Dealing with Hypos

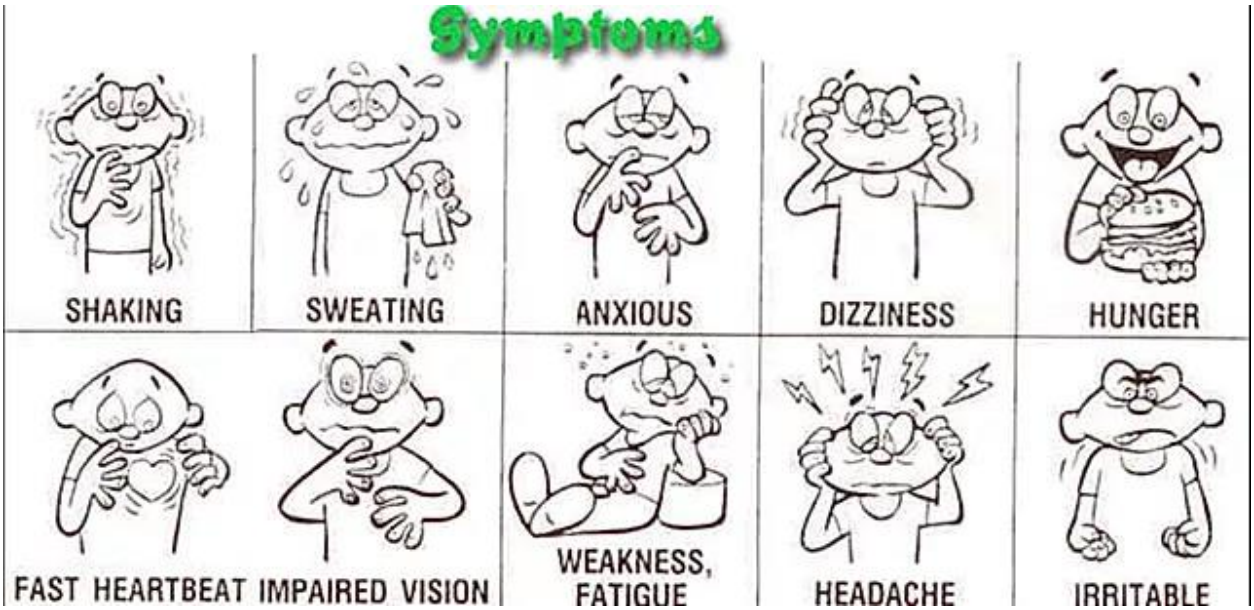
By Dr. Sheri Colberg, PhD. FACSM

Hypoglycemia is likely the single biggest barrier to being as active as you want to be with diabetes. Learn more about how to recognize, treat, and prevent hypos to stay in motion.

While there are numerous symptoms of hypoglycemia, they may differ from activity or situation to another, vary by time of day, and change over time--even in the same person. Although any blood sugar below 3.9 mmol/L technically qualifies, how low it has to go to cause symptoms varies.

For instance, if you have been in poorer control, sometimes you will get symptoms while your blood glucose is still normal if it drops rapidly, without ever getting as low as 3.9 mmol/L. If you're in really tight control, your symptoms may not start until you reach 3.1 mmol/L or lower. It's not always easy to tell right away if your blood glucose level is too high or low right when you start feeling funny, especially when you're exercising. When your blood glucose is changing rapidly in either direction, you often can't tell which way unless you use your meter or until your symptoms progress.

Typical symptoms of hypos include shakiness, hand trembling, tingling of your hands or tongue, sweating, mental confusion, irritability, poor physical coordination (i.e., clumsiness), and visual changes. Your usual symptoms can vary with your training state, diet, environmental conditions and more, though.



Treating hypos: If you ever experience symptoms and have your blood glucose meter handy, test to confirm that you are having a low. If you don't have a meter, go ahead and treat it anyway. The fastest treatment is anything containing straight glucose (also marketed as dextrose): glucose tablets, glucose gels, Gu, most sports drinks, Smarties candy, etc. Sucrose (white sugar) like in regular sodas and candy also works because it is half glucose but avoid using fruit juice to treat lows because the sugar in fruit (fructose) is absorbed more slowly.

The amount you will need to take varies by person and situation, but keep in mind that the body usually only has about 5 grams of glucose total in the blood, so don't overtreat your low. Unless you know your insulin levels are high, you may only need 5-15 grams of glucose. After you're back in a more normal range, you may still need to eat a more balanced food (e.g., peanut butter crackers) or a regular meal to prevent lows later on if you have done a lot of activity.

Always carry some glucose and possibly other carbs with you whenever you're exercising, even if you're just out walking the dog, so you'll always be prepared! It may also be beneficial to keep a glucagon kit on hand (that your family and friends can use) to treat a bad hypo if you should ever become unable to treat it.

Preventing hypos: While there are a number of strategies you can use to prevent hypos, here are a few of the most important ones:

- Use your blood glucose meter and test, test, test to establish trends and detect when levels are falling early on
- Consume extra carbs and possibly other food types before, during, and after exercise--see "**Adjusting Food Intake**" pdf.
- Reduce insulin doses prior to and during exercise to keep levels low (like they normally would be)--see "**Adjusting Insulin Doses** " pdf.
- Exercise first thing in the morning when your insulin resistance is higher, but know that your blood glucose could actually go up instead of down
- Avoid exercising 1 to 2 hours after you give any rapid-acting insulin, unless you take less insulin or eat more carbs to compensate
- Choose to eat foods that require smaller insulin doses to cover them when you plan on exercising afterwards (i.e., eat fewer carbs prior to exercise to keep insulin requirements lower)
- If you are doing both cardio and resistance training in one workout, change the order depending on your starting blood glucose: if higher when starting, do cardio first, or do resistance work first if starting lower
- If you start to feel low, sprint as hard as you can for 10 to 30 seconds to induce a greater release of glucose-raising hormones (like adrenaline)
- Check your blood glucose more often if you had a bad hypo or exercised hard in the 24 hours prior to your latest workout
- Consume more carbs or lower insulin more when doing new or unusual activities, both during and afterwards

- Eat something during the "window of opportunity" (30 minutes to 2 hours after exercise) when muscle glycogen is being replenished at the fastest rate with little need for insulin to help prevent later-onset lows
- If you take any insulin to cover what you eat within 2 hours after exercise, you may need to reduce the dose to less than you normally need
- It's common to develop hypos not only during or right after, but 6 to 12 hours following exercise, although they can occur for up to 48 hours
- Multiple days of exercise training increases the risk of hypos, so plan on lower insulin doses on subsequent days and eating more to prevent lows
- For other ideas, see the "**Trial and Error Tips**" pdf.

Some people develop hypoglycemic unawareness, which means that they either don't have or fail to recognize the usual symptoms. This condition appears to be more common in people with tight control or frequent lows. Avoiding all hypos for 2-3 weeks can frequently help you get your symptoms back.

Hypoglycemia-associate autonomic failure also occurs in many insulin users. It involves an abnormal hormonal response to either exercise or hypos when either occurs after prior exercise or a prior bad hypo reaction. Just be aware that if you had a bad hypo reaction in the prior 24 hours or exercised, you may be more prone to developing hypos the next time you exercise.

Caution: If ever in doubt about how to adjust your own insulin, check with your health care provider for recommended changes and further guidance.