

Checking and Adjusting Basal Rates in Insulin Pump Therapy

Check your basal rates:

- within a few weeks of starting on a pump
- if rates have not been checked in over a year
- if you are correcting high readings 2–3 times a day (basal rate may be too low)
- if you have low readings 1–2 times a day (basal rate may be too high)
- if you miss a meal and blood sugars drop or rise
- if you go for fasting lab work and your blood sugars drop or rise
- if you think you need a second basal profile for menstruation, shiftwork, weekend, etc.
- if you fill in the formula below and the answer is not within 40–60 (talk with your educator)

**Total units basal insulin per day divided by total units per day (basal and bolus doses)
X 100 = _____ (between 40–60 is usual)**

Don't do a basal check or STOP a basal check if:

- your glucose is less than 4 mmol or more than 14 mmol before or during the check
- you gave a correction or meal bolus less than 4 hours ago
- you have had alcohol, major stress, strenuous activity, a meal out, illness, a bad low glucose reading or a bad infusion site that needed changing that day

Check your basal rates:

- overnight: bedtime till breakfast
- daytime: breakfast to lunch / lunch to supper / supper to bedtime

Testing Overnight Basal Rates

- Start the basal check if it has been at least 4 hours since the last food or insulin bolus.
- Test and record your glucose before you go to bed.
- Do not eat a snack (You may eat lettuce, cucumber, mushrooms, black tea, black decaf coffee, broth, diet pop. **No** carbohydrate foods, **no** proteins, **no** fats.)
- Do not give a bolus.
- Stop the check if glucose is less than 4 mmol. Treat with glucose.
- Stop the check if glucose is more than 14 mmol. Give insulin correction.
- Test and record your glucose every 3 hours or more often until the morning (set your alarm).
- Do testing for 2–5 nights until you see a pattern (does not need to be 5 nights in a row).

Overnight Basal Rates Check

Glucose Readings	Day 1	Day 2	Day 3	Day 4	Day 5
Before dinner result:					
2 hours after dinner result:					
Bedtime result: <ul style="list-style-type: none"> • Between 4 and 14 mmol: do not correct with insulin. Continue with the basal test. • Under 4 mmol: treat with glucose. Stop the basal check. • Over 14 mmol: test ketones. Correct and stop the basal check. 					
Midnight result: <ul style="list-style-type: none"> • Follow instructions as above. 					
3 a.m. result: <ul style="list-style-type: none"> • Follow instructions as above. 					
Before breakfast result: <ul style="list-style-type: none"> • Eat and bolus at breakfast as normal. 					

Testing Your Daytime Basal Rates

- Check each meal period. Test only one meal period per day.
- Start the basal check if it has been at least 4 hours since the last food or insulin bolus.
- Test and record your glucose at the start of the test period. Do not give a bolus.
- Do not eat during the test period (You may eat lettuce, cucumber, mushrooms, black tea, black decaf coffee, broth, diet pop. **No** carbohydrate foods, **no** proteins, **no** fats.)
- Stop the check if glucose is less than 4 mmol. Treat with glucose.
- Stop the check if glucose is more than 14 mmol. Give insulin correction.
- Test and record your glucose at least every 2–3 hours until the next mealtime.
- Do testing for 2–5 days until you see a pattern (does not need to be 5 days in a row).

Daytime Basal Rates Check					
Start basal check only if 4 hours or more since last food or insulin bolus.	Glucose Readings				
	Day 1	Day 2	Day 3	Day 4	Day 5
Record time and glucose result: <ul style="list-style-type: none"> Between 4 and 14 mmol: do not correct with insulin and do not eat a meal. Continue with the basal test. Under 4 mmol: treat with glucose: stop basal check. Over 14 mmol: test ketones, correct and stop the basal check. 					
2–3 hours later: <ul style="list-style-type: none"> Record time and glucose result. Follow instructions as above. 					
2–3 hours later: <ul style="list-style-type: none"> Record time and glucose result. Follow instructions as above. 					
2–3 hours later: <ul style="list-style-type: none"> Eat and bolus as normal. 					

Adjusting Basal Rates

- Review your data from at least 2–5 days for the same test period. Look at the patterns.
- If the pattern shows a change of more than 2 mmol, you need a basal rate adjustment.
- Adjust basal rate by 0.1 units per hr (or 0.05 if sensitive) for 2–3 hrs before change.
 - e.g., if readings rise between 3 to 6 a.m., increase the basal rate by 0.1 units from 3 a.m. to 6 a.m.
 - e.g., if readings drop between 3 to 6 a.m., decrease basal rate by 0.1 units from 3 a.m. to 6 a.m.
- Record new basal rate (e.g., in journal, calendar, logbook).
- Check this same basal period again to see if the problem has been fixed.

This material is for information purposes only. It should not be used in place of medical advice, instruction and/or treatment. If you have questions, speak with your doctor or appropriate healthcare provider.

