



PATIENT & CAREGIVER EDUCATION

About Steroid-Induced Hyperglycemia (High Blood Sugar)

This resource explains steroid-induced hyperglycemia (HY-per-gly-SEE-mee-uh) and the signs and symptoms to watch for. It also explains when to check for hyperglycemia, and tips to help manage blood glucose (blood sugar).

About steroids and cancer care

Steroids are medicines often used during cancer care to help:

- Prevent nausea (feeling like you're going to throw up) and vomiting (throwing up).
- Reduce inflammation or swelling.
- Improve appetite and energy.
- Help some cancer treatments work better.
- Help manage pain.
- Prevent allergic reactions during infusions or imaging scans that use contrast.

Common steroids used in cancer care include:

- Dexamethasone (Decadron®)
- Prednisone
- Methylprednisolone (Solu-Medrol®)
- Hydrocortisone

Steroids cause your body to make more glucose (sugar). They can also make it harder for your body to use insulin the way it should. This may raise your blood glucose levels. This can happen even if you have never had problems with your blood glucose before.

Steroids are an important part of treatment for many types of cancer. **Do not stop taking steroids unless your healthcare team tells you to.**

What is steroid-induced hyperglycemia?

Hyperglycemia is when too much glucose builds up in your bloodstream.

Steroid-induced hyperglycemia is when your blood glucose gets higher than normal while you're taking steroids. Having steroid-induced hyperglycemia does not mean you have diabetes.

Steroid-induced hyperglycemia during cancer treatment is common. It can:

- Raise the risk of infection.
- Slow healing.
- Make some side effects of treatment worse.

It's important to manage hyperglycemia during cancer treatment. This can:

- Help you feel better.
- Lower the chance of other health problems.
- Help you stay on your cancer treatment schedule without stopping or pausing treatment.

Risk factors for steroid-induced hyperglycemia

You may be more likely to develop steroid-induced hyperglycemia if you:

- Have diabetes or prediabetes.
- Have a family history of diabetes.
- Are overweight.
- Are aged 65 or older.

When does steroid-induced hyperglycemia happen?

Steroid-induced hyperglycemia often happens soon after starting steroids and is more likely to happen the longer you're on steroids. Even if your blood glucose was normal when you started taking steroids, it can still go up over time.

Your blood glucose levels often go back to normal after you stop taking steroids.

Signs and symptoms of hyperglycemia

Hyperglycemia

- Feeling very thirsty.
- Feeling like you need to urinate (pee) often.
- Blurry vision.
- Dry mouth.
- Feeling weak or more tired than usual.
- Headaches.
- Feeling nauseous (like you're going to throw up).

Severe (very bad) hyperglycemia

- Vomiting (throwing up).
- Stomach pain.
- Trouble breathing.
- Fruity-smelling breath.
- Feeling confused.
- Feeling very sleepy or that you cannot stay awake.

Severe hyperglycemia can lead to diabetic ketoacidosis (DKA). DKA is a medical emergency that can be life-threatening. If you're having signs and symptoms of severe hyperglycemia, call 911 or go to the nearest emergency room right away.

What to do if you have diabetes and are taking steroids

If you have diabetes or prediabetes, it can be harder to keep your blood glucose under control while taking steroids. Tell your diabetes healthcare provider if you're taking steroids. They may adjust your diabetes medicines while you're on steroids to help keep your blood glucose within a safe range.

Most often, the goal during treatment is to keep your blood glucose under 200 milligrams per deciliter (mg/dL). Your healthcare provider or endocrinologist will tell you your personal target range. The target range is when your glucose is not too high or too low. Always tell them if your healthcare provider made any changes to your medicine.

Checking your blood glucose

Your healthcare team may ask you to check your blood glucose at home. This is because you may have high blood sugar without having signs or symptoms. Checking your blood glucose can help you notice steroid-induced hyperglycemia even if you don't have any symptoms.

You can check your blood glucose at home using:

- A fingerstick blood glucose monitor
- A continuous glucose monitor (CGM) patch device

Talk with your healthcare provider about which device is right for you. If you need to check your blood glucose at home, they'll prescribe a device for you.

Keep checking your symptoms and blood glucose throughout your steroid treatment until your healthcare provider says it's safe to stop.

When to check your blood glucose

Steroid-induced hyperglycemia often follows a pattern.

- **When you wake up:** Your blood glucose may be normal or near normal.
- **A few hours after meals or taking steroids:** Your blood glucose starts to rise.
- **In the afternoon or evening:** Your blood glucose often peaks (reaches its highest).

When checking for steroid-induced hyperglycemia, try to check at the same time each day. This will give you an idea of your blood glucose trends.

We recommend checking your blood glucose either **2 hours after lunch** or **just before dinner**. Testing at these times can give a clearer picture of how steroids and food are affecting your blood glucose.

Steroid-induced hyperglycemia is often seen in the afternoon or evening. If you check your blood glucose only once a day, avoid testing first thing in the morning. Morning readings may not show the full effect that steroids can have on your blood glucose throughout the day. It may be best to check your blood glucose later in the day.

Helpful lifestyle tips

Diet and physical activity alone often are not enough to fully control steroid-related hyperglycemia, but they can still help. For example, stay active if you can. Taking short walks a few times a day can help you manage your blood glucose.

Here are some more tips to help keep your blood glucose at a healthy level:

- Drink plenty of water to prevent dehydration.
- Limit sugary drinks, such as regular soda and fruit juice.
- Choose balanced meals that include lean protein, fiber, and healthy fats. This can help you feel full and keep you from eating too much. Increased appetite (feeling more hungry than usual) is a common side effect of steroids.
- Do not skip meals or fully cut out carbohydrates. This is not safe and often does not lower blood glucose.

Always talk with your diabetes healthcare provider before making any major changes to your diet. This is very important if you take diabetes medicine. We often suggest aiming for 45 to 60 grams of total carbohydrates at each meal. If your diabetes healthcare provider recommends a different amount, follow their instructions. Read *How To Manage Your Blood Glucose (Blood Sugar) With Your Diet* (www.mskcc.org/pe/blood-sugar-diet) to learn more.

When to call for help right away

Call 911 or go to the nearest emergency room (ER) right away if:

- You have signs or symptoms of severe hyperglycemia or DKA listed in this resource.
- Your blood glucose level is over 400 mg/dL.

When to call your healthcare provider

Call your healthcare provider if:

- You have symptoms of hyperglycemia.
- Your blood glucose is higher than 200 mg/dL for more than 2 days.
- Your blood glucose levels keep rising.
- You're unsure of how or when to check your blood glucose.

If you're having a PET-CT scan

Your blood glucose must be below 200 mg/dL to have a PET-CT scan. If you're having a PET-CT scan while taking steroids, call your diabetes healthcare provider or the doctor who ordered your scan. They'll help you manage your blood sugar before your scan.

If you have questions or concerns, contact your healthcare provider. A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

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