

# Take charge of your lows

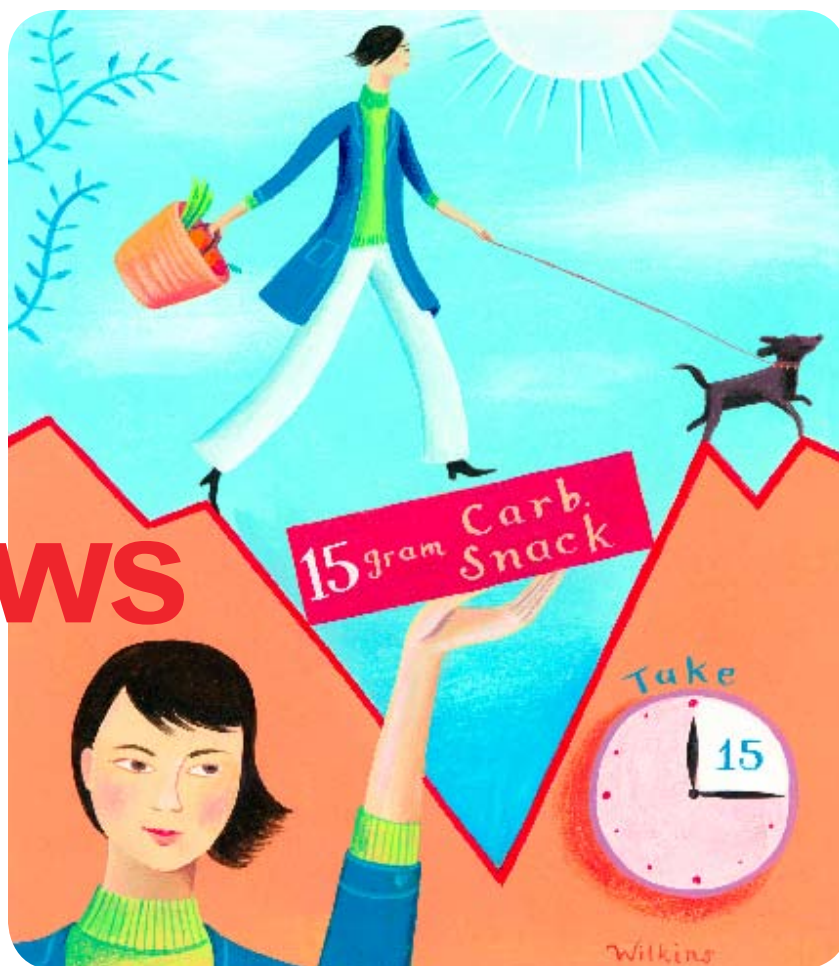
Understanding hypoglycemia and how to prevent and manage it is your best defense.

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Do you worry about the perils of low blood glucose, otherwise known as hypoglycemia?\* “These fears are often unwarranted,” says William Polonsky, Ph.D., CDE, assistant clinical professor of psychiatry at the University of California in San Diego and author of *Diabetes Burnout* (American Diabetes Association). “The risk of severe hypoglycemia, even for people who take insulin, is exceedingly low.”

Even so, it’s important to understand hypoglycemia and know how to prevent and manage it. And it’s a good idea to share the facts with family members, friends, and coworkers, in case you experience symptoms and need help.

*\*Note: The term “hypoglycemia” may also describe a condition that’s unrelated to diabetes. This article solely addresses hypoglycemia as it relates to diabetes.*



## Learn the Signs

The American Diabetes Association (ADA) defines hypoglycemia as having a blood glucose level of less than 70 mg/dl. Symptoms include shakiness, dizziness, sweating, hunger, headache, pale skin color, sudden moodiness or behavior change, clumsy or jerky movements, difficulty focusing, confusion, or tingling around the mouth.

“Hypoglycemia is hard to predict,” says Erica Breychak, who’s had type 1 diabetes for 20 years. “Most of the time I know I’m getting low because I become moody and hungry.”

However, similar symptoms can occur when your blood glucose isn’t low. “You can experience the symptoms of hypoglycemia at higher blood glucose readings if your body isn’t used to lower numbers or if your

blood glucose drops rapidly,” says Karen Bolderman, R.D., CDE, who’s had type 1 diabetes for more than 40 years.

Hypoglycemia can be mild, moderate, or severe. When you have mild hypoglycemia, you’re usually able to recognize the symptoms and treat yourself. During moderate hypoglycemia, symptoms are more pronounced. Your thinking might be impaired, which means you may need help from someone else to treat it.

Severe hypoglycemia might be what you envision when you think of having low blood glucose. But this condition is rare. With severe hypoglycemia, you may become unconscious or have a seizure that requires immediate assistance.

The Diabetes Control and Complications Trial (DCCT), a 10-year study of type 1 diabetes by

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the National Institutes of Health, found that people who intensively managed their diabetes had less than one severe hypoglycemic event a year. The United Kingdom Prospective Diabetes Study (UKPDS) of type 2 diabetes showed less than 6 percent had severe hypoglycemia annually, regardless of their diabetes medications.

### Curb the Causes

One of the best ways to prevent hypoglycemia is to understand why it happens. It occurs when your blood doesn't contain enough glucose to supply your body with energy to function properly. This can happen when you:

- \* *Take too much of a blood glucose-lowering medication* that can cause hypoglycemia (see chart, right).
- \* *Fail to eat enough* after a blood-glucose-lowering medication.
- \* *Allow too much time* between taking medication and eating.
- \* *Skip a meal or snack.*
- \* *Are more physically active* but don't adjust by snacking or taking less medication to compensate for burning extra glucose.

### Take 15

If you experience symptoms of hypoglycemia or your meter detects low blood glucose, follow the 15/15 guideline: Eat 15 grams of carbohydrates, recheck your blood glucose in 15 minutes, then treat with another 15 grams of carbohydrates if your blood glucose hasn't risen at least to the low end of your target range.

"Fifteen grams of carbs is a good starting point," Bolderman says. "However, eating 15 grams of carbohydrates and waiting for

## can drugs cause hypoglycemia?

Check your prescriptions against this chart. If you're taking medications that can cause hypoglycemia, pay close attention to the directions for when to take your pills in relationship to eating. Always have your blood glucose meter and a snack that contains carbohydrates with you.

DRUG TYPE	DRUG CATEGORY	BRAND NAME	CAN CAUSE HYPOGLYCEMIA
pill	sulfonylurea	Amaryl	yes
pill	sulfonylurea	Glucotrol	yes
pill	sulfonylurea	Diabeta	yes
pill	sulfonylurea	Micronase	yes
pill	sulfonylurea	Glyburide	yes
pill	sulfonylurea	Glipizide	yes
pill	metformin	Glucophage	no
pill	meglitinide	Prandin	yes
pill	glitazone	Actos	no
pill	glitazone	Avandia	no
pill	D-phenylalanine	Starlix	yes
pill	alpha-glucosidase inhibitor	Precose	no
pill	DPP-4	Januvia	no
injectable	insulin	all	yes
injectable	exenatide	Byetta	no
injectable	pramlintide	Symlin	no

*\*Note: Several combination oral medications contain a sulfonylurea, so these can contribute to hypoglycemia.*

15 minutes can seem like forever." But Bolderman has learned—on her own and by counseling others—that eating more than 15 grams causes blood glucose to shoot up too high. "Then it's difficult to get your glucose back down, plus you've eaten a lot of unwanted calories, too," she says.

### Choose the Right Snack

In case you go low, keep 15-gram-carb snacks on hand. The ADA recommends glucose as the best treatment. Pure glucose, available in flavored tablets or gels, is preferred because all 15 grams of carbohydrates go toward raising your blood glucose. Plus the

tablets and gels are prepackaged, so you won't nibble when you don't need the treatment.

Many people, including Erica and Bolderman, prefer juice, but the sugar in fruit juice is half glucose and half fructose, which doesn't raise blood glucose as much as the straight glucose in tablets or gels. Other treatments Bolderman suggests include fat-free milk, jelly beans, dried fruit, and fresh fruit slices.

Some people reach for meat, peanut butter, or cheese combined with a source of carbohydrate to raise their low blood glucose. However, research shows there's

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no need to add protein to treat low blood glucose; it doesn't prevent another low hours later. These choices, along with other foods that contain large amounts of fat, such as chocolate, aren't good options to treat a low. Fat can prolong a low blood glucose event.

Experiment safely to find the hypoglycemia treatment that works best for you. You may prefer one food at home and something

more convenient when you're on the go. Carry your monitoring supplies with you so you can catch a low reading before you start feeling the symptoms. And if you do experience the telltale signs of hypoglycemia, act quickly to offset a more serious episode. "For peace of mind, keep glucagon or glucagen handy, ready for the unlikely event of severe


**"For peace of mind, keep glucagon or glucagen handy, ready for the unlikely event of severe hypoglycemia."**

~ Marty Irons, R.Ph., C.D.E.

hypoglycemia," says Marty Irons, R.Ph., CDE, a member of *Diabetic Living* magazine's editorial advisory board. It's a good idea to let friends, family, coaches, teammates, and coworkers know how they can help if you go low and can't help yourself.

### Know Yourself

"Dispel your fears and tighten up your blood glucose control with two actions," Polonsky says. "First, let the facts about the infrequency of severe hypoglycemia decrease your worries. Second, build your confidence that you can feel a low blood glucose episode coming on and learn your symptoms."

Worrying about hypoglycemia will only promote stress and cause your blood glucose to run high. Stay healthy by keeping your blood glucose in your target range. Occasionally, when you think you're going too low, try guessing your blood glucose and check your accuracy with your meter. This helps you gain confidence by knowing you can detect and treat low blood glucose levels. Make it a habit to carry your diabetes supplies with you and be prepared to treat low blood glucose no matter where you are. If you experience hypoglycemia episodes often, ask your health-care provider to adjust your diabetes management plan. 

*Hope S. Warshaw is a dietitian and diabetes educator who serves on Diabetic Living magazine's editorial advisory board. She is the author of Diabetes Meal Planning Made Easy (American Diabetes Association).*

## (10 ways to beat the lows)

To limit hypoglycemia, follow your diabetes care plan and make adjustments when your routine varies. Be sure you know how to recognize symptoms of low blood glucose and be prepared to treat them.

1. **Keep an easy-to-carry source of glucose or carbohydrates handy** at all times.
2. **Carry your blood glucose testing supplies.** If you experience symptoms, check before you treat.
3. **If you're low before you plan to drive,** treat and check again before you get behind the wheel; make sure you've reached at least the low end of your target range before starting the vehicle.
4. **Let family members and friends know you have diabetes** and may occasionally experience low blood glucose. Share your usual symptoms and tell them how they can assist you. Encourage them to call 911 if they need help.
5. **If you take insulin, talk to your health-care provider** about prescribing glucagon or glucagen. Glucagon must be injected by someone else to treat an unconscious hypoglycemic reaction.
6. **Wear recognizable medical identification** to let people know you have diabetes.
7. **Don't skip meals.** If you do, eat a nutrition bar or other healthful snack to replace the missing carbohydrates. Adjust your medication as advised by your health-care provider.
8. **Don't delay meals.** If you do, snack on a carbohydrate food or delay taking your medication as suggested by your health-care provider.
9. **On days that you'll be very active,** learn how you can decrease your diabetes medication as recommended by your health-care provider.
10. **If you drink alcohol, check your blood glucose more often.** Alcohol can cause low blood glucose from a few hours to many hours after you drink if you take one or more of the medications that can cause low blood glucose.