

OPTIMIZING BOLUS INSULIN 102

UNDERSTANDING BOLUS DELIVERY



Why are boluses so important?

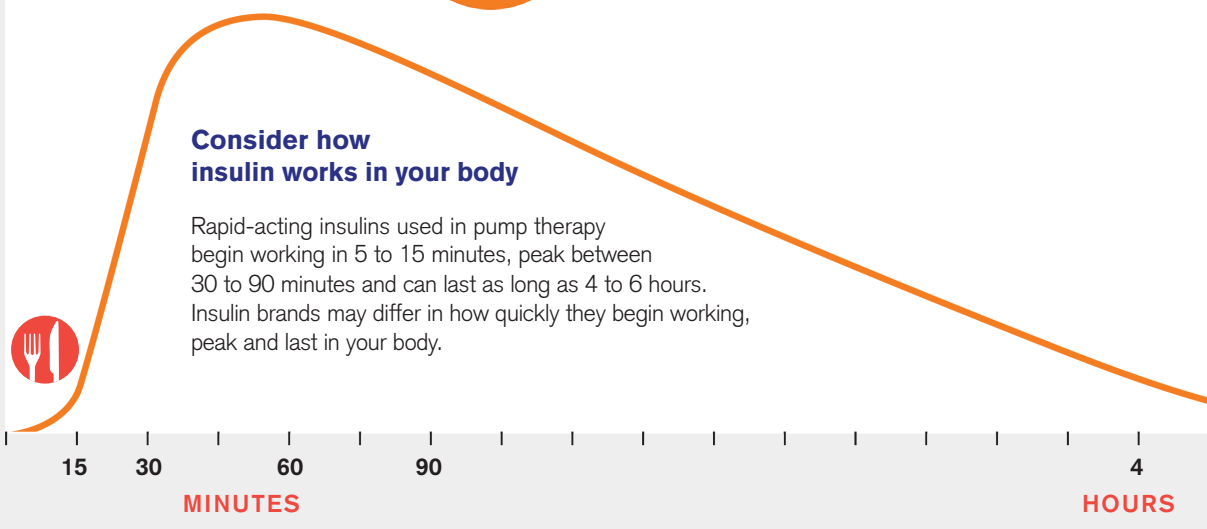
The pancreas releases a burst of insulin at mealtimes in response to the amount of carbohydrate you eat. With diabetes, your pancreas can no longer produce the insulin you need. So, you must take mealtime insulin to match the amount of carbohydrate you eat. With insulin pump therapy, this burst of insulin is known as a bolus.¹

Bolus calculators on insulin pumps suggest a bolus amount based on your blood glucose (BG) level and carbohydrate intake. The pump also takes into consideration previous boluses to ensure you do not take too much insulin.²

When should you bolus?²

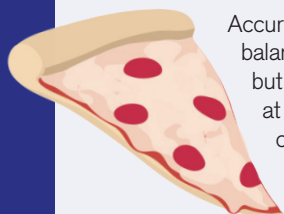


INSULIN ACTION



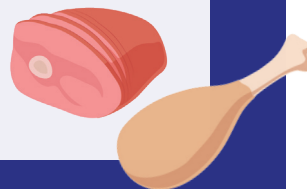
- **When should you take your bolus before meals?**
 - When possible, take your bolus 15–20 minutes before a meal for improved BG after meals.
- **Should I worry about previous boluses?**
 - The bolus calculator is equipped to subtract for insulin on board (IOB) from your previous bolus. This can limit the risk of “stacking” or overlapping your boluses.

Consider the type of food you are eating



Accurate carb counting and eating balanced meals at home can be easy, but what about eating out? Dining out at a restaurant or gathering can be challenging. You may find yourself eating different foods under very different situations.

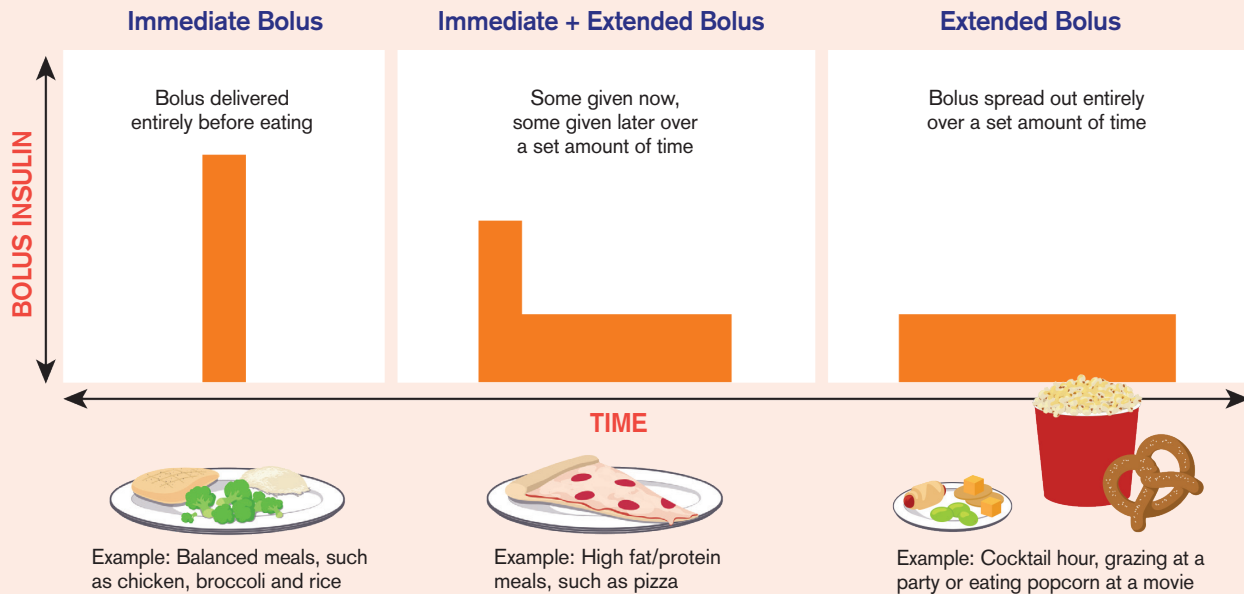
After eating out, it is not uncommon to see variable trends in BGs, especially if the meal is higher in fat, protein and carbs. Meals like this could cause BGs to be below or at target initially, then rise above target hours later. You can accommodate for different types of food by using the advanced bolus feature on your pump.



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What types of boluses are available?

Insulin pumps have the ability to provide different bolus delivery options, such as immediate, extended or a combination of the two.



How do you decide which type of bolus to use?

Start by looking for patterns. How are your BGs reacting to what you have eaten? If out of target BGs are not related to miscounting carbs, then consider the types of foods you are eating. High fat/protein meals could elevate BG several hours after eating. Refined and processed foods, like white bread and corn flakes, can cause an early, quick rise in BG.

Bolus suggestions for different meals:³

| High Fat | Protein | High Glycemic Index (GI) |
|---|--|--|
| <ul style="list-style-type: none"> For meals ≥ 40 g of fat, consider increasing your total bolus dose 30–35%. Try setting an extended bolus 50% now, 50% over 2–2.5 hours as a starting point. | <ul style="list-style-type: none"> For protein-only meals with ≤ 75 g of protein, insulin may not need to be adjusted. For meals with at least 30 g carbohydrate and 40 g protein, consider increasing your total bolus by 15–20%. | <ul style="list-style-type: none"> High GI foods may need more insulin immediately and less later. Consider dosing 20 minutes or more before eating. |

After trying these bolus suggestions monitor BGs and make adjustments for next time. Discuss alternate bolus options with your healthcare provider.

REFERENCE

1. Wolpert, H. *Smart Pumping for people with diabetes*. American Diabetes Association. 2002. 2. Bolderman, K. *Putting your patients on the pump*. 2nd ed. American Diabetes Association. 2013. 3. Bell KJ, Smart CE, Steil GM, Brand-Miller JC, King B, et al. Impact of fat, protein, and glycemic index on postprandial glucose control in type 1 diabetes: implications for intensive diabetes management in the continuous glucose monitoring era. *Diabetes Care*. 2015;38:1008-1015.

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