



GET CONTROL

BASAL RATES

The foundation of insulin pump settings and blood glucose control

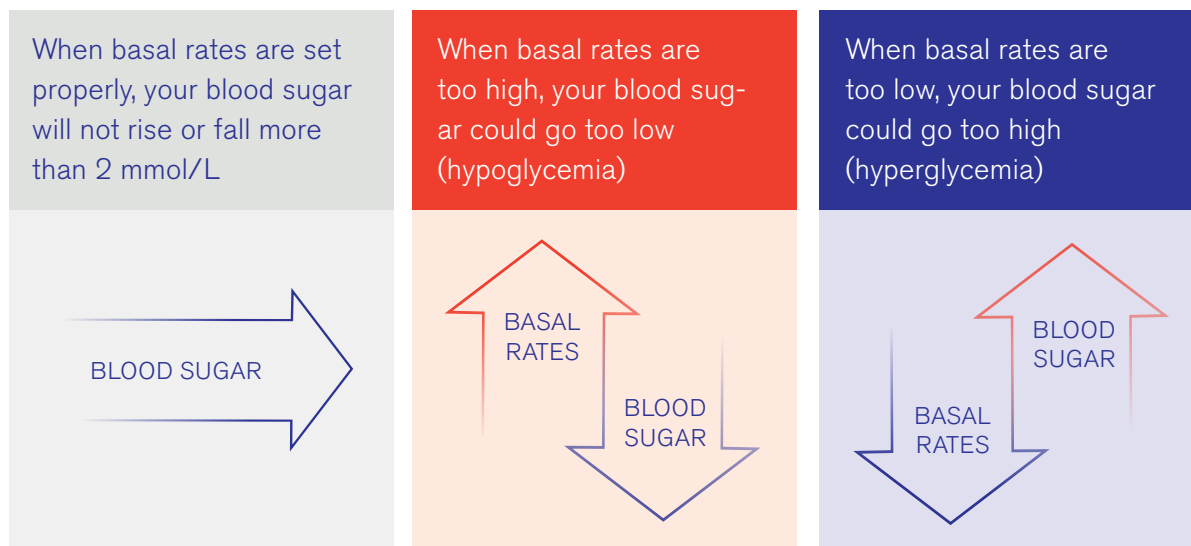
BASAL RATE BASICS

Even when you are not eating, your body produces glucose to ensure your muscles and other cells have the necessary fuel to function.¹

To balance this continuous production of glucose, it's important to have around-the-clock delivery of insulin. This is referred to as **basal insulin** (or background insulin).¹

Of course, different individuals require different amounts of basal insulin. And most individuals require more than one basal rate to keep their glucose levels stable throughout the day and overnight. Wearing a pump makes it easier to adjust this background insulin by the hour as the pump delivers basal insulin as an hourly basal rate.¹

When basal rates are set properly, and in the absence of a meal or correction bolus, blood glucose will not rise or fall more than 2mmol/L.²



To begin, you will work with your healthcare professional to establish your initial basal rate. It is important to test this initial rate to determine the optimal settings. Read on for information on how to test your initial basal rate settings.

TEST YOUR **BASAL RATES** ^{1,3}

- Testing is done in four time periods: overnight, morning, afternoon and evening
- Each time period should be tested three times (i.e., on three separate days)
- Use the charts provided in this booklet to record your results and share them with your healthcare professional
- It is recommended that you test your overnight basal rate first
 - Avoid alcohol when testing basal rates
 - If you experience hypoglycemia at any time during a basal test, treat the low and end basal rate test

HOW TO TEST¹

OVERNIGHT



- Eat an early dinner
- After dinner, do not eat or take a bolus of insulin
- Measure and record your blood glucose levels:
 - 4 hours after dinner
 - 1 or 2 times overnight (e.g., 2 a.m. and 4 a.m.)
 - Before breakfast

Time	4 hours after dinner	2 AM	4 AM	When you wake up
Day 1 blood glucose				
Day 2 blood glucose				
Day 3 blood glucose				

MORNING



- Test your fasting blood sugar (when you wake up in the morning) to ensure it is between 5 and 8 mmol/L
- Skip breakfast and do not eat, drink or take a bolus of insulin until lunch

Time	When you wake up	Hour 1	Hour 2	Hour 3	Hour 4
Day 1 blood glucose					
Day 2 blood glucose					
Day 3 blood glucose					

AFTERNOON



- Do not eat or take a bolus of insulin after breakfast
- Begin testing 4 hours after you have eaten breakfast and only begin basal rate testing if blood glucose is between 5 and 8 mmol/L
- Skip lunch and do not eat, drink or take a bolus of insulin until dinner

Time	4 hours after breakfast	Hour 1	Hour 2	Hour 3	Hour 4
Day 1 blood glucose					
Day 2 blood glucose					
Day 3 blood glucose					

EVENING





- Do not eat or take a bolus of insulin after lunch
- Begin testing 4 hours after you have eaten lunch and only begin basal rate testing if blood glucose is between 5 and 8 mmol/L
- Skip dinner and do not eat, drink or take a bolus of insulin until bedtime (have something to eat before bedtime)


Time	4 hours after lunch	Hour 1	Hour 2	Hour 3	Hour 4
Day 1 blood glucose					
Day 2 blood glucose					
Day 3 blood glucose					

FINE TUNING

INTERPRETING BLOOD GLUCOSE RESULTS:

 **Increase of more than 2 mmol/L:**
Your basal rate is too low

 **Decrease of more than 2 mmol/L:**
Your basal rate is too high

 **Stable:**
You do not need to make any changes

NEXT STEPS¹

If your blood glucose increases or decreases by more than 2 mmol/L, work with your healthcare provider to determine how much your basal rate needs to be adjusted.

Basal rates may be adjusted up or down in increments of 0.05 units/hour.



You may need to repeat basal rate testing once your basal rate has been adjusted. Follow your healthcare provider's advice on adjusting and retesting basal rates.

References: **1.** Walsh J and R Roberts. (2016). Pumping insulin (6th ed.). San Diego, CA: Torrey Pines Press.**2.** St. Micheal's Hospital. Basal rate testing. Accessed January 2019 at <http://www.stmichaelshospital.com/pdf/programs/diabetes/basal-rate-testing.pdf>. **3.** Diabetes Canada. Alcohol and diabetes. Accessed January 2019 at: <https://www.diabetes.ca/diabetes-and-you/healthy-living-resources/diet-nutrition/alcohol-diabetes>.

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