Rapid Acting Insulin

Using a Correction Factor

Montfort

Hôpital universitaire
Academic Hospital

What is a correction factor?

A correction factor is how much one unit of rapid-acting insulin (Novorapid®, Humalog®, Apidra®, Fiasp®) will generally lower your blood sugars over two to four hours.

When is a correction factor used?

- When your blood sugar is **higher than your target blood sugar before a meal.**
- When your blood sugar is **higher than your target blood sugar, two hours after a meal.**

Keep in mind

- This is an estimate.
- It may need to change as your baseline insulin (long acting) dose changes.
- Expect variations. Sometimes one unit of insulin will lower your blood sugars by more, and other times one unit of insulin will lower your blood sugars by less.

How do I calculate my correction factor?

1. Add up all insulin taken in the day (long acting and rapid acting). This is called your Total Daily Dose (TDD).
2. Divide 100 by your TDD. The result is your correction factor.

Tom wants to calculate his correction factor.

1. Daily insulin dose:

   10 units of rapid-acting insulin at breakfast,

   10 units of rapid-acting insulin at lunch,

   10 units of rapid acting insulin at dinner and

   20 units of basal insulin at bedtime.

2. Total daily dose (TDD): 10 + 10 + 10 + 20 = 50

3. Correction factor = 100 ÷ 50

4. Correction factor = 2

In this example, one unit of rapid acting insulin will lower Tom's blood sugar by 2 mmol/l over the next two to four hours.

If Tom's blood sugar was 10 mmol/l, 1 unit of rapid- acting insulin should drop his blood sugars down to 8 mmol/l and 2 units of rapid-acting insulin should drop his blood sugars down to 6 mmol/l.

My total daily dose is:

____ + ____ + ____ + ____ = ____

My correction factor is: 100 ÷ ____ = ____

One unit of rapid acting insulin will lower my blood sugar by ____ mmol/L over the next two to four hours.

How do I use the correction factor?

When choosing a dose of rapid acting insulin, thinking about blood sugar levels before you eat and the food you are going to eat is always important.

When your blood sugar is higher than your target blood sugar before a meal:

If your blood sugar is above your target blood sugar before a meal, you may decide to take extra insulin to correct your blood sugar and get you back into a better range. To decide how much **extra insulin** you need, you will use a correction factor.

Discuss with your health care team what blood sugar target is best for you.

1. Count your carbohydrates and divide by your insulin to carb ratio, to figure out the amount of insulin you need for the meal.

2. Test your blood sugar. If your blood sugar is higher than your target blood sugar, calculate how much correction insulin you need using your correction factor.

3. Add the meal insulin and correction insulin together to determine the dose of insulin needed at that time. This dose will help you get back to target within 4 hours.

My target blood sugar in the morning is :

My target blood sugar before a meal is :

Example

Tom's current blood sugar is 12. His blood sugar target is 6. His correction factor is 2.

$$(12 – 6) ÷ 2 = 3$$

Tom needs to take 3 extra units of rapid-acting insulin to correct his high blood sugar.

Tom has calculated that his insulin to carb ratio dose for breakfast is 10 units and his correction insulin dose is 3 units

$$10 + 3 = 13$$

Tom needs to take a total of 13 units of rapid-acting insulin for breakfast.

Things to consider
- How your insulin works (insulin action and duration of action);
- The type of meal you ate (e.g.: high fat carbohydrate meal vs. high fibre, low fat carbohydrate meal);
- Is it the type of meal that makes your blood sugar higher than usual for a longer time than usual; or
- Is it the type of meal where your blood sugar returns to normal within the two hours?

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Your healthcare team is available to answer your questions. Do not hesitate to discuss details about your health, or your return home.

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