Diabetes and Diabetes Technology Updates

A Presentation for School Nurses

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Emily Lyro, RN, MSN, CDCES, BC-ADM

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Learning Objectives

-Differentiate diabetes technology including CGM and AID systems

-Describe how CGM's measure glucose and explain key metrics

-Review insulin pump therapy and compare advantages and limitation

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42 Factors that affect BG

Food

↑↑ 1. Carbohydrate quantity
→↑ 2. Carbohydrate type
→↑ 3. Fat
→↑ 4. Protein
→↑ 5. Caffeine
↓↑ 6. Alcohol
↓↑ 7. Meal timing
↑ 8. Dehydration
? 9. Personal microbiome

Medication

→↓ 10. Medication dose
↓↑ 11. Medication timing
↓↑ 12. Medication interactions
↑↑ 13. Steroid administration
↑ 14. Niacin (Vitamin B3)

Activity

→↓ 15. Light exercise
↓↑ 16. High-intensity and moderate exercise
→↓ 17. Level of fitness/training
↓↑ 18. Time of day
↓↑ 19. Food and insulin timing

Biological

↑ 20. Insufficient sleep
↑ 21. Stress and illness
↓ 22. Recent hypoglycemia
→↑ 23. During-sleep blood sugars
↑ 24. Dawn phenomenon
↑ 25. Infusion set issues
↑ 26. Scar tissue and lipodystrophy
↓↓ 27. Intramuscular insulin delivery
↑ 28. Allergies
↑ 29. A higher glucose level
↓↑ 30. Periods (menstruation)
↑↑ 31. Puberty
↓ 32. Celiac disease
↑ 33. Smoking

Environmental

↑ 34. Expired insulin
↑ 35. Inaccurate BG reading
↓↑ 36. Outside temperature
↑ 37. Sunburn
? 38. Altitude

Behavioral & Decision Making

↓ 39. Frequency of glucose checks
↓↑ 40. Default options and choices
↓↑ 41. Decision-making biases
↓↑ 42. Family relationships and social pressures

Beta Bionics

Decision per day:

Studies show that a person with Type 1 diabetes makes an average of 120-300 extra health related decisions/day Managing your type 1 diabetes and mental health | Ohio State Health & Discovery

-that's roughly 1 decision every 5 minutes while awake

-these decisions revolve around treatment, self care, nutrition, activity, nutrition, safety, etc.

Why does this matter? The mental load is significant!

Anxiety

Depression

Fatigue

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WHATS NEW

Inhaled Insulin

Afrezza

AFREZZA (insulin human) Inhalation Powder is the only FDA-approved ultra rapid-acting inhaled mealtime insulin. It is indicated to improve glycemic control in children, adolescents, and adults ages 6 years and older with diabetes. AFREZZA is delivered as a dry powder through a small breath-activated inhaler with an onset of action of approximately 12 minutes.[1]

- **Ultra fast acting inhaled insulin**
- **Needle free**
- **Round AFREZZA units down to the closest cartridge size**
- **Starting doses are available in 4, 8, 12, and 16 units**

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Afrezza:

Action time:

•Begins lowering blood sugar within about **12 minutes** after inhalation medxdrg.com+

•This is faster than most subcutaneous rapid-acting analogs (RAA), which typically start lowering glucose in 15–20 minutes afrezzahcp.com.

Time to peak effect

•about 35–45 minutes afrezzahcp.com+1.

Duration of action

•Effect typically lasts 1.5 to 3 hours after dosing, depending on the dose medxdrg.com+1.

•LESS LOWS: This shorter duration more closely matches physiologic insulin secretion, potentially reducing the risk of late post-meal hypoglycemia afrezzahcp.com

Baqsimi

Glucagon is a naturally occurring hormone that works by telling your liver to bring blood sugar back up. The glucagon in BAQSIMI is the same active ingredient that has been around for decades. In a clinical study, BAQSIMI was shown to work as well as glucagon for injection to raise blood sugar in adults. BAQSIMI comes in a single dose that is the same for people aged 1 year and older.

BAQSIMI can be used before you pass out. It should still be given in a low blood sugar emergency even if you are passed out, because BAQSIMI does not need to be inhaled. It should be given even if your nose is congested or you have used decongestants.

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How to administer:

1. Call for help
2. Remove the device from the tube
3. Remove shrink wrap
4. Position the person
5. Insert the tip – hold between fingers and thumb.
6. Patient does NOT need to inhale or sniff
7. Deliver the dose
8. Monitor the patient
9. Give fast-acting carbs when they awake,

9

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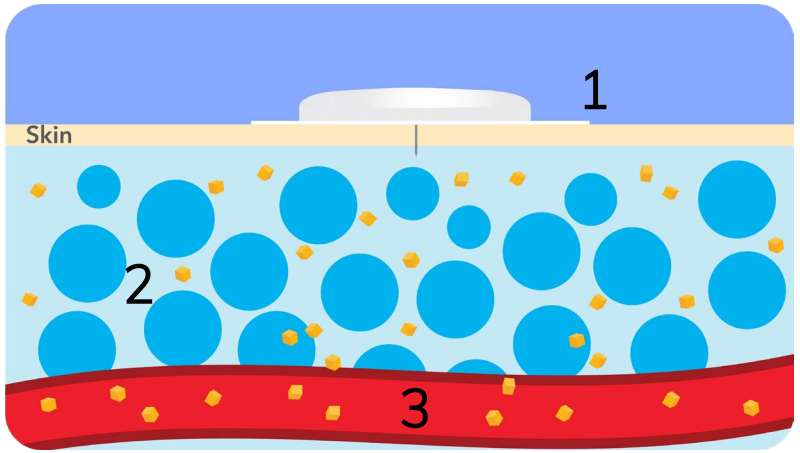
SENSORS

Sensor glucose (SG) vs. blood glucose (BG)

Readings will not always match

Because of how glucose moves, your BG meter and SG readings will be close but will not always match. This difference is common and should be expected.

1	Sensor
2	The sensor measure glucose in the fluid in your body
3	The meter measures glucose in your blood



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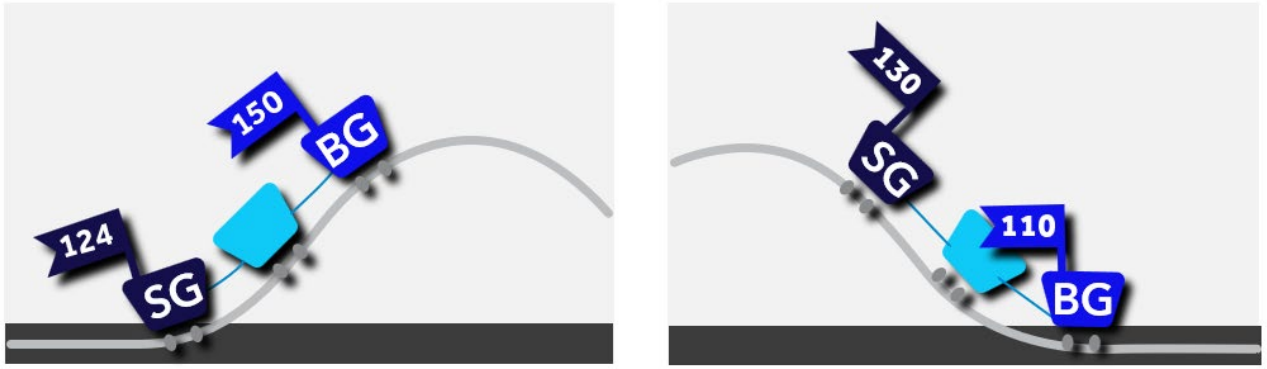
Sensor glucose (SG) vs. blood glucose (BG)

Readings will not always match



You can expect to see larger differences between your SG and BG when glucose levels are rising or falling quickly.

Three key things to remember:

1. Larger differences between SG and BG are common on day 1 of sensor wear.
2. Only enter a BG when it's truly needed—more isn't always better.
3. When in doubt, always rely on a BG for treatment decisions.

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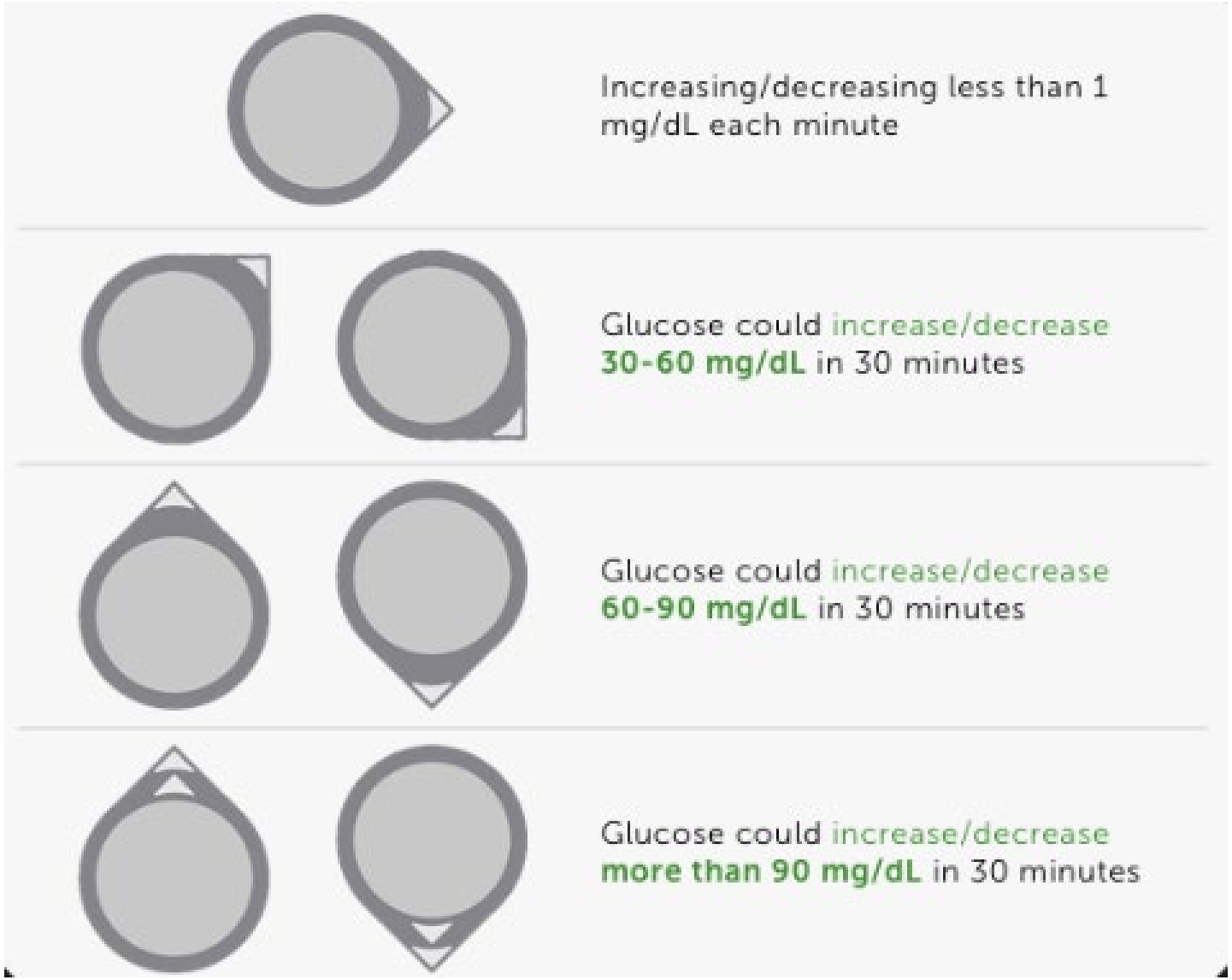
Sensor arrows and meaning:



Pumps: How comfortable are you?

What are the 2 main functions of an insulin pump?

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Minimed Flex

-Targets Automated insulin delivery to 100mg/dl

-smart phone controlled

-New sensor options

-Instinct (15 day wear)

-Simplera (7 day wear)

-Meal Announcements prior to eating

-300 unit capacity

-Rechargeable

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The MiniMed Flex™ system

The MiniMed app Home screen

1 **Icons**

Icons may appear in this location. Tap the icon to see more details

2 **Profile menu**

View information such as the Daily History, CareLink, Summary of therapy and sensor data and the help menu

3 **Device status**

View the status of paired devices and tap the device icon to see more information.

4 **Status banner**

A banner may appear here. Tap the banner for more information and follow steps if needed.

5 **Therapy status**

View your glucose and therapy information. Swipe left for details about your Time in Range.

6 **Trend graph**

View the graph to see your glucose levels over time. Tap on the icons for more information about events, such as insulin doses and carb entries.

7 **Therapy action button**

Access therapy actions such as the Bolus calculator, suspend delivery, or log an event.

8 **Menu bar**

Access your device information, settings, and alert history.

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Get to know the MiniMed Flex™ pump

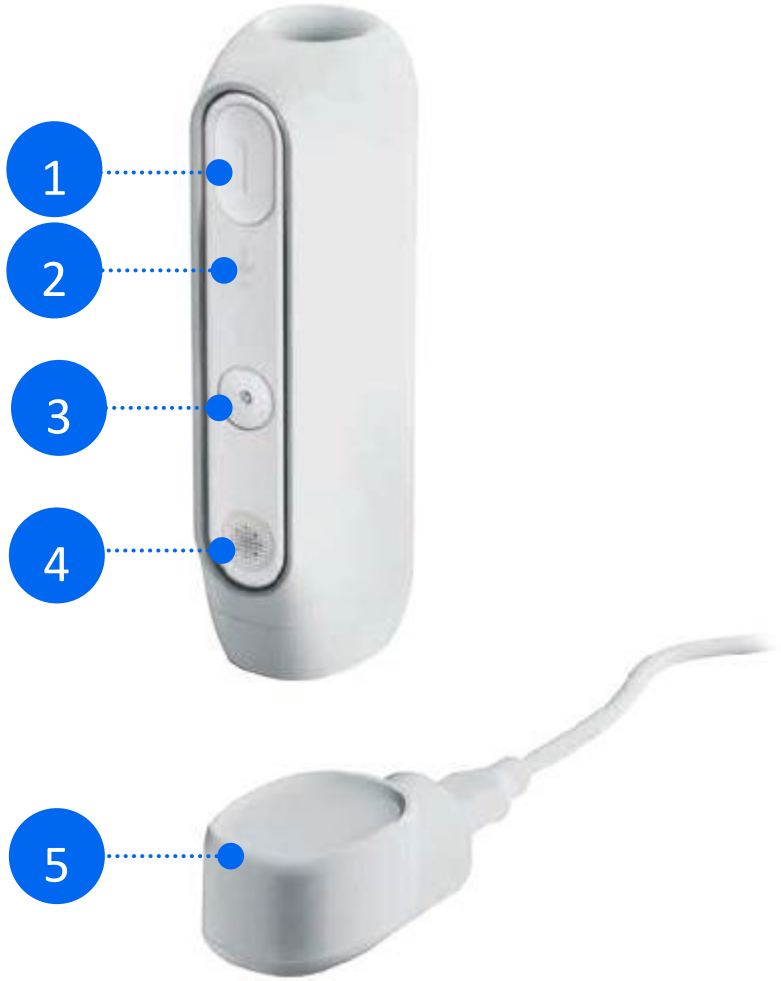
1. Status button
   Check the status of your alerts

2. Low glucose alert arrow
   Lights up when a low glucose alert is occurring

3. Action button
   Initiates pairing with the MiniMed app

4. Speaker
   For audio alerts

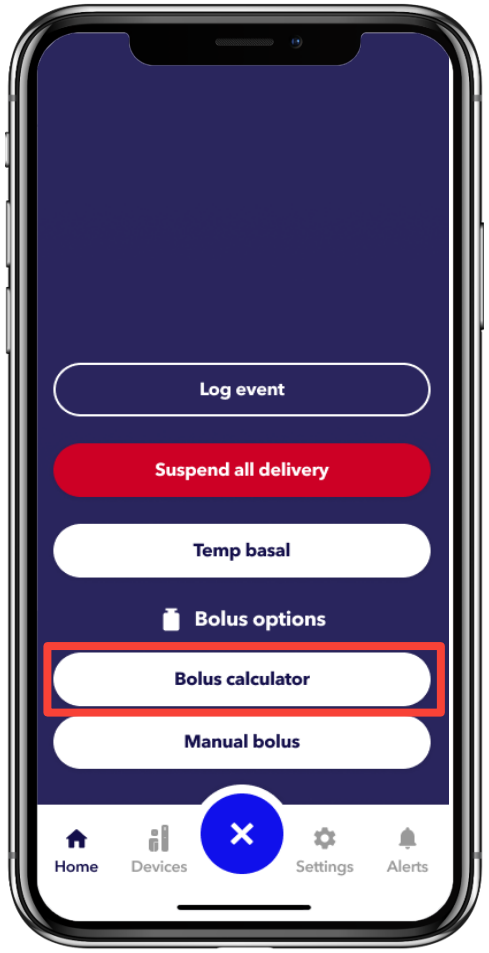
5. Charger
   The pump charger connect to a power source and charges the pump battery



minimed

How to deliver a bolus in Manual mode

Tap the
Therapy Action Button



Tap Bolus Calculator

When you eat carbohydrates or need to bring down a high blood glucose you will deliver a bolus of insulin. Let's learn how:

- Tap the Therapy Action Button
- Tap Bolus calculator
- Enter your Blood glucose value and/or carbs
- Tap Deliver bolus

SmartGuard™ bolus feature

Bolus recommendations in SmartGuard™ mode

When should you bolus?

A bolus should be delivered before meals or snacks that contain carbohydrates

What if you forget?

If you remember within 30 minutes of the meal or snack, deliver a bolus for 50% (or half) of the carbohydrates that you ate

If it has been over 30 minutes, deliver a correction bolus if recommended by the system

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SmartGuard™ mode

Temp Target

What

A temporary fixed target of 150 mg/dL is available to use any time you may be concerned about lows, such as exercise

How

Set the duration of time for Temp Target

When

Consider starting Temp Target 1-2 hours before you begin exercise

When Temp Target is set, auto correction boluses are not delivered.

Consult with your HCP regarding use of the Temp Target

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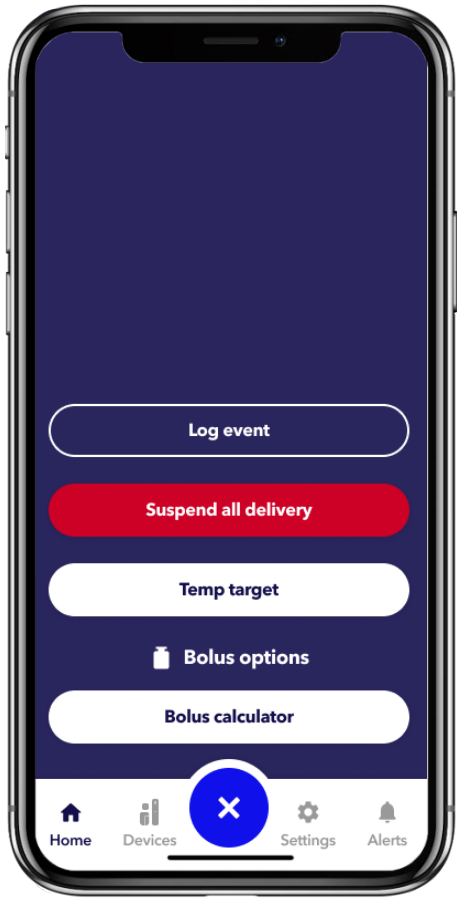
Meet the Therapy Action Button



Tap the
Therapy Action Button

You will come here to:

- Deliver a bolus
- Stop a bolus
- Suspend/Resume Delivery
- Set a Temp target (SmartGuard™ mode)
- Log events

If a students pump stops working during the day what is the best course of action?

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Tidepool closed loop device

-iPhone controlled device
-freestyle libre 3 plus sensor
-unique basal algorithm
-you can announce meals before, during or after
-approved for ages 6 and up

The Twiist App:

1. CGM Status
2. twiist Status
3. Insulin Delivery Status
4. Pump Status / Pump Menu
5. Glucose Chart
6. Glucose History
7. Glucose Prediction
8. Correction Range
9. Active Insulin Chart
10. Current Active Insulin
11. Insulin Delivery Chart
12. Current Basal Rate
13. Bolus Delivery
14. Basal Delivery
15. Active Carbohydrates Chart
16. Current Active Carbohydrates
17. Carb Entry and Meal Bolus
18. Pre-Meal Preset
19. Bolus Entry
20. Workout Preset / Temporary Basal
21. Settings

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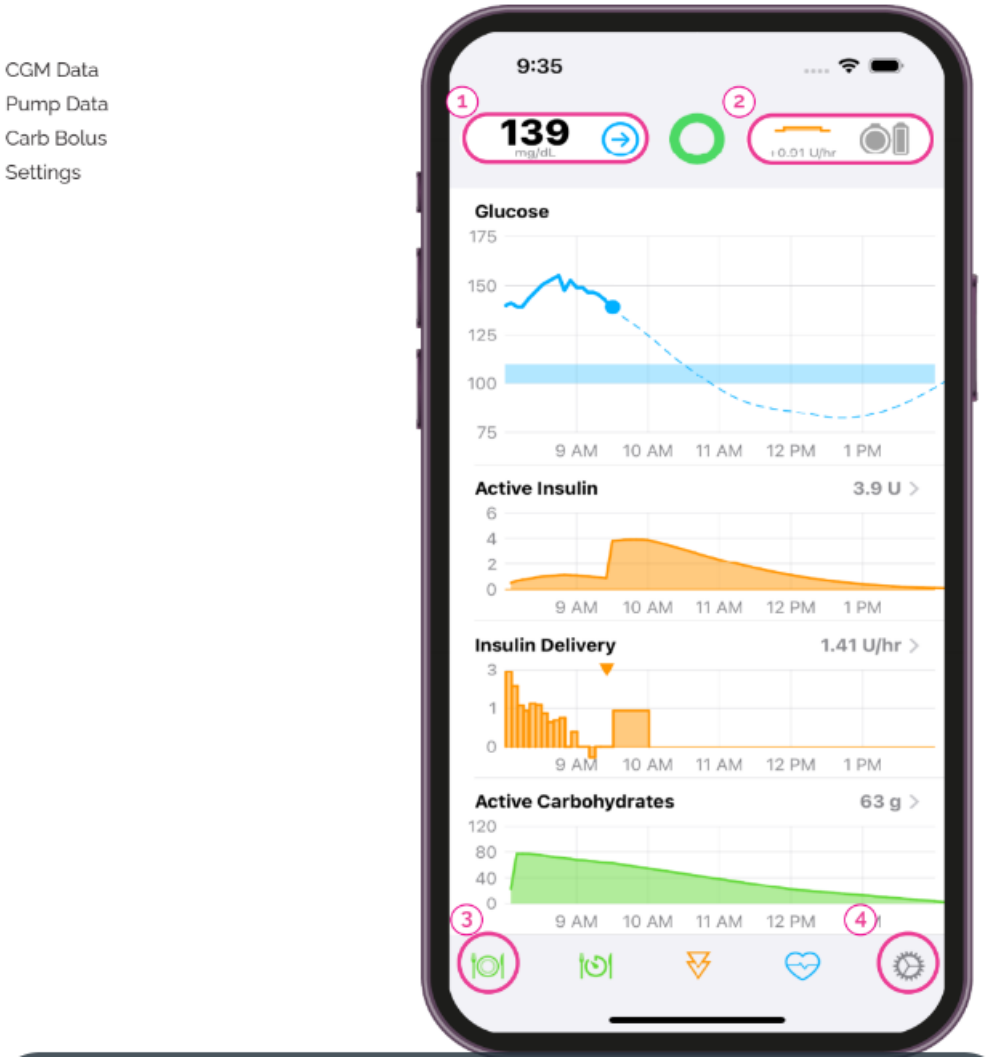
The Four Corners:

1. CGM Data
2. Pump Data
3. Carb Bolus
4. Settings



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Twiist:

Your Role — Estimate amount of carbs and absorption time to help guide twiist. It does not have to be exact!

twiist's Role — Use your estimated carb entry and glucose readings to help determine your insulin needs.

	Food/Drink Type	Absorption Time	Example
🍭	Fast	30 minutes	Juice, fruit, candy, glucose tabs
🌮	Medium	3 hours	Sandwich, mixed meals, protein bar/shake
🍕	Slow	5 hours	Pizza, fried food

- Foods and drinks containing fat or protein can slow absorption time.
- The default emoji is 🌮. It is optional to change the 🌮 icon.
  It's about "this meal acts like 🌮 or 🍕 in my body, not "I ate a taco" or "I ate a pizza".
- Start simple, stay with 🌮 for your meals. Over time, you will learn what works best for you!
- Only enter one emoji per meal. If multiple are entered, the system only uses the selected absorption time of the last emoji entered.

Active Carbohydrates Chart

Sometimes, the absorbed carbs may be higher or lower than what you entered. The twiist AID System tracks how your glucose responds after eating. If your glucose rises more than expected, twiist will show more absorbed carbs. If your glucose rises less, it will show fewer absorbed carbs.

Why would your carb absorption values be different than the number of carbs entered?

- Activity or exercise
- Stress, illness, hormones
- twiist settings like carb ratio or insulin sensitivity might need adjustment
- Inaccurate carb counting

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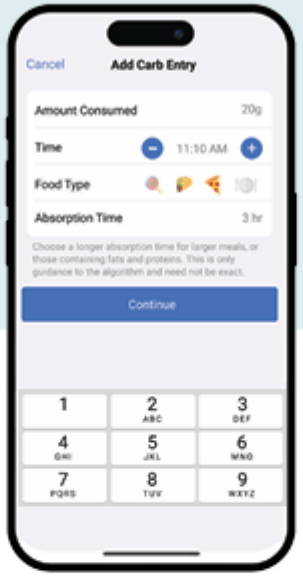
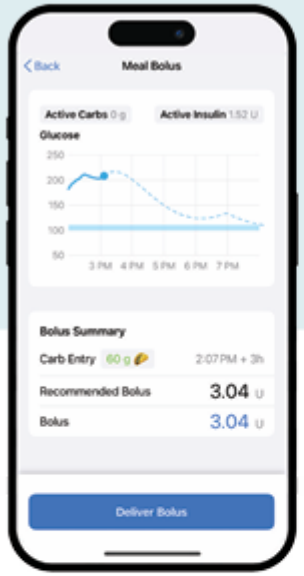
Mealtime with Twiist

To enter a meal, **tap the** 🍽 **button** on your home screen.



1. Enter the number of carbohydrates in your meal
2. Choose an emoji to match your food type
3. Tap Continue

Optional Feature
You have the option to change the meal time and absorption time to truly personalize your meal entry.



4. Confirm the Information and tap Deliver Bolus

Optional Feature
You have the option to change the meal time and absorption time to truly personalize your meal entry.

Food Type emoji represents how fast your food may absorb. Tap the emoji that corresponds to the absorption time of your food.

Absorption Time is determined by the emoji that is chosen. If 30 minutes, 3 hours, or 5 hours does not match your food type, tap Absorption Time to customize it. Use the picker to select a time from 30 minutes to 8 hours, in 30-minute increments. This is just an estimate and does not need to be exact.

Fast:
30 min

Medium:
3 hours

Slow:
5 hours

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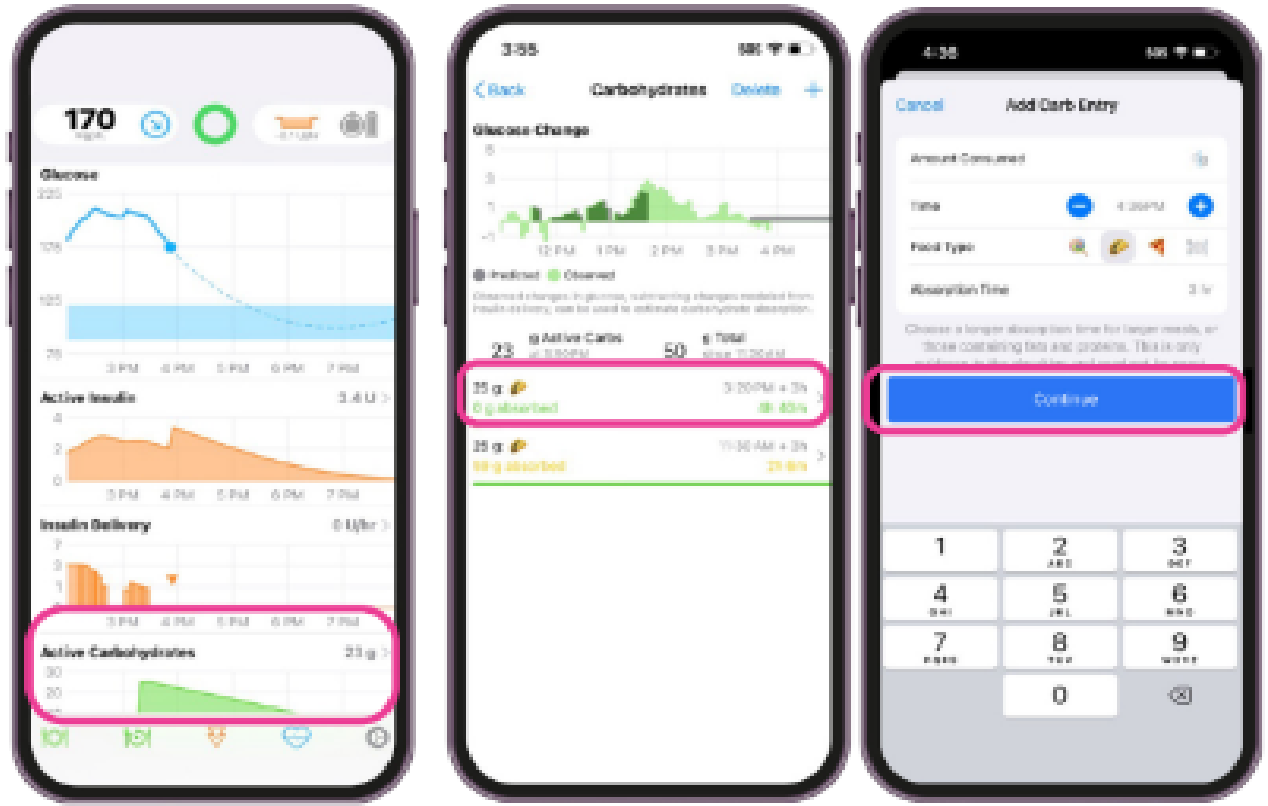
Editing carb entries

When Loop is On, you can edit previously entered carb entries. You may find this helpful when you have planned for specific carbs and those plans change, such as adding on dessert or finishing only half your meal when you entered carbs for the whole thing.

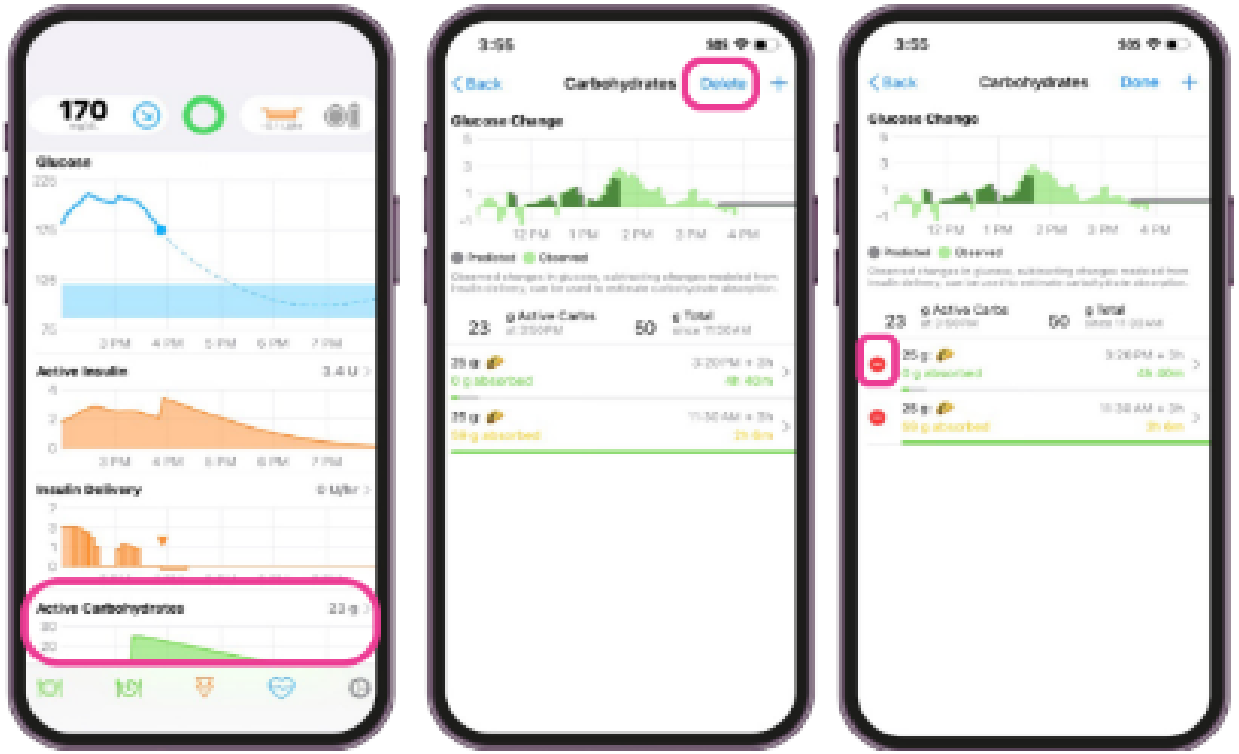


1. Tap on **Active Carbohydrates Chart**
2. Tap the row associated with the carb entry you want to change
3. Tap the value that requires edits and make the appropriate changes:
   - Amount Consumed
   - Time
   - Food Type
   - Absorption Time
4. Tap **Continue**

A bolus may be recommended. If one is recommended, tap **Deliver Bolus**. If one is not recommended, tap **Save without Bolusing**

Deleting carb entries

When Loop is On, you can delete previously entered carb entries. You may need to perform this action when you planned for carbs you did not consume.



1. Tap on **Active Carbohydrates Chart**
2. Tap **Delete**
3. Tap ⊖ next to the active carb you want to delete
4. Tap **Delete**

INFORMATION: Stopping a bolus delivery does not change or adjust the number of carbs entered into the twiist System. If bolus delivery is stopped while in progress, adjust the number of carbs entered to reflect what you consumed to ensure the most effective automated basal insulin delivery and bolus recommendation.

If a students pump is beeping during class, what would be your first action?

A. Check the pump screen for alerts.

B. Ask the student if they feel okay.

C. Follow the student's care plan

D. Ask the student to turn off their alerts for the future

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Omnipod 5

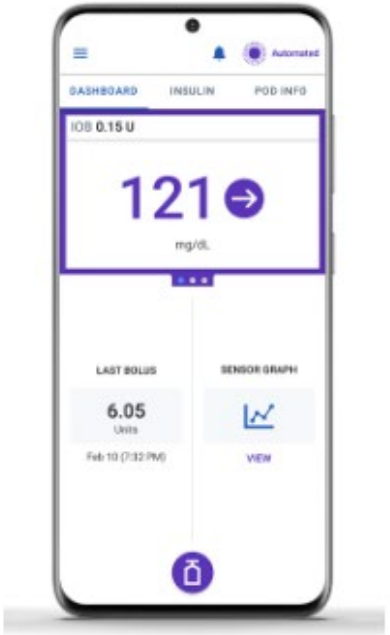
- **Smart Adjust Technology**

Predicts glucose levels up to 60 minutes in the future using your CGM value and trend.

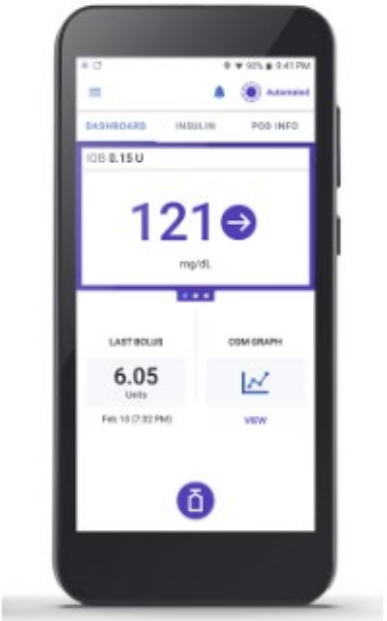
•Adjusts insulin delivery based on a customizable target, ranging from 100 mg/dL-150 mg/dL.

•Automatically increases, decreases or pauses insulin every 5 minutes.

iPhone



Android



Controller
(Android)

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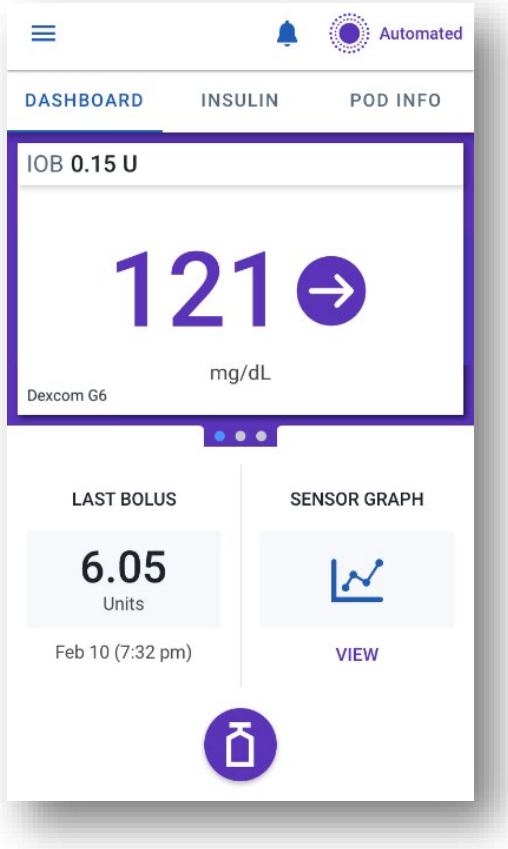
System Modes

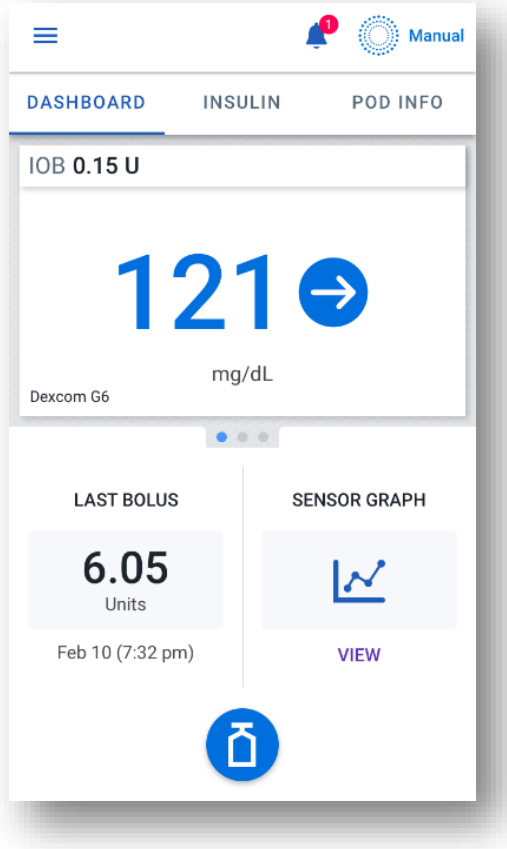
Automated



Automatic adjustment of insulin delivery every 5 mins

Requires active Pod and connected sensor

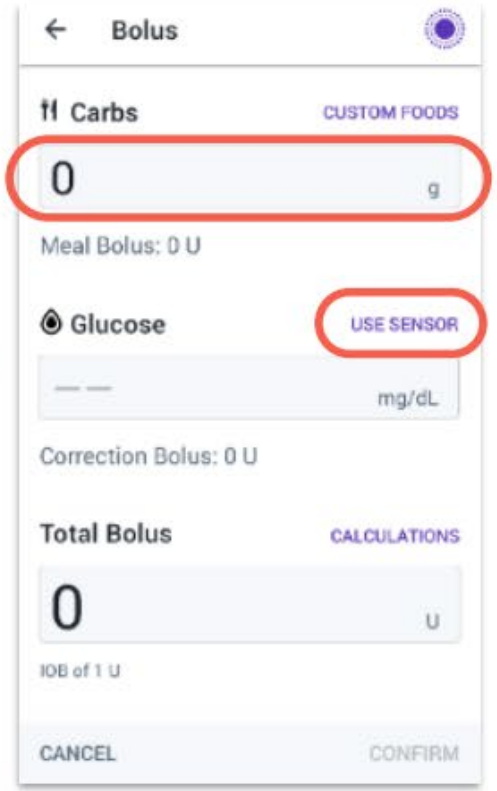
Manual



Delivery of insulin based on programmed basal rates

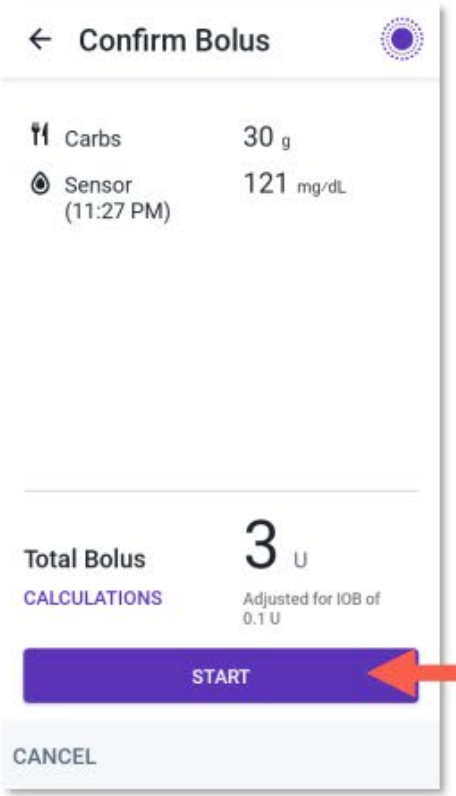
How to bolus – meal with a correction

- Tap **Bolus**



- Enter **Carbs**
- Tap **USE SENSOR**

- Tap **CONFIRM**



- Tap **START**

Starts bolus delivery!

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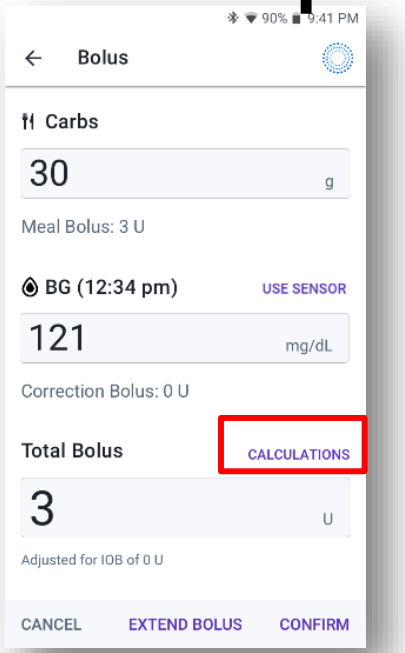
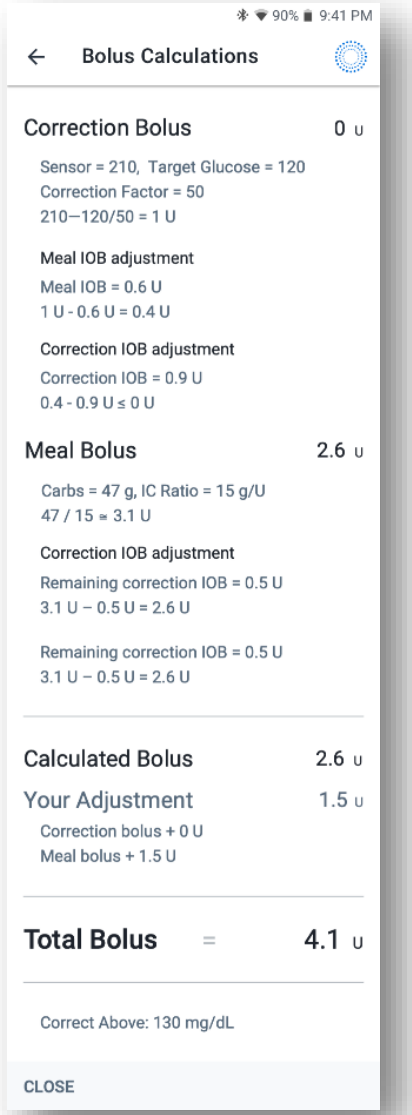
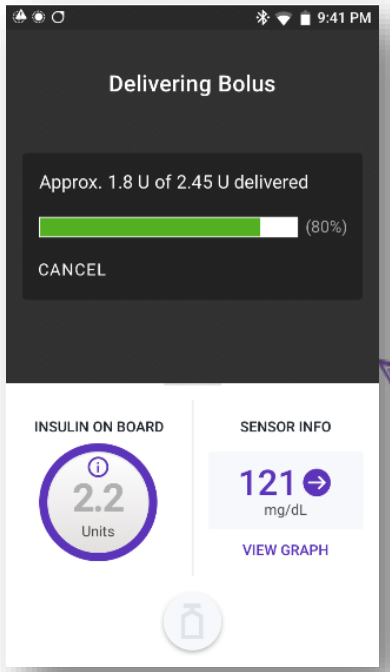
Bolus Tips





- Tapping "calculations" will provide a mathematical breakdown of the suggested bolus

Remember to **bolus** for carbs and high glucose values to tell the system how much your total daily insulin (TDI) needs are



Always look for the progress bar to confirm bolus delivery before navigating away from the Omnipod 5 App

Insulin on board (IOB)

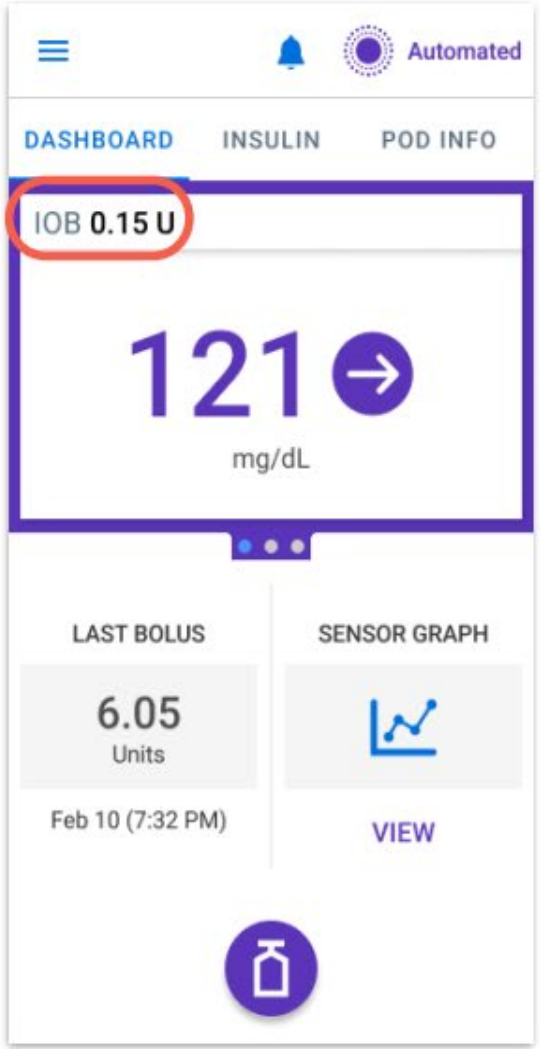
- IOB is insulin that is still active in the body
- IOB is tracked from both basal and bolus delivery

Scenario:

Last bolus
7:32 PM

Slept
8 hours

Wake up
IOB = 0.15 U



What do you do if no sensor is reading to the pump?

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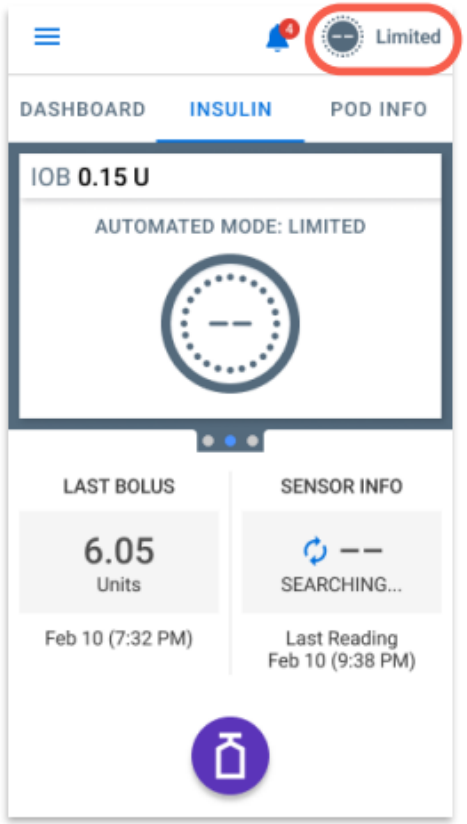
Missing Sensor Values & Automated Mode: Limited (Advisory alarm)

Why does it happen?

The Pod can't talk to sensor.

What should you do?

- Check for line of sight
- If using Dexcom sensor, check Dexcom app



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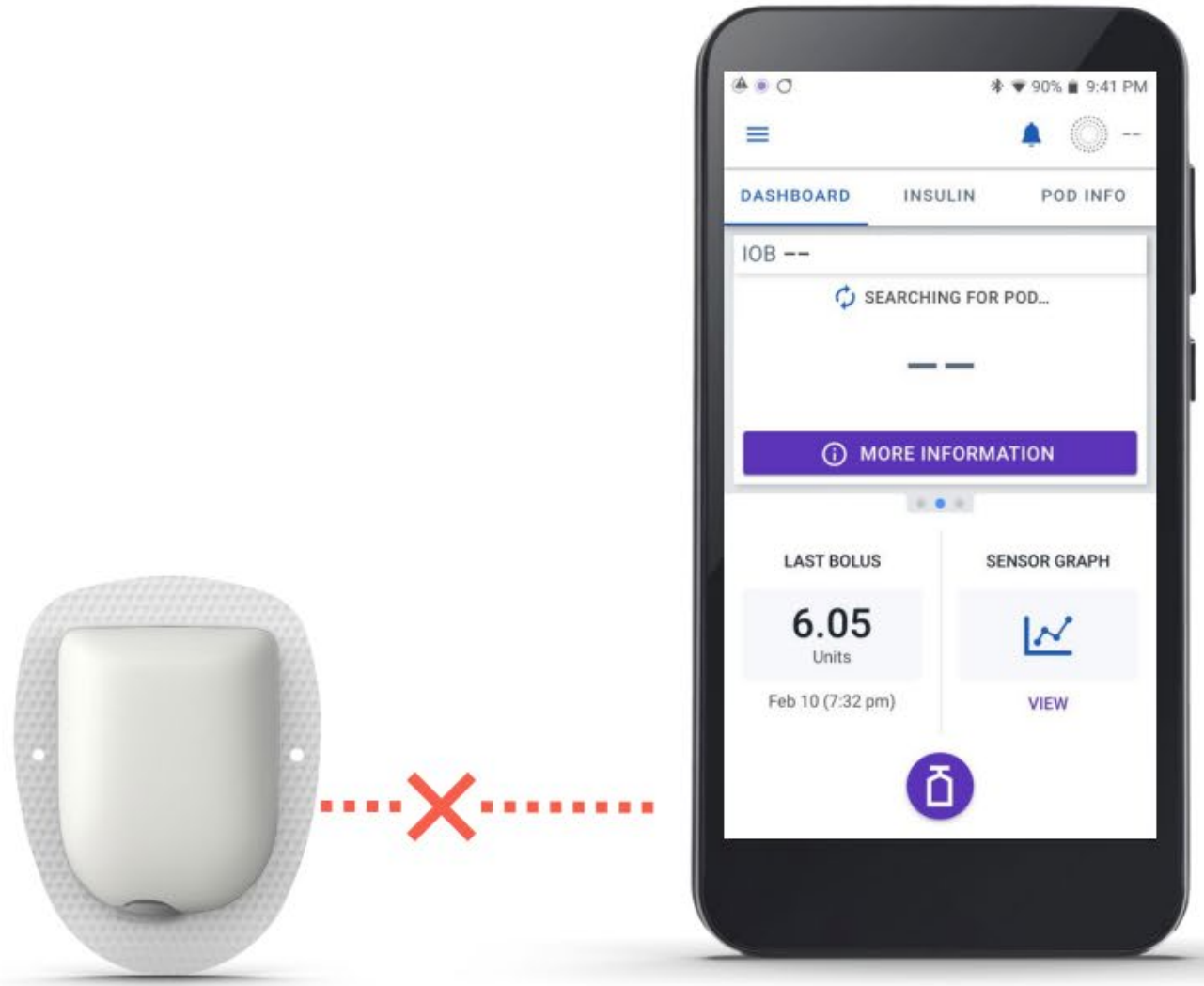
No Pod Communication

Why does it happen?

The Pod can't talk to the device

What should you do?

- Move Omnipod 5 device closer to Pod
- Tap **MORE INFORMATION**



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Tslim X2 and Mobi

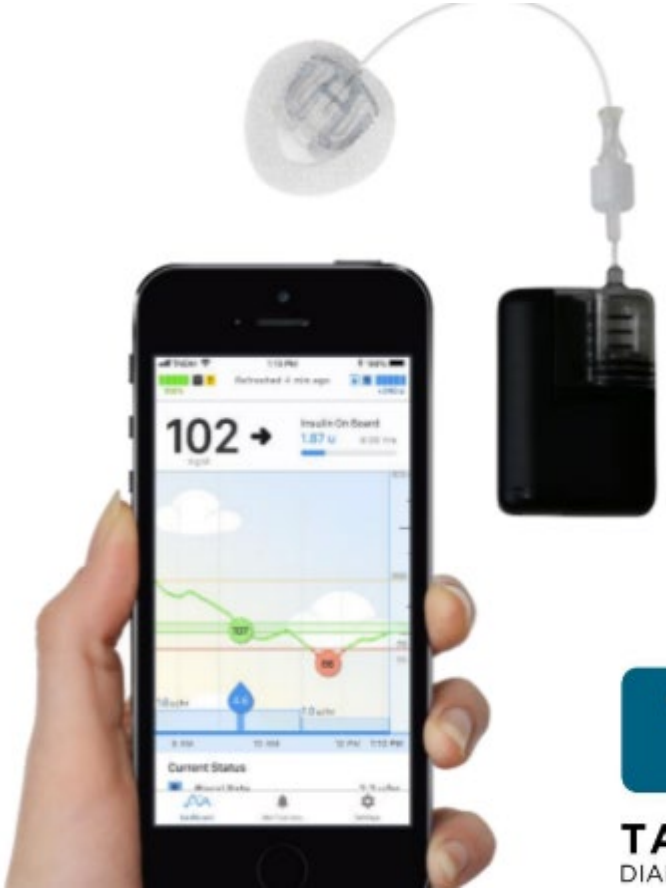
Tslim X2:

-holds up to 300 units

-controlled from device or phone app

-Dexcom G6, G7 and Libre 3 plus

-23” tubing only



TANDEM DIABETES CARE

Mobi:

-holds up to 200 units

-as little as 5” of tubing

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The iLet:

Status Bar

Menu
Access features like Enter BG, CGM, Settings, History, Mobile Device, and Volume.

Insulin
View the number of units remaining in your insulin cartridge, or access the options to change out your insulin cartridge or infusion set.

Notifications
View and respond to the alerts and reminders for your iLet device.

Glucose Status
View your current CGM glucose value and trend arrow if available. The circle will spin when the iLet is running. Tap to view a graph of CGM and insulin dosing data and your Therapy Summary screen.

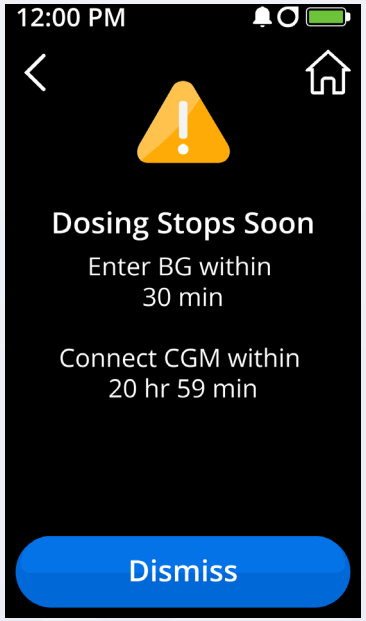
Meal Announcements
Deliver insulin for meals with carbohydrates

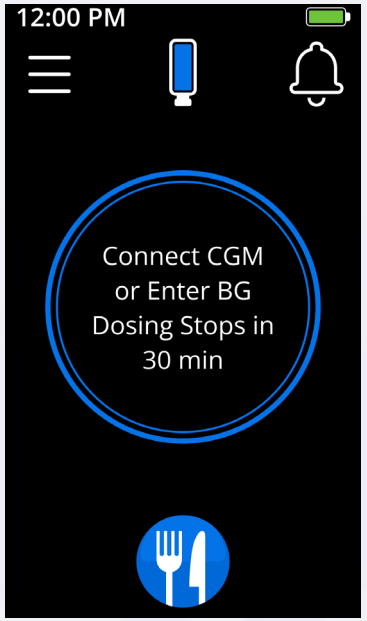
BG-Run Mode

- Reasons your iLet might go into BG-Run mode:
  - Failed CGM sensor/transmitter
  - Sensor is offline or disconnected (connection lost or sensor warm-up period)
- Two choices in BG-Run mode:
  - Respond to iLet alerts by entering a fingerstick BG to continue dosing insulin until CGM values are available again
  - Switch to backup therapy plan as prescribed by HCP until CGM values are available again (consider this if you think it will take >48 hours to restart CGM)

Video: Entering BG-CGM Offline

When did I GO Bionic?	When do I have to enter BGs?	What if I do not enter a BG when alerted?	How long can I stay in BG-run mode?
Less than 7 days ago.	Every hour until CGM is restarted.	If a BG is not entered within 1 hour after the alert, insulin dosing will stop.	48 hours.
7 days ago, or more.	Every 4 hours until CGM is restarted.	If a BG is not entered within 4 hours after the alert, insulin dosing will stop.	72 hours.

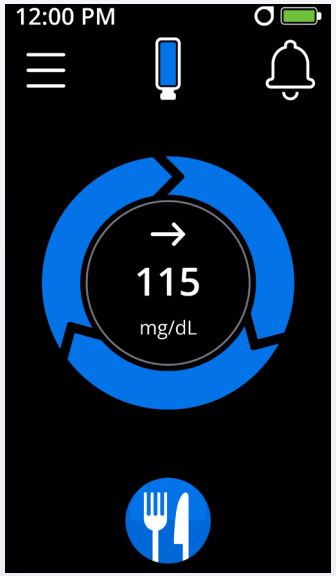


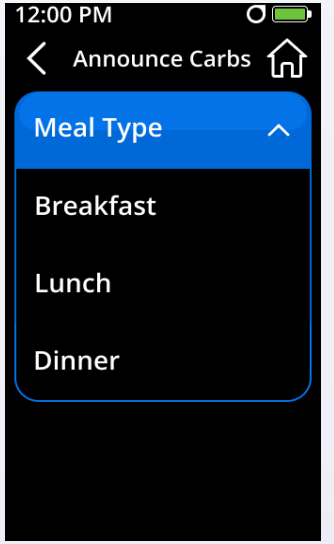


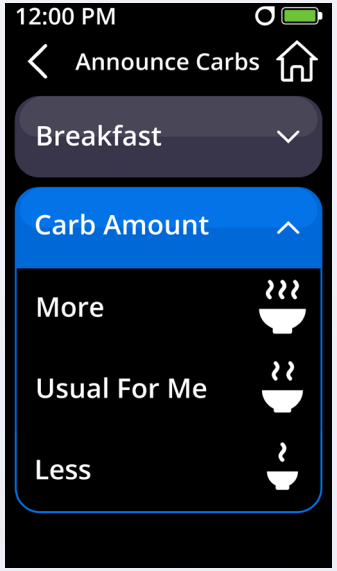
Meal Announcements

Meal Size Guide:

Carb Amount	Example	
Usual for me Carb Amount		This is the usual amount of carbs you would typically eat for that meal type.
More Carb Amount	+	This is around 50% more carbs than your Usual for me meal (1.5 times as many carbs as your Usual for me meal).
Less Carb Amount		This is around half as many carbs than your Usual for me meal (50% of your Usual for me meal).
DO NOT ANNOUNCE		If the meal or snack you are eating has less than one quarter (25%) of the carbs in your Usual for me meal, you do not need to announce.







Meal Announcements

Q. If "a turkey sandwich, a small bag of chips and a medium apple" is your Usual, which meal should you announce as More?

Small wrap, grapes, 1 oz of pretzels

Turkey sandwich

6" Turkey roll with fries

An apple

Q. If "a turkey sandwich, a small bag of chips and a medium apple" is your Usual, which meal should you announce as Less?

Small wrap, grapes, 1 oz of pretzels

Turkey sandwich

6" Turkey roll with fries

An apple

Q. If "a turkey sandwich, a small bag of chips and a medium apple" is your Usual, which meal should you NOT announce?

Small wrap, grapes, 1 oz of pretzels

Turkey sandwich

6" Turkey roll with fries

An apple

Meal Announcement Tips

- ✓ Announce right before first bite.
- ✓ Announce snacks if the snack has as many carbs as a meal.
- ✓ Meal size is based on CARBOHYDRATES only.
- ✓ Do NOT announce if more than 30 minutes after first bite.
- ✓ Do NOT announce if eating very low carb or no carbs at all.
- ✓ Do NOT use meal announcements to correct a high blood sugar. It could cause a severe low and teach the iLet to make future meal doses too small.
- ✓ Do NOT announce a meal if your blood sugar is low- treat the low with fast-acting carbs and allow your blood sugar to return to range first. Otherwise, it could cause a rollercoaster effect.

Hypoglycemia

- Treat lows with 5-15 grams of carbs (family will direct on amount)
- Recheck BG in 15 minutes
- Repeat if BG not >70 or meal is not with the next 30 minutes

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Hyperglycemia on a pump:

-verify that pump is working

-is set kinked

-is there insulin in the pump

-if student sick or BG >300 to check students ketones

-you do not need to check ketones if BG >300 and last insulin dose was less than 3 hours ago

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KETONES:

-Trace/Small: correct BG using pump, drink 8 oz water every hour, ok to return to class and call parent

-Moderate/Large: call parents to pick up student as soon as possible. OK to double correction dose using pen. No activity. Family will follow the Pump Hyperglycemia Plan.

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Bibliography:

AFREZZA® Dosing and Prescribing | Starting Dose and Titration Information

American Diabetes Association Professional Practice Committee. (2026). *Standards of care in diabetes-2026. Diabetes Care*, 49 (Supl. 1). https://doi.org/10.2337/dc26_SINT

Association of Diabetes Care & Education Specialist. (n.d.). *Diabetes education resources*. https://www.adces.org/

Home – Baqsimi

Beta Bionics. (2025). *iLet Bionic Pancreas Healthcare Provider Guide*. Beta Bionics. https://www.betabionics.com/

Insulet Corporation. (2025). Omnipod 5 Automated Insulin Delivery System User Guide. https://www.omnipod.com/

Medtronic Diabetes. (2026). MinimedTM Flex.

MiniMed Flex™ System | MiniMed

Tandem Diabetes Care (2026). t:slim X2 Insulin Pump with Control-IQ Technology User Guide. https://www.tandemdiabetes.com/

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Questions:

Please complete the evaluation form and email to eklyro@gmail.com

Thank You!

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