

Somogyi Rebound mini-FAQ

This mini-FAQ is intended to give you introductory information on somogyi rebound as well as clues to look for and ways to test for somogyi. This information in no way is meant to replace the advice and counsel of your veterinarian. Please discuss any and all changes in your sugarcat's clinical signs with your veterinarian.

Other sources of info on somogyi include the [FDMB FAQ](#), the [Pets with Diabetes site and Emedicine](#) (note, this link is on human somogyi but is chock full of info and references folks that want to dig deeper will find of use).

What exactly is somogyi rebound?

Easy answer: term to describe the process in which the body reacts to low blood sugar or a rapid drop in blood sugar. When the body perceives a fast or low drop in glucose, it protects itself by releasing natural glucagons from the liver, which raise the blood sugar; (from the FDMB glossary).

Harder answer: hypoglycemia induced hyperglycemia. If too much insulin is received, the body will try to protect itself and responds by releasing glucose (glucagon) from the liver and secreting diabetogenic hormones which induce hyperglycemia.

It is important to note that a **hypoglycemic episode does not have to happen for somogyi to set in**. A drop in blood glucose that the body **thinks** is too fast will result in glucagon being released and the sugars being raised.

So basically, somogyi is a result of the body's defense mechanisms against hypoglycemia.

How do I know if my cat is experiencing somogyi rebound?

First, know that somogyi is very difficult to document and as a result a lot of health care professionals don't think it happens very often. My own experience and that of others I've talked with has led me to believe that it is much more common than people think.

Clue #1 - Consistently higher preshots and spotchecks than usual. Note, preshot numbers going higher can also point to infection, absorption issues, a need for more insulin, or poorly mixed/damaged/old insulin**. So this is a pretty general clue but is an important clinical sign to monitor more closely in any event. It does not mean that when kitty has a bad day and gives a sudden preshot in the 500s that you should presume somogyi - that's just a cat being a cat. Numbers that creep up over time however are to be watched.

***Note, for Humulin insulins (N, L, U) Eli Lilly recommends a bottle be used for no more than 60 days or 100 pokes...so if you've noticed numbers change month 3 or 4 with the same bottle, probably a good idea to get a new bottle. Also, don't "shake" insulin as it is delicate and will be damaged. Most folks roll the vial between their palms to mix it properly.*

Clue #2 - Very rapid drops in blood glucose numbers as detected through spot testing. Last time we suspected rebound we were up to the high 500s preshot - before we had been in the 300s. We did a spot test at +2 one night and went from a preshot of 561 to a +2 of 275. That's a drop of almost 300 "points" in 2 hours -- much too rapid for the longer acting insulin we were using.

How much of a drop is too much? That will vary for each cat - like everything else with diabetes. But for our purposes, dropping over 200 points in the first 2 hours was too fast and kitty's body responded by spilling out glucagon. I think a general statement like "close to 100 points an hour for a drop is relatively safe but on the high side" is okay to say.

Clue #3 - Hypoglycemic episode. Too much insulin is almost always the cause of a hypoglycemic episode. This is a warning sign and unfortunately sometimes comes too late. Following a hypo many cats are thought to be more sensitive to insulin so a dose decrease is usually suggested for the first few days immediately following a hypo. However, if a dose decrease is not made and the same amount of insulin is given over a period of time - the cat may hypo again or may enter into a rebound situation as the body tries to prevent another hypo.

Clue #4 - Flat curves. If you are seeing higher preshots and suspect rebound you should do at least one curve to see what's really going on. Somogyi often results in a period of insulin resistance (remember, the body is trying to protect itself from dropping too much so will keep spilling out glucagon) and you may see nothing but high numbers no matter how much you check the glucose that day.

***Cortisol and epinephrine are released during a somogyi event. In "basic" terms, both contribute to glucagon release and interfere with glucose utilization by the body -- ultimately resulting in insulin resistance and continued high blood glucose numbers.*

Here's an example of a somogyi curve (see more examples at [Pets with Diabetes Somogyi Page](#)):

PS	542
+2	417
+3	395
+4	421
+6	447
+8	430
+10	452

How do I test for somogyi and treat it?

The answer to somogyi is LESS insulin, not more. This is where it gets confusing. Usually, high numbers would mean more insulin is needed. However, with somogyi the higher numbers are from the body spilling out glucose because its already getting too much insulin. So the best way to test for somogyi is to cut your dose.

Again, every cat is different and the amount you cut the dose will vary from cat to cat. It is best to take your cats whole clinical history into the decision-making process and discuss changing the dose with your vet. You do not want to cut the dose in a cat that may have infection (instead of somogyi) - first rule out infection (via trip to vet). Also, gather as much curve/spot testing data as possible so that you feel comfortable that kitty doesn't need more insulin.

REMINDER: Whenever you are seeing higher than normal numbers and/or are cutting the insulin dose, it is a good time to be more diligent in your ketone testing (see our [Ketone Library](#) for more info).

So, if you make a substantial decrease in dose and allow the dose to settle in -- and then see improved numbers, you can feel pretty confident that you were dealing with somogyi. (Yeah! Its not winning the lottery but a clear answer in diabetes is worth a million dollars in my book).

You may eventually work back up to that old dose in time - but remember to take things slow and increase only after a series of curves and with small increments like .25 or .5 units at a time. This will be your key to success!