

# Surprise! It's a RISE.

Some forms of exercise can cause blood sugars to go up.

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Just when you think you have it all figured out, this had to happen. You checked your blood sugar, took an appropriate amount of carbohydrate, and proceeded to work out. Afterwards, you checked again, and BAM! 300. (that's 17 millimoles)

What happened? To understand what makes blood sugar do what it does in active situations, we need to go back to the basics. Blood sugar regulation involves a complex interaction between the factors that raise blood sugar: carbohydrates in the diet and stress hormones (causing insulin resistance and extra glucose production by the liver); and the factors that lower blood sugar: insulin and oral diabetes medications, as well as physical activity (by enhancing insulin sensitivity).

One thing that can cause blood sugars to rise during sports activity is extended disconnection from a pump, or "lapses" in injected insulin. It is necessary to always have at least some insulin working in your body, or exercise of any kind will likely produce a dramatic blood sugar rise. Significant under-dosing for pre-workout meals can also cause a rise during the workout.

If you suspect this to be the case, try cutting back a bit less on your pre-workout meal bolus.

More commonly, blood sugar rises occur during high-intensity/short duration exercises and competitive sports. This is due primarily to the stress hormone production or "adrenaline rush" that accompanies these kinds of activities. Examples include:

- ▶▶ Weight lifting (particularly when using high weight and low reps)
- ▶▶ Sports that involve intermittent "bursts" of activity like baseball, softball or golf
- ▶▶ Sprints in events such as running/swimming/rowing
- ▶▶ Events where performance is being judged, such as gymnastics or figure skating
- ▶▶ Sports activities in which winning is the primary objective

If you notice a rise in your blood sugar with certain types of activities, the solution is to do what your pancreas would do: give a little extra insulin. To determine how much extra insulin to take before an activity of this nature, consider *how much* your blood sugar

normally rises. If it goes up 200 mg/dl (11 mmol) and your sensitivity or correction factor is normally 50 mg/dl (3 mmol) per unit, you would normally need to give about four units to prevent the rise. **DO THIS AND YOU MIGHT PASS OUT.** Remember, physical activity makes your insulin work more effectively! Try giving yourself *half* the normal amount about half an hour before the activity.

Incidentally, the same "half-the-usual-dose" rule applies to correcting high blood sugars immediately before or immediately after competitive/high-intensity events. Take half the usual "correction insulin" for high blood sugars in these situations.

It is always best to check with your healthcare team before trying these types of dosage adjustments for the first time. If you are nervous about giving insulin before exercise, check your blood sugar more often than usual (perhaps every half hour or so), and have glucose tablets or some other form of fast-acting carbohydrate nearby. With some experience, you will develop greater confidence and have the ability to fine-tune your pre-workout insulin.