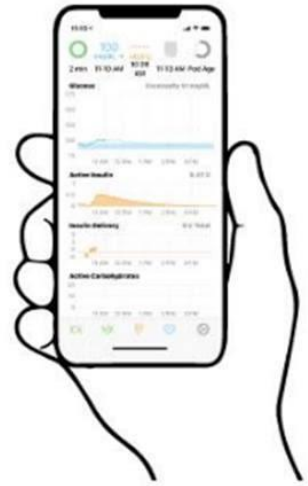
Loop AND Learn

Master Your DIY Closed-Loop Insulin Delivery System



Bolusing for Meals

Loop Meals Simplified For Improved Success

May 2021

Part 1: Understanding the Carbohydrates Screen

Disclaimer

The Loop app is a do-it-yourself closed-loop algorithm.

This presentation is provided to assist you in making your own decisions, in consultation with your health care professionals, regarding your own diabetes self-management.

You take full responsibility for building and running this system and do so at your own risk.

Please remember that the Loop app is not FDA-approved for therapy.

What we know

Loop assumes your Basal, Insulin Sensitivity (ISF) and Carb Ratio (CR) settings are perfect

→ This is why these settings are very important! ←

- Take time to test (and retest) your settings
- These calculations are the key to your success

With a strong foundation, we can begin to understand HOW Loop works when entering carbs, and how we can consistently get better results.

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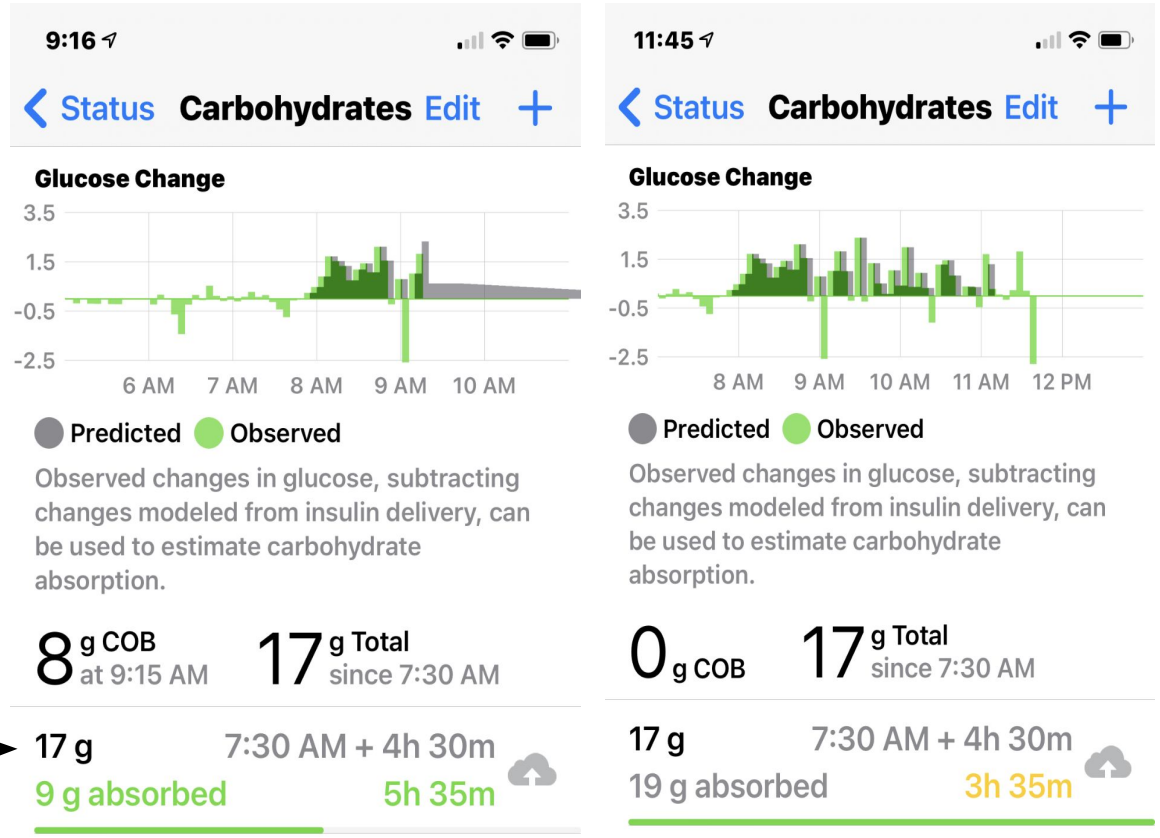
Meal Basics - Before you begin

Accurate settings are important, but so are Carb Entries!

- Review Carb Counting knowledge and skills
- Double check portion sizes, from time to time, using a food scale and measuring tools
- Tips:
  - Food tracking apps like MyFitnessPal, LoseIt, MyNetDiary and CarbManager can help calculations be more accurate
  - Save your favorite meals (i.e., in app or screen shots)
  - If you use a food scale, this chart may be helpful in calculating grams of Carbs to enter per gram of cooked or prepared food: https://www.ouhealth.com/documents/content/Counting-Carbs-with-a-Scale-and-Carb-Factors.pdf

The Carbohydrates screen

- To access the Carbohydrates screen, tap on the Carbohydrates chart near the bottom of the Loop main screen
- When you enter carbs in the Loop app, Loop tracks their absorption, based on how your blood glucose changes
- Loop does this using a technique called **Dynamic Carb Absorption**
- The results are displayed on the **Carbohydrates** screen or **Insulin Counteraction Effect (ICE)** display



How does Loop use what you have entered?

Loop estimates carbs absorbed during the time window** based on your ISF and CR settings, your meal entry and blood glucose excursion.

The carbohydrate color code:

- **GREEN** if:
  - Food absorbs completely in the time window**
  - The change of blood glucose is consistent with carbs entered
  - **GREEN** turns **GREY** when beyond time window
- **YELLOW** otherwise

** Time Window = 1.5 times the entered absorption time

Let's get started

Eat a meal that you enjoy frequently - Lunch is a good one to use for testing

- No dawn phenomenon to deal with
- Usually a repeatable "boring" meal

Calculate exactly how many carbs is in your meal

- Consider weighing and measuring, if it's not prepackaged
- Remember to try and limit the variables
- Include carbs in sauces, sweet dressings, ketchup, etc.
- Log this meal, in detail, in a log or food tracking app or screen shot for future reference
- There will be a Part 2 presentation to address fats and proteins

Analyzing the meal

How are things going?

- Did your blood glucose return to its starting point within 2 or 3 hours?
- Now, take a look at the **Carbohydrates** screen
- Did the carbs you entered equal the number of carbs absorbed? (GREEN or GREY?)

Yes? Great! You're awesome?

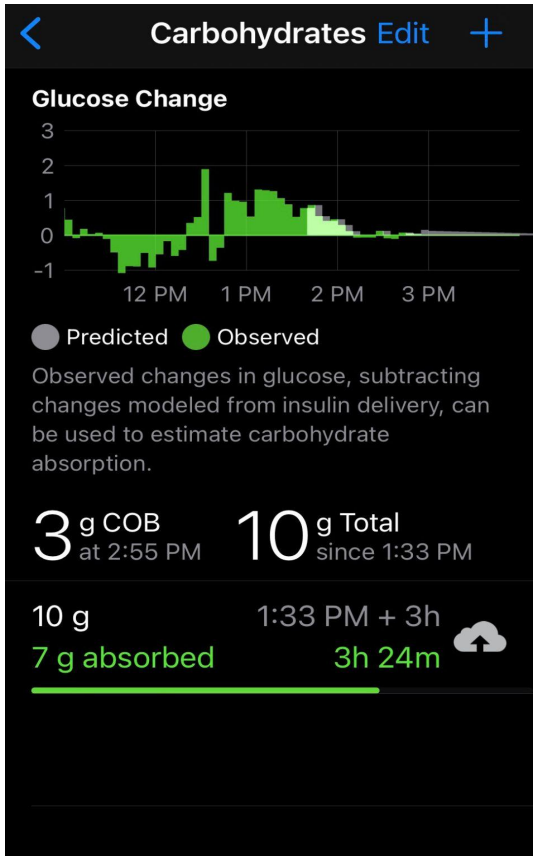
No? Don't worry you're awesome too! :)

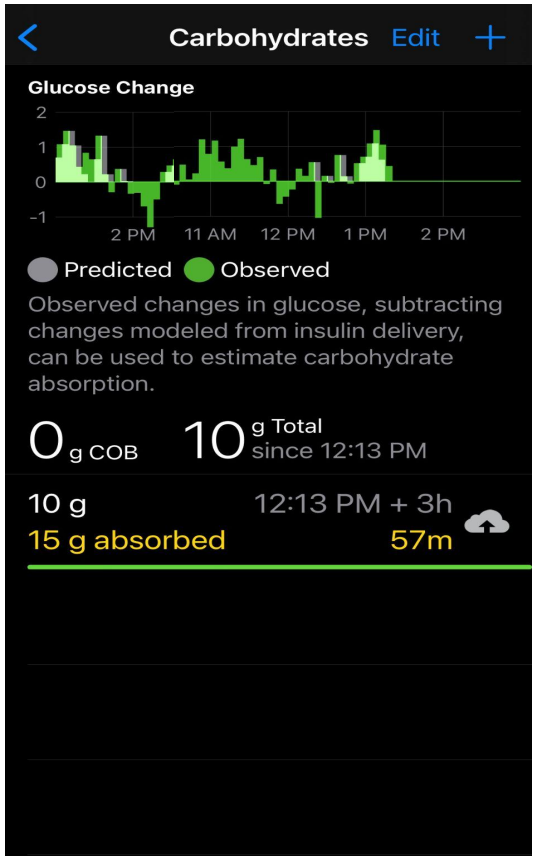
If you answered “no”, let’s analyze this

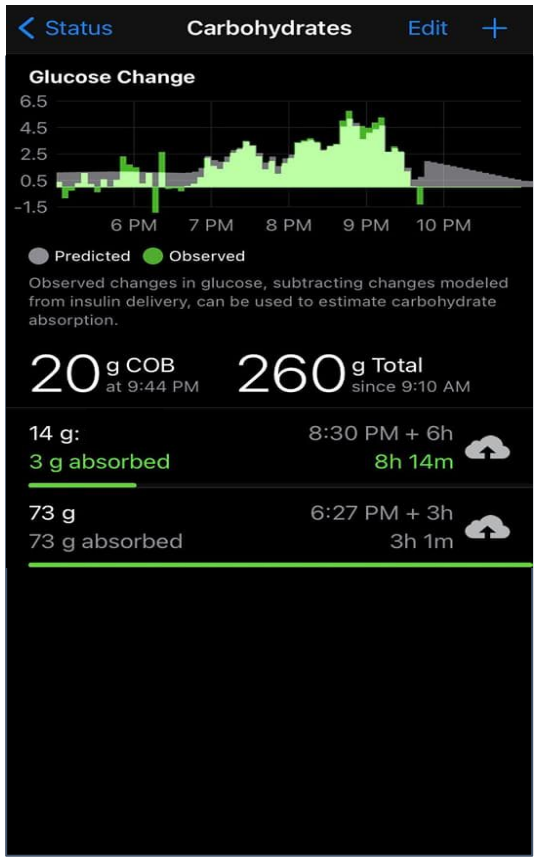
Some possibilities:

- Carbs in your meal may have been higher than entered due to inaccurate food labels or portion size
- The glycemic index is higher than anticipated
- Other diabetes unknowns - stress, hormones, weather, etc.
- Review your ISF and CR

Here are some examples







Analyze, revise and look again

If you weren't "successful" don't give up!

Make adjustments, then try the SAME meal again!

The Carbohydrates screen hints at what changes to make

- Carb entry
- Absorption entry
- SETTINGS (Basal, Insulin Sensitivity, and Carb Ratio)

For great Looping results always go back to the basics!

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Example of a turkey sandwich

EXAMPLE: If you enter a turkey sandwich with an absorption time of 2 hours, Loop will be finished absorbing carbs and delivering insulin in 3 hours (150% of stated absorption time).

Loop stops working on the meal even if that turkey sandwich is not fully absorbed after the 3 hours and blood sugar continues to rise.

- **IF absorption time is too short**: Loop gives more insulin upfront and stops providing insulin at the end of absorption causing an early low, and then high later
- **IF absorption time is too long**: Loop may not give enough insulin upfront causing a rise in BG, but continues adding insulin until entered absorption time is reached

REVIEW: Until you are getting the success you'd like ...

1. Reflect on your Carbohydrates screen **after meals and make adjustments**.
2. **Repeat meals** until you get to know how foods are to be entered successfully.
3. **Be consistent on entering carbs and absorption times** and check absorption in Loop afterwards.
4. If you're unsure of portion size, or not getting the results you hope for, use a food scale and review carb counting basics.
5. For meals that don't have nutrition labels, enter the recipes or food components into an app like MyFitnessPal or LoseIt for a breakdown of carbs/fats/proteins.

Resources

LoopDocs: https://loopkit.github.io/loopdocs/operation/features/carbs/

Loop Basal & ISF: https://youtu.be/AgSZp7juPc4

ISF & Carb Absorption: https://youtu.be/fZx1VRKj9fY

Facebook LoopandLearn: https://www.facebook.com/groups/LOOPandLEARN

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Loop and Learn website: www.LoopandLearn.org

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