

# Acute Complications

Meal planning, exercise, stress and diabetes medications can impact blood glucose levels. When there are problems in any of these areas, you can have blood glucose levels that are too low or too high. When these problems happen fast and are remedied fast, they are called acute complications.

## Low Blood Glucose

- Blood glucose can go too low when you are taking insulin or diabetes pills that cause the pancreas to make more insulin.
- Blood glucose less than 70 mg/dl is too low for most people with diabetes.
- For others, any blood glucose less than your target range is too low.
- Other names for low blood glucose include:
  - Hypoglycemia or hypoglycemic reaction
  - Insulin reaction
  - Insulin shock

### What causes low blood glucose?

- Too much insulin or diabetes pills that cause the pancreas to make more insulin
- Missing a meal or snack or eating late
- Being more active than usual
- Drinking alcohol

**Symptoms of low blood glucose can vary from person to person. You may feel:**

sweaty	hungry	forgetful	headache
nervous	dizzy	drowsy	rapid heart rate

**What to do if your blood glucose is low:**

1. Test your blood glucose (if possible)

2. If less than 70 mg/dl or below your target range, eat or drink a carbohydrate source (one of the following):

- 2-4 glucose tablets
- 1 cup skim milk
- 4 ounces (1/2 cup) of juice or regular soda
- 1/2 to 1 tube of glucose gel
- 8 SweeTarts®
- 5-6 hard candies

3. Wait 15 minutes and retest blood glucose. When you retest, if blood glucose is still less than 70 mg/dl or below your target range, repeat treatment by eating or drinking one of the above.

4. Eat a snack if there is more than one hour until the next meal

Snack should include:

cheese)

- 1 starch (for example, 4-6 crackers) and
- 1 meat (for example, 1 ounce of

**Always carry some form of identification with you, either a card or jewelry (necklace or bracelet) that will alert others that you have diabetes.**

*If you take Precose® (acarbose) or Glyset™ (miglitol), treatment of a low blood glucose should be with glucose tablets, not candy or juice.*

**Avoid overtreatment**

- Often there is a tendency to overtreat low blood glucose. Overtreating low blood glucose may cause your blood glucose to go too high.
- Following the 15:15 rule can help prevent overtreatment:
  - Take 15 grams of carbohydrate
  - Wait 15 minutes and recheck blood glucose

**How to prevent low blood glucose:**

- Check your blood glucose often.
- Take the right dose of insulin or diabetes pill.
- Eat on time.
- Follow your meal plan. Don't skip meals or snacks.
- Eat a carbohydrate choice (fruit, starch or milk) at your regular mealtime if you must delay your meal.
- Check your blood glucose before and after exercise. Eat a snack if your blood glucose is below 100 and you use insulin or a diabetes pill that causes your pancreas to make more insulin.
- Carry a carbohydrate source with you at all times (glucose tablets are best).
- If you drink alcohol, drink only with a meal or snack.
- Check blood glucose before driving and on a regular basis if going long distances.

**Severe low blood glucose:**

- Occurs when your blood glucose is so low that you are not alert and need someone to help treat low blood glucose.
- May cause you to pass out or not be able to swallow.
- May require that you receive glucagon, which is an injectable medicine used to treat low blood glucose when you cannot or will not swallow.

**Glucagon  
Information****General information about glucagon:**

- Glucagon is a hormone made by your body.
- It is not glucose, but causes stored glucose in the liver to be released and raises blood glucose.
- Glucagon is given by injection.
- Glucagon is available by prescription and is sold as a single-dose kit.
- Someone close to you needs to know when and how to use glucagon.
- Replace the glucagon kit if the expiration date has passed.

**How to give glucagon:**

- Prepare the kit as directed. Glucagon must be mixed with the special solution in the kit.
- Glucagon should be given immediately after mixing.
- Position person on his or her side. Vomiting may occur as the person is waking up, and this position will help keep fluid from going into the lungs.
- Glucagon is given by injection, like insulin. It can be injected at a 90-degree angle straight into the upper arm, the outer part of the thigh or buttocks – anywhere insulin is given.
- The full dose is given to adults. A smaller amount is given to infants or children under 44 pounds.

**After giving glucagon:**

- The person should have a snack (for example, juice with crackers and cheese) when he or she wakes up and can swallow.
- The person will usually wake up within 15 minutes.
- Give another dose of glucagon if he or she does not wake up within 15 minutes.
- Call 911 or get the person to the nearest emergency room if he or she is not responding.
- Call the doctor to report what happened.
- Replace the glucagon kit.

**Low Blood Glucose - You should call the doctor when:**

- You cannot understand why your blood glucose is dropping too low.
- Your blood glucose levels drop low several times within a day or week.
- You pass out or can't swallow because of a low blood glucose.

## High Blood Glucose

Your blood glucose can go too high. This is called hyperglycemia.

### What causes high blood glucose?

- Not following your diabetes meal plan
- Not taking your insulin or diabetes pills
- Not exercising, or less activity than usual
- Sickness (flu, diarrhea, infection)
- Stress
- Surgery or trauma

<b>What you may feel when your blood glucose is high:</b>		
<b>thirst</b>	<b>weakness</b>	<b>dry mouth</b>
<b>fatigue</b>	<b>pain or tingling in feet or legs</b>	<b>blurred vision</b>
<b>frequent urination</b>		<b>sleepiness</b>

### What to do if your blood glucose is too high:

- Test your blood glucose more often.
- Check your urine or blood for ketones if you have type 1 diabetes.
- Increase the amount of sugar-free, caffeine-free fluids, such as water, diet soda, herb tea or broth. Drink at least eight glasses per day.
- Follow your diabetes meal plan.
- Call your doctor if you have:
  - Type 1 diabetes and your blood glucose is more than 240 mg/dl for two tests in a row.
  - Type 2 diabetes and your blood glucose is more than 240 mg/dl for over 24 hours.

### How to prevent high blood glucose:

- Take the right amount of insulin and diabetes pill(s) at the right time.
- Follow your diabetes meal plan, or have it changed if you cannot follow it.
- Treat an illness quickly (*Refer to Managing Diabetes During Illness on page 24*).
- Check blood glucose levels often.
- Exercise regularly.

## Diabetic Ketoacidosis (DKA)

- If you have type 1 diabetes, high blood glucose can cause a dangerous problem known as Diabetic Ketoacidosis (DKA).
- A person with type 1 diabetes must take daily insulin injections to live.
- When there is no insulin (for example, type 1 diabetes, insulin injections were skipped) or not enough insulin (for example, illness, stress, not high enough dose of insulin), the body breaks down fat for energy.
- When fat is broken down because there is not enough insulin, ketones build up in the blood.
- Ketones cause the blood to be acidic. This causes you to be very sick (diabetic ketoacidosis).
- When ketones are present, it is important to act quickly.

### What you should do when blood glucose levels are high and to prevent DKA:

- Follow guidelines for sick days (*see page 24*).
- **Never** stop taking your usual insulin dose!
- Test blood glucose every two to four hours.
- If your blood glucose is over 240 mg/dl, check for ketones.
- Problem-solve why your blood glucose levels are high.
- Increase fluid intake. Drink sugar-free, caffeine-free fluids such as water, diet soda, broth or tea.

Early Symptoms of DKA		
thirst	dry mouth	very tired
need to urinate more often	blurred vision	
Late Symptoms of DKA		
ketones in urine or blood	nausea and vomiting	sleepiness
a fruity odor to breath	weakness	stomach pain

**Call the doctor if:**

- You do not have a plan to take extra insulin.
- Your blood glucose remains over 240 mg/dl for two tests in a row.
- Urine or blood ketones are present.
- You have vomiting or diarrhea lasting for more than four hours.
- You are unable to eat or drink.

**Treatment of DKA (unless treated early, DKA will require treatment in a hospital):**

- Insulin
- Fluids
- Treatment of cause

**Hyperglycemic Hyperosmolar Nonketotic Syndrome (HHNS)**

If you have type 2 diabetes, high blood glucose (often over 600 mg/dl) can lead to a life-threatening problem known as hyperglycemic hyperosmolar nonketotic syndrome (HHNS).

An illness, infection, dehydration and/or missed diabetes medication can cause HHNS. This condition often develops slowly.

<b>Symptoms of HHNS</b>		
<b>dehydration</b>	<b>very sluggish</b>	<b>confusion</b>

**What you should do if your blood glucose is high and to prevent HHNS:**

- Continue to take your diabetes medication.
- Test your blood glucose more frequently.
- Increase fluid intake. Drink sugar-free, caffeine-free fluids like water, diet soda, sugar-free tea, broth.
- Call your doctor if blood glucose is greater than 240 mg/dl for 24 hours.
- Problem-solve why blood glucose is high.

**Treatment of HHNS (will require treatment in a hospital):**

- Large amounts of intravenous fluids
- Insulin (until blood glucose levels are under control)
- Treatment of cause