Rapid Acting Insulin Dose Calculation

<table>
<thead>
<tr>
<th>Target Blood Glucose</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity</td>
<td>(Hyperglycemia Correction Factor)</td>
</tr>
<tr>
<td>ICR</td>
<td></td>
</tr>
</tbody>
</table>

Circle one: **Full unit dosing** or **half-unit dosing**

All of these values will come from your diabetes doctor.

**Blood Glucose Correction Dose**

\[
\text{(Patient's Blood Glucose) \times (Sensitivity factor) \div \text{(target BG)}}
\]

**Insulin to Carbohydrate Dose**

\[
\text{(total carbs in meal)} \div \text{(ICR)}
\]

**Rounding Rules:**

- **Full Unit rounding:**
  - 0-0.49 rounds to 0
  - 0.5-0.99 rounds to 1
- **Half unit rounding:**
  - 0.1-0.25 rounds to 0
  - 0.26 to 0.75 rounds to 0.5
  - 0.76-0.99 rounds to 1
Rapid Acting Insulin Dose Calculation

**What is it?**

- The insulin sensitivity formula is used to calculate rapid acting insulin doses. It uses three pieces: The **target blood glucose**, the insulin **sensitivity** and the **insulin to carbohydrate ratio** or **ICR**.
- The **target blood glucose** is the number to which the formula should lower the blood glucose after insulin is given.
- The **sensitivity** takes into consideration how much 1 unit of insulin is expected to lower the child’s blood glucose
  - Most often used for dosing at meals and snacks
  - May also be used to clear ketones and for sick day management.
- The **insulin to carbohydrate ratio** takes into consideration how much a certain amount of carbohydrate is expected to raise the blood sugar.

**How does it work?**

**Correction Dose + Carbohydrate Dose = total mealtime insulin dose**

How to calculate a **correction dose**:

\[
BG \text{ (from glucometer)} - \text{Target BG (from Endo)} \div \text{Sensitivity* (from Endo)} = \text{Correction dose (units)}
\]

How to calculate a **carbohydrate dose**:

\[
\text{Total carbohydrate eaten} \div \text{ICR (insulin to carbohydrate ratio)} = \text{Carbohydrate dose (units)}
\]

**Example:**

ICR is 1 unit of insulin per 15 grams of carbohydrate.
Target BG is 130 and sensitivity* is 50.

Mealtime Blood glucose is 199 and the patient eats 79 grams.

**Step 1: Calculate correction dose**

\[
BG - \text{Target BG} \div \text{Sensitivity (Hyperglycemia Correction Factor)} = \text{Correction dose (units)}
\]

199 - 130 = 69 \ this means the patient’s blood glucose is 69 points above target BG.
69 ÷ 50 = 1.38 units \ this is your correction dose.

**Step 2: Calculation of carbohydrate dose**

79 grams of carbohydrate ÷ 15 (ICR) = 5.2 units

**Step 3: Add correction dose to carbohydrate dose, then round at the end.**

1.38 units + 5.2 units = 6.58

**Step 4:** Round. This patient would get 6.5 units if dosing in half units, 7 units if dosing in full units.