

Bad infusion sites and high **BG's**

How to check if a high bg is caused by a bad infusion site

Your blood sugar level is higher than it should be, for no apparent reason

You might notice unusually high *BG's* first thing in the morning, or after meals when you're sure you have taken the right amount of insulin.

Check the pump first for obvious things:

- Are you out of insulin?
- Is the pump leaking?
- Is the connection between the tubing and the pump cartridge tight?
- Is the hub connection cracked?
- Can you smell insulin anywhere? (hint: Insulin smells like Band Aids)
- Can you see insulin drip from the end of the infusion set if you disconnect and do a small bolus?
- Do the pump motor arms (MiniMed) or piston rod (Disetronic) move freely?

If everything checks out fine, your infusion site probably needs to be changed.

"Hardened Tissue" at the infusion site

The tissue around the infusion site may be "hard" or feel "extra firm" to the touch. Instead of being soft and pliable, the tissue feels as if it is all muscle – not flexible at all. Some pumpers describe this as similar to scarring, where scar tissue feels harder than the surrounding tissue.

Be careful not to confuse this symptom with one of the signs of an infection, which is often described as an "egg shaped lump under the skin", which may be warm and sensitive to the touch.

(Humalog users may note this tissue hardening more frequently than users of Regular or Velosulin. There is no clear consensus on this connection yet).

Tenderness or soreness at the infusion site

When my sites start to lose effectiveness, they often are a bit tender or sore, with a hint of red or pink colouration. This colour often appears at the spot where the needle or cannula entered the skin and is noticeable in a larger area around the infusion site. This may extend one inch or more from the needle/cannula entry point in the skin. *Note that your symptoms may differ from mine here - in other words, Your Mileage May Vary.*

Again, this symptom is not to be confused with infection.

Do you feel a "pinch" or "poke" at the infusion site?

This may be a sign that your infusion set is inserted too deeply or at too steep an angle. This results in your set ending up too close to the muscle, which interferes with insulin delivery. Your *BG's* will rise as a result.

Additional boluses do not produce the expected results

Sometimes your *BG* will not drop at all after an adjusting bolus, other times it will drop, but much slower than expected.

Here again, your trends and patterns can help troubleshoot this problem.

For example, if you know that a unit of insulin will bring your *BG* down 2.5 *mmol/L* in one hour and

additional boluses are not producing this desired adjustment, take a look at your infusion site as the potential cause of the problem. It's often better to change the site or inject some insulin, rather than continue to give additional boluses to try to bring down a stubbornly high *BG*.

You've recently changed your infusion set

Some pumpers note that their Blood Sugar rises after they change their infusion set. One of the reasons for this may be that insulin "leaks" from the old site when you remove the old set.

When you insert your new set, try leaving the old set in for a length of time equal to the amount of time that your insulin is "active". For Humalog users, this is at least two hours, for Regular or Velosulin users, this is at least 4 hours. That's right – for a while you will have two sets inserted, but only one will have a tube and pump attached to it!

Note that you don't want to do this if you are changing your set because the old site has become irritated. In those cases, you want to remove the old set promptly. You may need an additional bolus to correct for the high *BG* you might experience later.

Your Mileage May Vary...

As in all things diabetic and especially with pumping, **Your Mileage May Vary**. Each pumper needs to develop their own personal "database" of experience to develop a troubleshooting plan unique to their own treatment regimen. Keep your needs and experiences in mind when viewing advice on line.

Take corrective action if you suspect there is a problem. If you suspect an infection, monitor it closely and don't hesitate to seek the assistance of your health care team. Infections affect some individuals to a much greater degree than others and they are never worth risking.

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