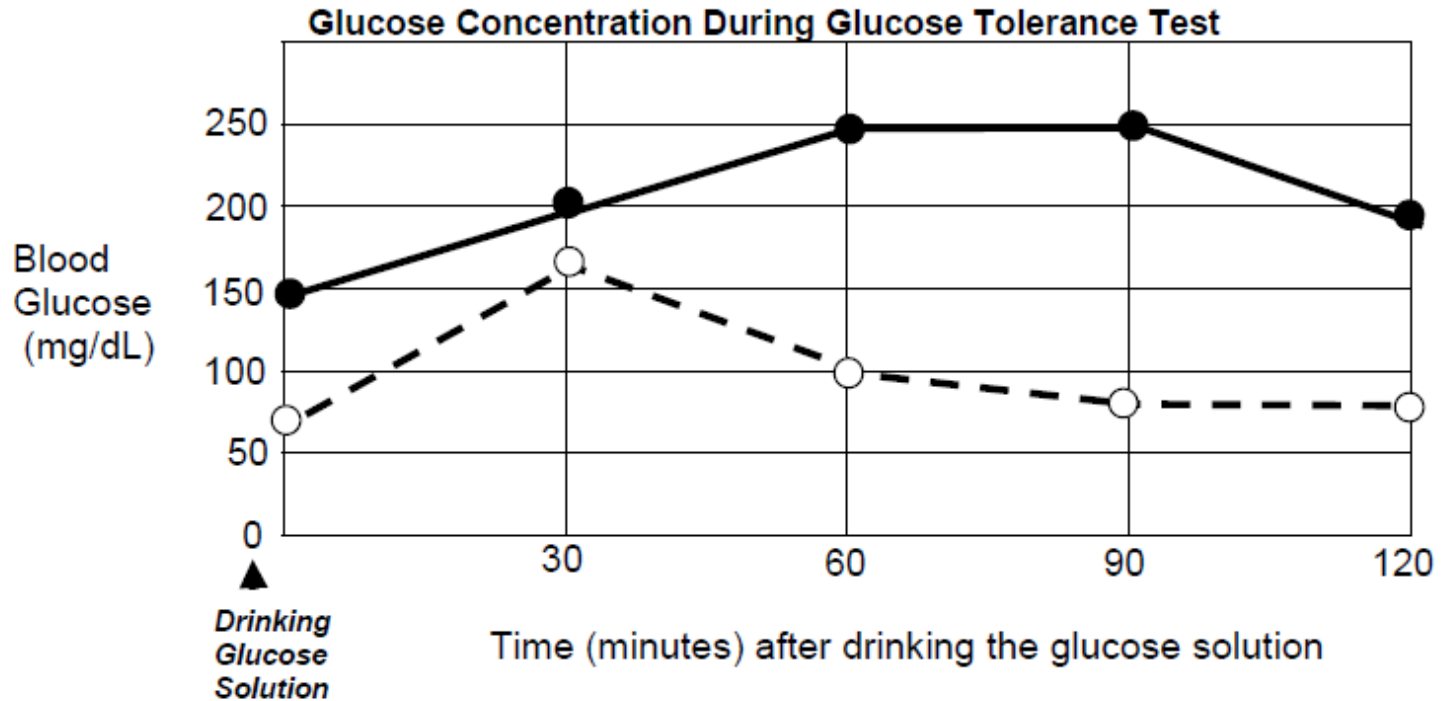


## PART 2: Analyzing Blood Glucose Levels

To prepare for the glucose tolerance test, your patient fasted for 12 hours. To begin the test she drank a solution that contained a measured amount of glucose. Blood samples were collected immediately before she drank the glucose solution and every half hour after she drank the glucose solution. The blood sample was centrifuged to separate it into blood cells and blood plasma. You will test the concentration of glucose in the patient's blood plasma to determine if she has diabetes.



Key: - - - = Healthy person who does not have diabetes  
— = The patient

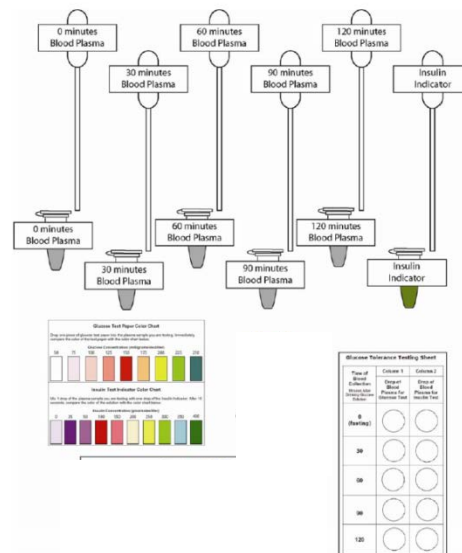


- Based on the information in this graph, do you think the patient has diabetes? Support your answer with evidence from the graph.
- Do you have enough information to determine if the patient has Type 1 or Type 2 diabetes. If not, how would you go about figuring this out?

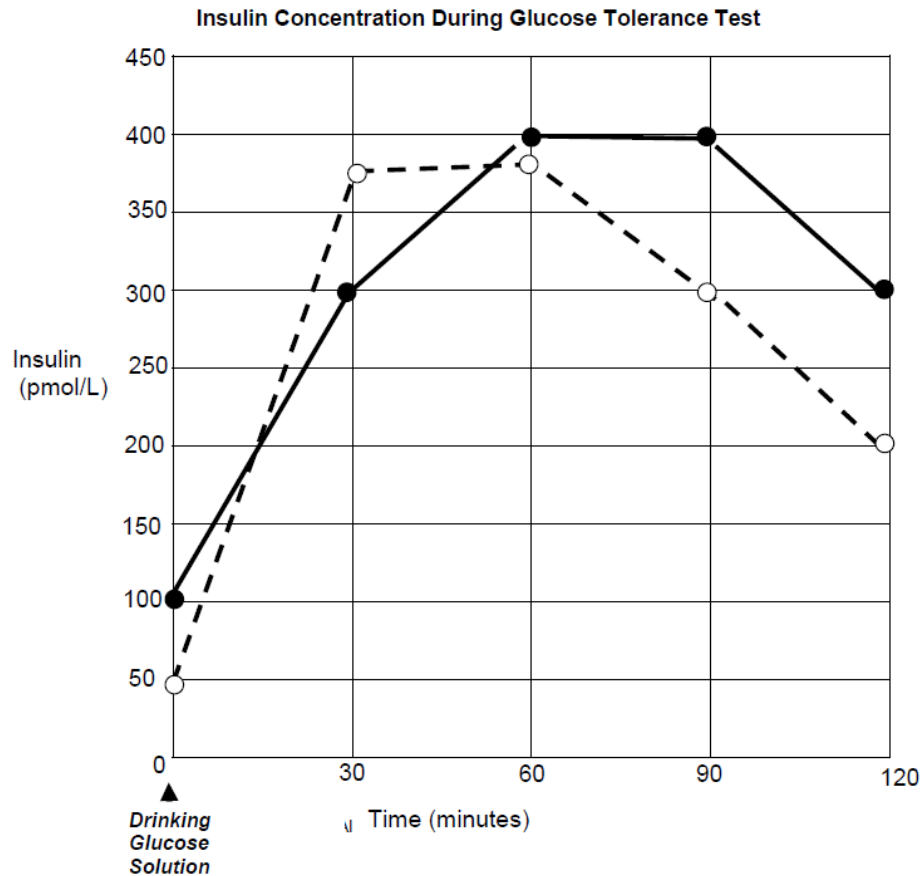
## PART 3: Analyzing Blood Insulin Levels

There are two types of diabetes that result in higher than normal blood glucose levels - called Type 1 and Type 2 diabetes. A person with Type 1 diabetes does not produce insulin. A person with Type 2 diabetes does produce insulin but their cells are unable to respond to the insulin message.

To determine whether the patient has Type 1 or Type 2 diabetes, you need to test the concentration of insulin in the patient's blood plasma.



Key: - - - = Healthy person who does not have diabetes  
———— = The patient



6. Based on the information in the graph, do you think the patient has Type 1 or Type 2 diabetes? Support your answer with information from the graph.

# Alternative Inquiry Approach

Your lab kit contains blood plasma samples collected from the patient during a glucose tolerance test. Use the materials in your lab kit to determine if the patient has Type 1 or Type 2 diabetes.

Prepare a laboratory report that includes the following:

- Procedure
- Data tables
- Graphs
- Conclusions
- Discussion of how the data supports the conclusions