

Understanding High Morning Blood Sugars: The Dawn and Somogyi Effects



Waking up with higher than expected blood sugars (also called glucose) can be frustrating. There could be various reasons for this, but the dawn and Somogyi effects are two common explanations for higher than expected blood sugars in the morning.

When dawn arrives and the sun starts to come up, your body reacts by secreting hormones (growth hormone, cortisol, glucagon and epinephrine) that get you ready for your day. These hormones cause a rise in blood sugar that is harder for your body to compensate for if you have diabetes, leading to the **DAWN EFFECT**.

If your body experiences low blood sugar at night, for example as a result of too much basal insulin or exercise, your body responds with hormones similar to those in the dawn effect that lead to a rise in blood sugar. This attempt by the body to raise blood sugars to a safe level is called the **SOMOGYI EFFECT**.

If you're getting higher than expected blood sugars in the morning, these three steps can help you get them back in range.

1. Monitor your blood sugar overnight to see if you are experiencing the dawn or Somogyi effect. You may need to repeat this a few times to confirm.

- Start your overnight checks at least 3-4 hours after your last meal.
- Refrain from eating during the overnight check unless you need to treat a low blood sugar.
Avoid drinking alcohol.
- Check in the middle of your sleeping cycle. For example, if you sleep from 11pm to 7am, you would check around 3am. If you skip this step, you will not have enough information to sort out what is happening. If you use a continuous glucose monitor, check your overnight history in the morning.

2. Determine what is causing your morning highs.



For The Dawn Effect

- Try a bedtime snack. Change the amounts of fats, carbohydrates and proteins in your snack to see if the effects are different.
- Eat regularly. Don't go for more than 6 hours without eating. The longer you go without eating, the more likely your body will use its own energy stores, which may lead to higher readings.
- Eat dinner earlier to give your body more time to get your blood sugar down after eating. Try light physical activity after dinner to help lower blood sugar.
- Take medications consistently. Some diabetes medications that are commonly prescribed help prevent the dawn effect. Set an alarm if you need help remembering.



For The Somogyi Effect

- Count carbs and stay consistent with carb servings at night.
- Eat regularly and don't skip meals.
- Avoid alcohol, but if you drink it be sure to eat a snack. Some people are very sensitive to alcohol and may need to eliminate or reduce it to avoid low blood sugars.
- Time your activity/exercise appropriately. If evening activity is causing your blood sugar to go low overnight, work out earlier in the day.
- Adjust insulin to carb ratio. If you are carb counting, consult your diabetes care team to better match your meal insulin to your carb amounts.

3. Discuss your medication timing and dosage with your provider.

Your healthcare team can provide personalized suggestions on meal and medication timing. If you take basal insulin, you may need to discuss adjusting your dose with your healthcare team.

For more information on how a diabetes care and education specialist can help you, visit

DiabetesEducator.org/DCEShelp.