



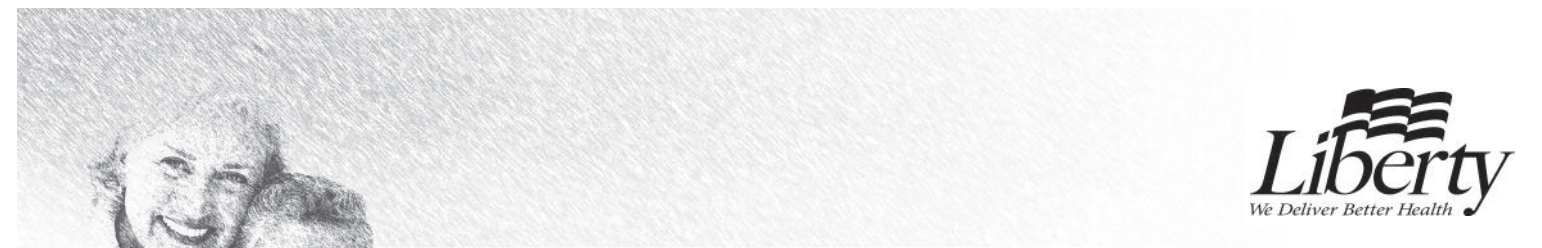
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## blood glucose: highs & lows

### The Highs and Lows of Blood Glucose (sugar): At a Glance

Blood glucose levels go up and down throughout the day depending on a number of things such as food, activity, medications, stress and illness. You may not feel well if your blood glucose levels are too high or too low. High blood glucose levels over time have been shown to put you at higher risk of some chronic health issues associated with diabetes. Blood glucose levels that drop too low can lead to some serious consequences. Your blood glucose will not always be exactly the same but it is important to keep it in an acceptable "target" range in order to feel your best and avoid complications. You and your health care provider can help determine the best range for you.

#### What is high blood glucose?

High blood glucose is called *hyperglycemia*. Studies have shown that high blood glucose levels over a period of time can lead to other health problems such as heart attack, nerve damage, kidney and eyes problems and stroke. High blood glucose can be caused by factors that are both in and out of your control and it often has no symptoms. It is important to try to determine the cause of a high blood glucose level in order to help find ways to correct it.

#### What is low blood glucose?

Low blood glucose is called *hypoglycemia*. When you have a low blood glucose level you usually feel symptoms and require immediate treatment to raise your blood sugar. Usually blood glucose below 70 is considered too low but you and your doctor or health care provider may set a different level. Low blood glucose can have a number of causes and it is important to try to find out why you may be experiencing "lows" in order to find ways to correct

or prevent these episodes. Remember, just because you have diabetes, you are not at a greater risk of having low blood glucose. You are at a greater risk if you are taking certain medicines for your diabetes, including insulin. Check with your health care provider to see if you are at risk for low blood glucose.

#### How will I know if my blood glucose levels are okay?

There are two ways for you to know if your blood glucose levels are in control and in target range. You can test your blood glucose at home using a blood glucose meter; this helps you to know how you are doing day-to-day. This is called *self-monitoring of blood glucose*. You should also have a blood test at the doctor's office or through a laboratory that can tell you how your blood glucose control has been over a 2 - 3 month period of time. **This test is called a hemoglobin A1C or A1C test and should be done at least twice a year.** The self testing helps you make decisions about day-to-day care and the A1C helps you and your healthcare provide to know if changes should be made to your treatment plan. Most people with diabetes use both of these tools to help them manage their diabetes.

#### What Should My Blood Glucose Numbers Be?

According to the American Diabetes Association, if you have diabetes, the following are recommendations for blood glucose (sugar) levels:

▶ Before meals	70 - 130 mg/dL
▶ 1-2 hrs after start of a meal	under 180 mg/dL
▶ A1C	below 7%



There are many reasons why your blood glucose level may be out of range. The important thing is to try to figure out why this may be happening so that you can take steps to correct the problem or prevent it in the future. Your health care provider or diabetes educator can help you to look at what is happening, see if there is a pattern and offer suggestions for steps you can take to help resolve the issue.

**The Highs**

**Causes of High Blood Glucose**

- Missing a dose or not taking enough of your diabetes medicine
- Inactivity
- Eating a meal or snack with too much carbohydrate
- Stress
- Illness
- Hormonal changes

**Symptoms of High Blood Glucose**

Often the symptoms that come with high blood glucose levels may be very subtle or you may not have any symptoms at all. The signs of high blood glucose are often how a person feels when they are diagnosed with diabetes: fatigue, increased thirst, weight loss, frequent urination, blurred vision and increased appetite, to name a few.

**How to Prevent and Treat High Blood Glucose**

PREVENTION	TREATMENT
<ul style="list-style-type: none"> <li>• Take your medicine as directed</li> <li>• Stick to your meal plan</li> <li>• Be physically active</li> <li>• Find ways to cope with stress</li> <li>• Get prompt treatment of illness or infections</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the plan you set up with your health care provider</li> <li>• Drink extra sugar-free fluids &amp; limit snacks</li> <li>• You may need extra medicine, discuss this with your doctor</li> <li>• Extra activity unless contraindicated*</li> </ul>

\*If you have type 1 diabetes, always check your urine for ketones before exercising if your blood glucose is over 240 mg/dl. Ketones are a substance produced when your body burns fat instead of glucose for energy. Exercise in the presence of ketones can actually make your high glucose level worsen. Contact your health care provider if you have moderate to large amounts of ketones in your urine since this can lead to more serious problems.

**The Lows**

**Causes of Low Blood Glucose**

- Not enough food or fewer carbohydrates than usual
- Skipping or delaying meals or snacks
- Taking too much of your diabetes medicine
- Doing extra activity, more or longer than usual
- Drinking alcohol and not eating

**Warning Signs of Low Blood Glucose**

A person experiencing a "low blood sugar" may have symptoms which can include feeling dizzy, sweaty, shaky, lightheaded, hungry, weak, confused, anxious, tired, irritable or nauseous. You may also feel your heart pounding or have a headache. Not all people feel the same when their blood glucose is low. Some people don't feel any symptoms when their blood glucose is dropping. If left untreated, low blood glucose can make you pass out. Make sure a friend or family member understands your signs of low blood glucose and how to treat it in case you are unable to do so and that they know how to contact emergency medical services. If you are unconscious, they should never try to give you anything by mouth.

**How to Prevent and Treat Low Blood Glucose**

**Prevention**

- Don't skip or delay meals
- Include carbohydrates in your meal plan
- Check your blood glucose and eat a snack if necessary before activity

- Take the prescribed amount of medicine each day. Use reminders so that you don't repeat a dose you've already taken.
- Don't drink alcohol on an empty stomach

**Treatment**

It is very important that you treat low blood glucose as soon as you feel any symptoms. Your blood glucose level may continue to drop until you do something to raise it. Not everyone feels the same symptoms when their blood glucose is low so test your blood glucose if you can and learn how your body lets you know your glucose is low.

If your blood glucose is below your target range (usually below 70):

- Eat or drink something with about 15 grams of carbohydrate (see below)
- Wait 15 minutes and check your blood glucose again
- If your blood glucose is still below your target or you are not feeling better, eat or drink something again with 15 grams of carbohydrate and retest in 15 minutes
- Once your blood glucose level is above your target range, have a snack or meal to prevent further low blood glucose.

**Foods to Treat Low Blood Glucose**

- 2-3 glucose tablets
- 1/2 cup of fruit juice
- 5-6 pieces of hard candy
- 1/2 cup of regular soda
- 1 tablespoon of sugar
- 1 cup of milk

**Important Tips to Remember**

1. Know the signs and causes of high and low blood glucose levels
2. Have sugar-free fluids available for treatment of high blood glucose
3. Keep an emergency source of carbohydrate/sugar available to treat low glucose levels handy
4. Wear medical identification stating you have diabetes
5. Talk to your health care provider about changes that may be needed in your treatment plan to help prevent highs and lows in glucose levels