

Patient Handout

Lifestyle Factors Affect Insulin Requirements

Prepared by Susan Renda, MS, CRNP, CDE

The goal of insulin therapy is to imitate what would normally happen in your body if you did not have diabetes. The body would normally respond to the amount of glucose in your system and give you the amount of insulin you would need to maintain normal blood glucose levels. But if you have diabetes, you may have seen how your glucose levels can vary, depending on what is going on in your life. Sometimes the change in glucose is predictable; for example, after eating a meal your level will be elevated. At other times, the reason for the change may not be so obvious.

Many factors can influence how much insulin your body needs to keep your glucose levels in control. When you are on insulin therapy you may be able to vary the amount of insulin you take in response to these factors.

A valuable tool in your diabetes self-management plan is being able to monitor your glucose levels with a glucose meter or continuous glucose monitor. By checking your glucose levels at different times during the day, such as before and after you eat and exercise, you can actually see how different factors affect blood glucose. Another important tool is to talk with your health care provider and diabetes educator. Your providers can help you understand how to manage your glucose levels.

DIET

Foods that affect blood glucose the most are those with lots of carbohydrates, for example, whole grain pasta, cereals, and bread, and those with simple carbohydrates. Foods that have simple carbohydrates are sugary foods, like candy, cookies, crackers, and cakes. Learning to count the grams of carbohydrates in foods can help you and your health care provider use the right amount of rapid-acting or short-acting insulin to cover the carbohydrates in your meals and keep your blood glucose in control.

Beverages containing alcohol can also affect your glucose levels. If you drink alcohol and you have taken insulin, you may develop *hypoglycemia* (blood glucose that is lower than normal). Discuss alcohol with your health care provider and be aware of your glucose level before and after you have alcohol. In general, drinking a moderate amount of alcohol with meals or snacks can be appropriate.

EXERCISE

Exercise can help the body absorb insulin and be more sensitive to it. As a result, your glucose level can fall more than you would expect during exercise, causing hypoglycemia. Hypoglycemia can occur while you are exercising, or it can occur 4 or more hours after you exercise. The risk of hypoglycemia with exercise is greater if you have type 1 diabetes and if you exercise for longer than 30 minutes.

It is important to know what your glucose level is before you exercise. You should also make sure you have identification with you and a rapid-acting carbohydrate snack, such as glucose tablets, orange juice (4 ounces), hard candies, or raisins (2 tablespoons), in case you develop hypoglycemia. To prevent hypoglycemia, when you expect to be exercising, you may need to decrease the amount of insulin you take, or you may need to eat an additional snack.

If your glucose level is too high (>250 mg/dL) before you exercise, the exercise can actually cause stress to your body. This increased stress can raise your glucose level rather than decrease it. In people with type 1 diabetes, *ketosis* can occur as the body begins to break down fats for energy. This can lead to nausea, vomiting, dehydration, and lethargy or sluggishness, and it can be life-threatening. Do not exercise when your glucose level is too high, and check the ketone level in your urine as directed by your health care provider.

STRESS

Have you ever planned all the carbohydrates in your meals, taken all of your medications as ordered, and exercised regularly only to see an unexpected elevation in your glucose? Stress may be the problem. When you experience stress such as anxiety, illness, pain, not enough sleep, or even happy stress such as vacations or holidays, your body naturally makes extra glucose. Unfortunately, your body may not need that extra glucose.

Successfully managing stress can help keep glucose levels in control, but you may need extra insulin during a stressful event to take care of the extra glucose. Occasionally, stress may cause some people to lose their appetite and eat less than normal, which leads to low blood glucose. People need to be sure to eat enough food, especially during a stressful time, to keep their glucose at the right level.

ILLNESS

When people are ill, they may not feel like eating the amount of food they usually do. It would seem that since they are eating less food that less insulin is needed. Often, the opposite is true. Most people require their full dosage of medications and

insulin when they are ill. They might even need extra medication or insulin because their glucose levels increase in response to the stress of the illness.

Monitoring your glucose levels more frequently when you are ill can help you know if you need more insulin. Make sure you discuss a “sick day” medication plan with your health care provider. Ask your health care provider if there are any signs or symptoms you should notify him or her about, such as a high blood glucose level, fever, nausea and vomiting, or respiratory symptoms.

MEDICATIONS

Review all of the medications you are taking with your health care provider and/or your pharmacist. Many medications can affect your glucose level. For example, over-the-counter medications, such as cold medicines, may contain sugar and alcohol, which can increase your glucose level.

One medication that can affect blood glucose is prednisone. Prednisone is used for many conditions and may be used either for short-term or long-term treatment. Very often, when prednisone is taken, glucose levels increase. This can be managed by frequent monitoring of glucose levels and adjustments in diet and insulin doses.

If you need to take prednisone, your health care provider can help you determine any adjustments in diet or insulin that you may need based on your glucose levels. After you have finished taking your prednisone, your glucose levels may begin to decrease and you may be able to reduce your insulin dosage. Talk with your health care provider about how to adjust your medication doses once you are finished taking your prednisone.

PREGNANCY

When a woman with diabetes becomes pregnant, her insulin needs can increase dramatically as the pregnancy progresses. For the health of the mother and the baby, it is important to use insulin properly to keep glucose levels in excellent control.

Sometimes women who do not have diabetes develop a form of diabetes during pregnancy called *gestational diabetes*. This form of diabetes may be controlled with lifestyle changes. As the pregnancy progresses, however, insulin may become necessary to normalize glucose levels.

REMEMBER...

A variety of things can influence your blood glucose. Monitoring your glucose levels and recognizing the factors that affect your glucose can help you and your health care provider plan for any changes. Your glucose levels can be managed, and good levels can help you to stay healthy and in control of your diabetes.