

***“My Doctor Says I Should Avoid
Low Blood Glucose Reactions...”***

How Can I Prevent Them?



Helping all people
live healthy lives

BD Getting Started™

Hypoglycemia and Diabetes

What You Should Know About Low Blood Glucose Reactions

If you are taking insulin or certain diabetes medications, there may be times that you will experience **HYPOGLYCEMIA** or low blood glucose reactions. Hypoglycemia is a common side effect of these medications.

This guide is designed to help you:

- **RECOGNIZE** the signs and symptoms of low blood glucose reactions.
- **LEARN** how to treat low blood glucose reactions.



- **LEARN** how to prevent hypoglycemia.

Low blood glucose reactions can range from mild (feeling a little shaky and hungry) to severe (completely passing out). A low blood glucose reaction

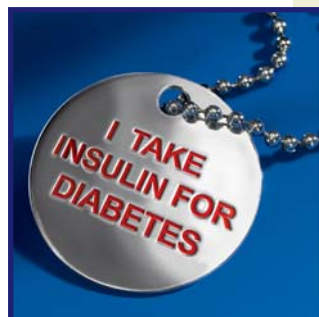
that is not treated

can quickly become a medical emergency. For this reason, all people with diabetes **NEED** to wear a bracelet or necklace or carry a card that says:

- I have diabetes.
- Emergency treatment is required for a severe low blood glucose reaction.

I HAVE DIABETES

- If I am acting strangely or cannot be awakened, my blood glucose may be low.
- If I can swallow and follow directions, give me 4 to 6 ounces of a sweetened soft drink, fruit juice or other sugar source. **Call a doctor or 911 right away.**
- If I do not recover within 10 to 15 minutes, repeat the above and **ensure** that I receive emergency care at the hospital or by a doctor.
- If I cannot be awakened or cannot swallow and follow directions, do not try to give me anything by mouth. Call a doctor and send me to a hospital right away.



What is a hypoglycemia or insulin reaction?

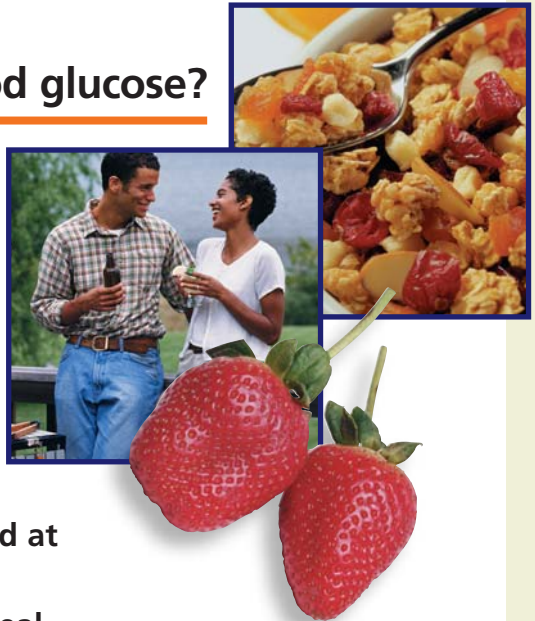
Hypoglycemia or a low blood glucose reaction occurs when the blood glucose drops below the normal level. For most people, a blood glucose (glucose) reading below 70 mg/dl is considered below normal. The “normal” blood glucose level is not the same for each person. Check with your doctor or healthcare team to find out the blood glucose level that they feel is “normal” for you.

Hypoglycemia occurs when there is not enough glucose in your blood to provide the energy your body needs. This is dangerous because your brain is not getting enough glucose to work properly. If there is not enough glucose for your brain to function, you may pass out or even have convulsions.

What causes low blood glucose?

You may experience symptoms of low blood glucose when the level of blood glucose in your body falls below its normal range. This may happen if you are on medication for diabetes and:

- **Did not eat enough food at a meal or snack**
- **Skipped or delayed a meal**
- **Took more insulin or diabetes medicine than needed for the food that you ate**
- **Exercised or were more active than usual**
- **Drank alcohol without eating food**



How do I know if I am having a hypoglycemia or low blood glucose reaction?

A low blood glucose reaction brings on very uncomfortable feelings. Once you have a reaction, you will know how to recognize it when it occurs again. The signs and symptoms of hypoglycemia are mild, moderate or severe.

Mild Hypoglycemia	In the early stages of Hypoglycemia you may feel all, some or in some cases none of these signs and symptoms.
	• Sudden hunger • Headache • Shaking • Fast or pounding heartbeat • Sweating • Tired • Dizzy • Blurred vision • Nervous, excited • Drowsy • Numbness or tingling around mouth and lips
Moderate Hypoglycemia	If the reaction is not treated, the symptoms will progress to:
	• Personality change • Irritability • Confusion • Poor coordination • Difficulty concentrating • Slurred or slow speech
Severe Hypoglycemia	If the reaction is not treated, and your blood glucose continues to fall, you may pass out or develop convulsions.
	SEVERE HYPOGLYCEMIA WILL REQUIRE EMERGENCY TREATMENT.

If the symptoms of hypoglycemia are so clear, why should I check my blood glucose when I am having a reaction?

There are two reasons why it is important to verify all possible reactions by checking your blood glucose.

1. There may be times when your blood glucose is not low, but has dropped rapidly from a very high level to a lower level that is considered “normal” for you. Your body is reacting to the quick drop in your blood glucose, not to the actual level. You do not want to treat a normal blood glucose and cause it to rise above normal, but you do want to be aware that it may drop lower and test again if necessary.



2. Some people have what is called “Hypoglycemia Unawareness.” Hypoglycemic unawareness is when you lose the ability to feel the symptoms of low blood glucose until the blood glucose is very low. Your first symptoms of a low blood glucose reaction may be confusion or “passing out”. Hypoglycemic unawareness can happen if you keep your blood glucose very close to normal or you have had diabetes for many years. It appears to be the result of having many episodes of low blood glucose.

IF YOUR SYMPTOMS MAKE YOU VERY UNCOMFORTABLE AND YOU FEEL THAT YOU DO NOT HAVE THE TIME TO CHECK YOUR BLOOD GLUCOSE, EAT FIRST AND THEN IMMEDIATELY CHECK YOUR BLOOD GLUCOSE.

How do I treat my Low Blood Glucose Reaction?

The problem with hypoglycemia is that the insulin level is too high and the blood glucose level is too low. Remember that food raises blood glucose, insulin and exercise lowers blood glucose. Hypoglycemia is such an uncomfortable feeling that you will want to eat more food than is needed. You need to make sure that you do not over-treat hypoglycemia, by eating or drinking too much food containing glucose (carbohydrate). This will raise your blood glucose much higher than normal. You also do not want to under-treat a low blood glucose reaction. If you do not eat or drink enough carbohydrate you may have another low blood glucose reaction.

IF YOU THINK YOU ARE HAVING A LOW BLOOD GLUCOSE REACTION YOU SHOULD:

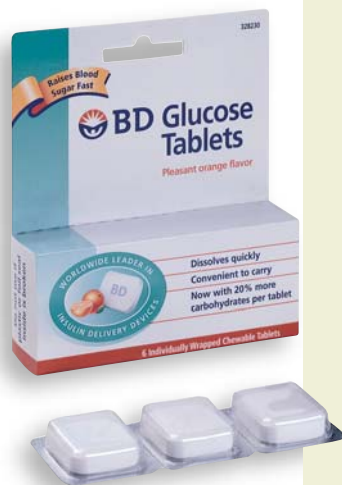
- **If possible, check your blood glucose level.** If your blood glucose is not low, it may be dropping from a high level to a normal level or, it may be dropping from a high to a below normal level. Continue to pay attention to your symptoms and your blood glucose. If the symptoms become worse or your blood glucose continues to drop and you do not plan to eat for at least an hour, then eat a snack with carbohydrate and protein such as:
 - Crackers and peanut butter or cheese
 - Half of a ham or turkey sandwich
 - A cup of milk and crackers or cereal
- **If your blood glucose is less than 70 mg/dl**
 1. Treat with 15 grams of glucose or equivalent, such as 10-oz. glass of skim milk or 4-oz. juice or 3 BD™





Glucose Tablets. Remember food containing glucose will make your blood glucose go up quickly. While it is tempting to eat chocolate or candy bars, they contain fat and will delay a fast rise in blood glucose.

2. Wait 15 minutes and retest. It takes about 15 minutes for the food or glucose tablets/gel that you eat to raise your blood glucose.
 3. If your blood glucose is still less than 60 mg/dl, treat with another 15 grams of glucose.
- **If you are away from home, you can take glucose tablets or glucose gels (3 BD™ Glucose Tablets is 15 grams of glucose), four ounces of fruit juice or six ounces of REGULAR soda. Because glucose tablets and gels are pre-measured amounts of glucose, they are more convenient and easier to use than foods that must be measured. Also, since they are pure glucose, rather than mixtures of glucose, they act faster.**
 - **If you are unable to check your blood glucose, treat as described above and wait 15 minutes. If you do not feel better, repeat the treatment.**
 - **All treatment for hypoglycemia should be followed by the next meal or snack.**
 - If a meal or snack is not scheduled for 30–60 minutes, eat a snack that includes 15 grams of carbohydrate (five crackers, a piece of fruit or a slice of bread).
 - If your next meal is more than an hour away, eat 15 grams of carbohydrate and one ounce of protein. (Five crackers and one ounce of low fat cheese).



Examples of foods containing 15 grams of glucose (carbohydrate) or equivalent

PURE SUGAR:

Glucose gel or tablets (check the package to take the amount that equals 15 grams of glucose)

MIXED SUGAR:

1/2 cup (4 oz.) of any fruit juice

10 oz. of skim milk

4 teaspoons of granulated white glucose

6 ounces regular soda

8 Lifesavers

Can I eat a candy bar or ice cream to treat my low blood glucose reaction?

Candy bars, ice cream and chocolate are not good choices of foods to treat low blood glucose reactions. They contain fat that will slow the release of glucose into your blood and will not raise your blood glucose fast enough.



What happens if I pass out or become unconscious?

If you have **hypoglycemia unawareness** or have Type 1 Diabetes you are "at risk" for developing severe hypoglycemia. Food or liquids cannot be given to a person who is unconscious. Your doctor or nurse educator will teach a member of your family or a friend to give you glucagon if you "pass out". Glucagon is a hormone given as an injection. It is given similar to an

insulin injection. Glucagon will raise blood glucose immediately. After Glucagon is given, your doctor or the Emergency Medical Services (EMS) should be called to monitor how you are doing. Once fully conscious, it is a good idea to eat after receiving glucagon.

If I have a mild or moderate hypoglycemia reaction, do I have to call my doctor or health care team?

All hypoglycemia reactions should be reported to your doctor and noted in your logbook. If you can not identify a cause for the low blood glucose, such as a delayed meal or not eating enough food, contact your doctor immediately. An adjustment in your insulin dose/medication or meal plan may be needed.

How can I prevent hypoglycemia?

The best way to prevent hypoglycemia is to:

1. Eat on time.
2. Make sure you eat enough food for the medication that you are taking.
3. Do not drink alcohol without eating food.
4. Take your medications on time.
5. Be prepared. You should always carry some form of carbohydrate (BD™ Glucose Tablets, glucose gels, food or drink) in the event that a meal is delayed or you are more active than usual.



6. Be aware of the time of day you are most likely to have a low blood glucose reaction. For instance, if you are taking insulin before a meal, your blood glucose will be the lowest before the next meal.
7. Plan for exercise. If unplanned, eat more to cover the exercise. Remember that severe and prolonged exercise can have an effect even after the exercise is over.

I am afraid of having a hypoglycemia reaction at night. What can I do to prevent low blood glucose reactions at night?

There is a greater chance of developing severe hypoglycemia during the night or before breakfast because:

- **You are sleeping and are not aware of the early signs and symptoms of hypoglycemia.**
- **NPH insulin taken at bedtime peaks or lowers the blood glucose the most between 2:00-5:00 AM. This increases the chance that you may develop low blood glucose reactions at that time.**

YOU CAN REDUCE THE CHANCE OF DEVELOPING LOW BLOOD GLUCOSE REACTIONS AT NIGHT BY:

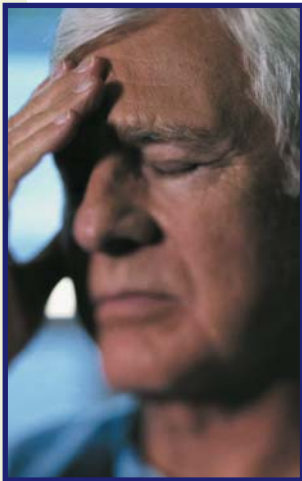
1. Checking your blood glucose at bedtime, before your evening snack. If your reading is less than 120





mg/dl, you should eat a larger snack containing carbohydrate and protein.

2. If your morning blood glucose is high, despite an increase in your evening insulin dose, you should check your blood glucose at 3:00 AM. If your blood glucose is low at that time, you will need a smaller dose of NPH insulin in the evening. These changes in insulin can be complicated, so you should discuss them with your doctor.



3. Family members and roommates should be aware that nightmares, night sweating, seizures during the night and morning headaches are also symptoms of night time hypoglycemia. They need to make you aware when they occur and be prepared to help treat them with glucose tablets, gels or Glucagon if necessary.

Remember that insulin and exercise both lower blood glucose, while food raises blood glucose. In order to prevent hypoglycemic reactions you must know what causes low blood glucose reactions and when they are most likely to happen to you. You must be able to recognize the early signs and symptoms of hypoglycemia so that you can treat it right away.

...Know the Difference

HIGH BLOOD SUGAR

HYPERGLYCEMIA

(Signs and symptoms occur slowly over hours to days)

Watch for:

- Increased thirst and urination
- Large amounts of sugar in the blood
- Ketones in urine
- Weakness, stomach pains, general aches
- Heavy, labored breathing
- Loss of appetite, nausea and vomiting
- Fatigue

What to do:

- Call Doctor immediately
- Drink fluids without sugar if able to swallow
- Test blood sugar frequently
- Test urine for Ketones if blood sugar is greater than 300 mg/dl
- If using an insulin pump, change the infusion set, reservoir and insulin
- If insulin pump supplies are not available, give regular insulin via insulin syringe according to prescribed sliding scale

Causes:

- Not enough insulin
- Too much food
- Infection, fever, illness
- Emotional stress

HYPOGLYCEMIA (INSULIN REACTION)

(Signs and symptoms occur very quickly — within minutes)

Watch for:

- Cold sweat, faintness, dizziness
- Headache
- Pounding of heart, trembling, nervousness
- Blurred vision
- Hunger
- Irritability
- Personality change
- Not able to awaken

What to do:

- Check blood sugar level if possible
- Take 2 to 3 BD™ Glucose Tablets, liquids or foods containing sugar
- Wait 15 minutes and retest blood sugar
- If blood sugar is still less than 60 mg/dl, treat with BD™ Glucose Tablets or liquids/foods containing glucose. Follow with next meal or snack
- Do not give anything by mouth if not conscious
- If unconscious give glucagon according to package directions and call local Emergency Medical Services
- Report all moderate and severe reactions to Doctor

Causes:

- Too much insulin
- Not eating enough food
- Unusual amount of exercise
- Delayed meal
- Drinking alcohol without eating food

**LOW
BLOOD
SUGAR**

INSTRUCTIONS FOR: _____

Doctor's Name and Telephone Number: _____

Pharmacy Telephone Number: _____

24-Hour Emergency Telephone: _____

Blood glucose goals:

Fasting: _____

Before Meals: _____

Two Hours After Meals: _____

Bedtime: _____

Contact your doctor or healthcare team if:

Your Blood Glucose is greater than _____ mg/dl for _____

You have _____ low blood glucose reactions (blood glucose less than _____) in a week. These are low blood glucose for which you cannot identify a cause.

Treatment for low blood glucose reactions:

If your blood glucose is less than _____ mg/dl, treat with _____

BD provides this brochure for informational purposes only. It is not intended to be a substitute for professional medical advice, diagnosis or treatment. Always seek the advice of your physician or other qualified healthcare provider with any questions you may have regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read in this brochure.

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