

OVERNIGHT BLOOD GLUCOSE LEVELS

Dawn Phenomenon:

Dawn phenomenon, or elevated morning blood glucose (BG) levels, can occur between the hours of 2 am-8 am. This is thought to be caused by the release of counter regulatory hormones. These hormones work opposing the effects of insulin and include: growth hormone, cortisol, glucagon, and epinephrine. These hormones result in high BG upon waking in the morning.

For People on Medications:

Dosing or timing of the medication may need to be adjusted. For example, if you are on metformin, discuss with your health care provider about adjusting dose. If you are on insulin, discuss with your health care provider about adjusting basal dose or rates.

If you are not on any medication, consider eating an earlier dinner or try walking after dinner in order to promote increased insulin sensitivity.

Nocturnal Hypoglycemia and Morning Hypoglycemia (Somogyi Effect):

Some morning high blood glucose levels may be caused by the release of stress hormones due to a hypoglycemic episode that occurred overnight. Other times, morning high BG are caused by over-treating low BG overnight (too much carbohydrate treatment).

Ways to Reduce Nighttime Hypoglycemia Are:

- More frequent glucose monitoring (8-10 times daily) to determine the need for insulin dose adjustments
- Logging and reviewing glucose logs for patterns or using a continuous glucose monitor (CGM) to determine patterns of BG at night and need for insulin dose adjustments
- Discuss with your health care provider about adjustment of medication as needed

Also, be aware of any daytime activity change. More frequent or strenuous physical activity, especially in the evening, may cause nighttime hypoglycemia. If you tend to have low BG after exercise, talk to your health care provider about your options to prevent overnight lows.

For example, treatments like: eating a 15-30 gram complex carbohydrate snack with fat and protein, adjusting basal insulin rates, and monitoring BG overnight may help reduce nighttime hypoglycemia. Please see the list below for snack ideas.

15 Gram Carbohydrate Snack Ideas	30 Grams Carbohydrate Snack Ideas
<ul style="list-style-type: none"> • Small apple with 1 string cheese • 3 graham cracker squares with 1-2 Tbsp of peanut butter • ½ sandwich • 3 cups plain popcorn with 1 oz nuts • 6 saltine crackers with ¼ cup tuna salad 	<ul style="list-style-type: none"> • Sandwich • 12 saltine crackers with ½ cup tuna salad • 6 graham crackers with 2 Tbsp peanut butter • Yogurt • Pudding Snack