Bolus Wizard®
Step-by-step guide
The Bolus Wizard® is an optional function on the Paradigm® Veo™ insulin pump which, together with the carbohydrate estimation and current blood glucose (BG) value, can suggest meal doses and correction doses of insulin. The pump gives a bolus suggestion to the pump user, who can choose to accept or change the dose as necessary.

The pump user and his/her healthcare team must go through the Bolus Wizard® settings carefully to ensure that the settings are adjusted to the individual. The initial settings in the Bolus Wizard® are only default settings and MUST NOT be viewed as any sort of recommendation.

By using the Bolus Wizard® it is possible to reduce the number of correction boluses and prevent miscalculations1. It is also simple to use.

Explanation and calculation of the parameters in the Bolus Wizard®

**Daily total**
The Daily total is the amount of insulin used per day, i.e. the sum of the bolus and basal dose over 24 hours. A simple way of finding out the Daily total is to go into the Function menu and select Daily totals. If you select Daily average, the pump automatically calculates the average Daily total for the number of days you choose, e.g. 14 days.

This parameter is not entered in the Bolus Wizard®. It is needed to calculate other parameters such as your carbohydrate ratio and insulin sensitivity.

**My Daily Total:** [ ] insulin units/day

**Carbohydrate ratio**
The carbohydrate ratio indicates how many grams of carbohydrates are covered by one unit of insulin, i.e. how many grams of carbohydrates you can eat per unit of insulin. In order to work out the carbohydrate ratio, the 500 rule is usually applied, which runs as follows:

\[
\text{Carbohydrate ratio} = \frac{500}{\text{Daily Total}} = \text{number of grams of carbohydrates/unit of insulin}
\]

The carbohydrate ratio will be individual, as the Daily total varies for different patients.

**Enter your Carbohydrate ratio:**

With the Paradigm® Veo™ insulin pump you have the option of entering different carbohydrate ratios for different times of day. Some patients, for example, require more insulin in the morning because of insulin resistance. Please talk to your healthcare team if this applies.

It can be a good idea to update the calculation of the carbohydrate ratio at regular intervals, particularly if changes are made to your insulin dosage.

**Insulin sensitivity**
Insulin sensitivity indicates the drop in blood glucose level (mmol/l) caused by each unit of insulin taken. In order to work out the insulin sensitivity, the 100 rule is applied, which runs as follows:

\[
\text{Insulin sensitivity} = \frac{100}{\text{Daily Total}} = \text{number (mmol/l)/unit of insulin}
\]

The insulin sensitivity will be individual, as the Daily total varies for different patients.

**Enter your Insulin sensitivity:**

With the Paradigm® Veo™ insulin pump you have the option of entering different insulin sensitivities for different times of day. Please talk to your healthcare team for more information.

It can be a good idea to update the calculation of the insulin sensitivity at regular intervals, particularly if changes are made to your insulin dosage.

**Blood glucose target**
The blood glucose target is the blood glucose you aim for before a meal and two hours after a meal. This is given on the pump as a range. The pump will use this range to calculate the correction dose. The blood glucose target is the number used to correct up to if the BG is below target, and down to if the BG is above target. The pump allows 8 different blood glucose targets to be set over the course of the day.

**Enter your blood glucose target here:** [ mmol/l ]

**Default setting is 5.6-5.6 mmol/l**

**Chosen target range**

**Negative correction dose** - BG below target range

**No correction dose** - BG within target range

**Correction dose** - BG above target range

The Bolus Wizard® uses one of these possible alternatives to calculate the bolus dose. The choice is based on the blood glucose value which is entered manually or received from the CONTOUR® LINK BG meter. Once the blood glucose value is set, the amount of carbohydrates can be entered. You will now get a suggestion for the amount of insulin that is needed based on the entered value.
Active insulin (Insulin onboard)

Active insulin is the amount of insulin that remains from the previous bolus dose. The active insulin time indicates the length of time the insulin has a blood glucose-lowering effect in your body after you take a bolus dose. This time can be adjusted from 2 to 8 hours. Talk to your healthcare team about the insulin time you should set.

My active insulin time: __________ hours

When the pump suggests an insulin dose, it will take into account the amount of active insulin that remains from the previous dose or doses.

Note:
- The active insulin on board only affects the estimated correction dose
- The active insulin on board does not reduce the meal insulin portion

Suggested settings for active insulin time:
- Adults: 4-5 hours
- Children: 4-5 hours
- Pregnancy: 3-4 hours

Bolus calculation

The Bolus Wizard® suggests a bolus dose based on the following:

1. Personal settings: carbohydrate ratio and insulin sensitivity
2. Active insulin
3. Blood glucose value
4. Grams of carbohydrates

The following table contains information about what limits can be set in the pump and what the default settings are. It is important to discuss the settings that are appropriate for you with your healthcare team.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Limits and (default settings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbohydrate ratio</td>
<td>1 - 200 gram/unit of insulin (15 gram/unit of insulin)</td>
</tr>
<tr>
<td>Insulin sensitivity</td>
<td>0.5-22.2 mmol/l/unit of insulin (2.8 mmol/l)</td>
</tr>
<tr>
<td>Blood glucose target range</td>
<td>3.3-13.9 mmol/l (5.6-5.6 mmol/l)</td>
</tr>
<tr>
<td>Blood glucose unit</td>
<td>mmol/l (mg/dl)</td>
</tr>
<tr>
<td>Carbohydrate ratio</td>
<td>Gram (exchange)</td>
</tr>
<tr>
<td>Active insulin time</td>
<td>2 – 8 hours (6 hours)</td>
</tr>
</tbody>
</table>
The following is a step-by-step guide to the Bolus Wizard®. Follow the instructions and use the screen shots as a guide.

**Step 1**
From the MAIN menu choose “Bolus” and press ACT.

**Step 2**
From the Bolus menu choose “Bolus SETUP” and press ACT.

**Step 3**
From the Bolus SETUP menu choose “Bolus WIZARD SETUP” and press ACT.

**Step 4**
From the Bolus WIZARD SETUP menu choose “EDIT SETTINGS” and press ACT.

**Step 5**
From the Edit settings menu choose “WIZARD” and press ACT.

**Step 6**
From the Bolus WIZARD ON/OFF menu choose “ON” and press ACT. Afterwards, please enter other information for all requested data: Carb Units, Carb ratio, BG unit, Sensitivity, BG target, Active Insulin Time.

Always check the programming performed before using the Wizard. Use the “REVIEW SETTINGS” line in the menu entitled “WIZARD SETUP”.

Reviewing settings

---

**Connecting the blood glucose meter to Paradigm® Veo™**

Using the Bolus Wizard® with the Bayer CONTOUR® LINK blood glucose meter:

- If you use the CONTOUR® LINK blood glucose meter, your capillary glucose measurements are automatically sent to the Paradigm® pump by wireless transfer.

**Step 1**
From the UTILITIES menu scroll down and choose “CONNECT DEVICES” and press ACT.

**Step 2**
From the Device Options menu choose “METERS” and press ACT.

**Step 3**
From the METER OPTION menu choose “ON” and press ACT.

**Step 4**
From the METER ID menu choose “ADD ID” and press ACT.

**Step 5**
Enter the SERIAL NUMBER® of your Bayer CONTOUR® LINK meter using ACT and press ACT after each digit to confirm.

When using the Bayer CONTOUR® LINK with the Bolus Wizard® the blood glucose reading will be used by the Bolus Wizard® for 15 minutes after a test, so you don’t need to manually enter this value.

For more information, refer to your meter instruction manual.

*The serial number can be found on the back of the CONTOUR® LINK blood glucose meter.*
Starting to use the Bolus Wizard®

Step 1
Measure your blood glucose. Use the connected CONTOUR® LINK meter that transfers the blood glucose directly into the pump (see page 9).

Step 2
Press the B button or enter “Use Bolus Wizard” in the bolus menu.

Step 3
Enter your blood glucose. If you are using the CONTOUR® LINK blood glucose meter, this is done automatically. Press ACT.

Step 4
Enter the estimated amount of carbohydrates (gram). Press ACT.

Step 5
You see EST TOTAL. This is the pump’s suggestion of insulin dose.

Step 6
Press ACT to continue if you want to take a bolus. Press ESC if you change your mind.

Step 7
The suggested insulin dose now flashes in the display. You can change this with the arrow up or arrow down button. Press ACT to accept the insulin dose.

Using the Bolus Wizard® function

With the Bolus Wizard®, you can:

• Deliver a Correction Bolus: enter the blood glucose value only
• Deliver a Meal Bolus: enter the amount of carbohydrates only
• Combine both (meal + correction bolus): enter both blood glucose value and amount of carbohydrates.

Example:
Blood glucose value of 7.1 mmol/l and carbohydrate amount = 40 g

Step 1
Press B button or 3 times to access the Bolus Wizard.

Step 2
Use  to enter BLOOD GLUCOSE in mmol/l and press ACT.

Step 3
Use  to enter MEAL CARBOHYDRATES and press ACT.

Step 4
Use  to scroll through your ESTIMATE DETAILS.

If you decide to adjust the Bolus, press ACT and use  to adjust, then press ACT to administer the Bolus.
Examples

Below you will find some examples on how your pump will calculate the bolus dose.

<table>
<thead>
<tr>
<th>Grams of carbohydrates</th>
<th>Low blood glucose and food intake</th>
<th>Correction bolus and no food intake</th>
<th>High blood glucose and food intake</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>60</td>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>Carbohydrate ratio (number of carbohydrates/unit of insulin)</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Insulin sensitivity ((mmol/l)/ unit of insulin)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Blood glucose (mmol/l)</td>
<td>4,4</td>
<td>16,5</td>
<td>11</td>
</tr>
<tr>
<td>Blood glucose target range (mmol/l)</td>
<td>5-6</td>
<td>5-6</td>
<td>5-6</td>
</tr>
<tr>
<td>Food calculation (units of insulin)</td>
<td>(60/10) = 6</td>
<td>(16,5/6) = 2.75</td>
<td>(5-6)/2 = 2.5</td>
</tr>
<tr>
<td>Correction calculation (units of insulin)*</td>
<td>(4,4-5)/2 = -0,3</td>
<td>(16,5-6)/2 = 5,25</td>
<td>(11-6)/2 = 2,5</td>
</tr>
<tr>
<td>Active insulin (units)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Calculated bolus (units)**</td>
<td>6+(-0.3) = 5.7</td>
<td>5,25 +0–1 = 4,25</td>
<td>6+2,5-1 = 7,5</td>
</tr>
</tbody>
</table>

* If your current blood glucose is below your blood glucose target range, the correction calculation will take the low value into the calculation, and the high value if your blood glucose is above target range.

**If your current blood glucose value is below your blood glucose target range, the Bolus Wizard® will not take the active insulin into account in the calculation.
The different bolus types

The Bolus Wizard®, is the function in the pump that can suggest insulin doses according to your blood glucose levels and carbohydrate intake. The suggested dose can be given in three different ways in the Paradigm® pumps. The bolus type you choose depends on a number of different factors, such as rapidly or slowly absorbed carbohydrates or the stomach emptying rate, which is affected by the amount of fat and fibre in the food. A description of the three bolus types is given below.

Normal bolus
The pump delivers the whole bolus in one go. Normal bolus is very suitable for ordinary meals, snacks, fruit and for reducing high blood glucose levels.

Square Wave® bolus
Square Wave® bolus gives you the possibility of delivering your insulin dose over a period of time, e.g. 3 units of insulin over 2 hours (max 8 hours). This bolus type can be used if you are going to be sitting and eating for a long time or for extended snacking. It can also be used for those who have delayed digestion (gastroparesis).

Dual Wave® bolus
Dual Wave® bolus is a combination of Normal and Square Wave® bolus. A portion of the dose is delivered immediately and the rest over a period of time. You determine yourself how the dose is divided as a percentage (e.g. 70% Normal bolus and 30% Square Wave® bolus). You also determine how long the Square Wave® should last. This type of bolus is suitable for all kind of meals that contains a combination of carbohydrate and fat. The fatter the food, the more of the dose should be delivered in the Square Wave® portion and also the longer the duration.

Proven to be the most effective in combined meals.
A study has shown that Dual Wave® bolus is the most effective for meals with high fat content and large amount of carbohydrates. Compared with repeated administration of Normal bolus, Dual Wave® bolus resulted in lower blood glucose levels up to four hours after the meal.

The contact details for Medtronic Diabetes Product support are given below; do not hesitate to contact us if you have any questions.

**Paradigm® insulin pump**

If you have any questions about your insulin pump, please contact Medtronic Diabetes Product support.

**Name of pump:**

**Serial number of pump:**

**Date of purchase (month/year):**

**Product support 24/7**

**Telephone number:**

**E-mail:**

**Your local Medtronic specialist**

**Name:**

**Telephone number:**

**E-mail:**

---

**Europe**

Medtronic International Trading Sarl
Route du Molliau 31
Case Postale
CH-1131 Tolochenaz
Tel: +41 (0)21 802 70 00
Fax: +41 (0)21 802 79 00

**United Kingdom/Ireland**

Medtronic Limited
Building 9/Crosley Green Business Park
Hatters Lane
Watford
Hertfordshire WD18 8WW
www.medtronic.co.uk
Tel: +44 (0) 1923 212213
Fax: +44 (0) 1923 241004