

Loop

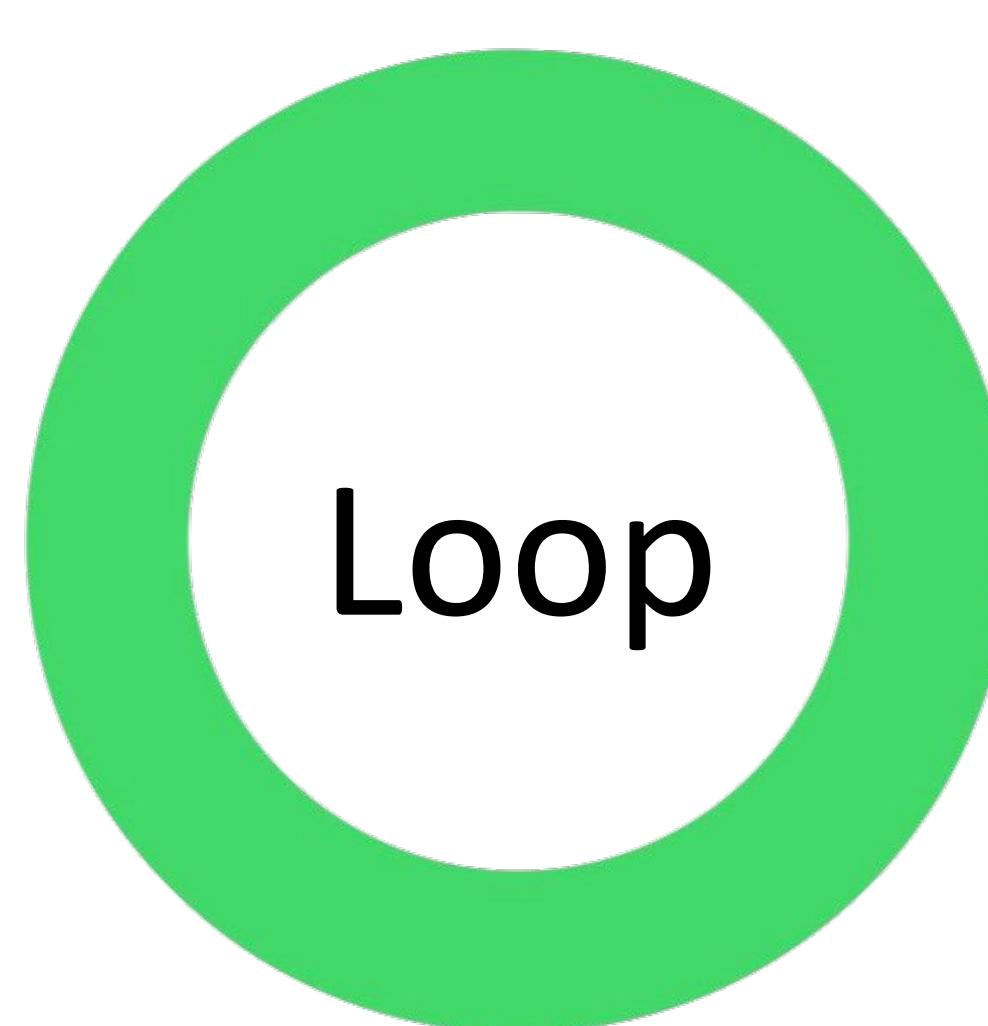
# DIY (Do-It-Yourself) Hybrid Artificial Pancreas

Benjamin Mammon & Saveli Kotz

\*NOT experts (just happy users 😊)

“The Weekly” Thursday May 14, 2020

Source Reference: <https://loopkit.github.io/loopdocs/>



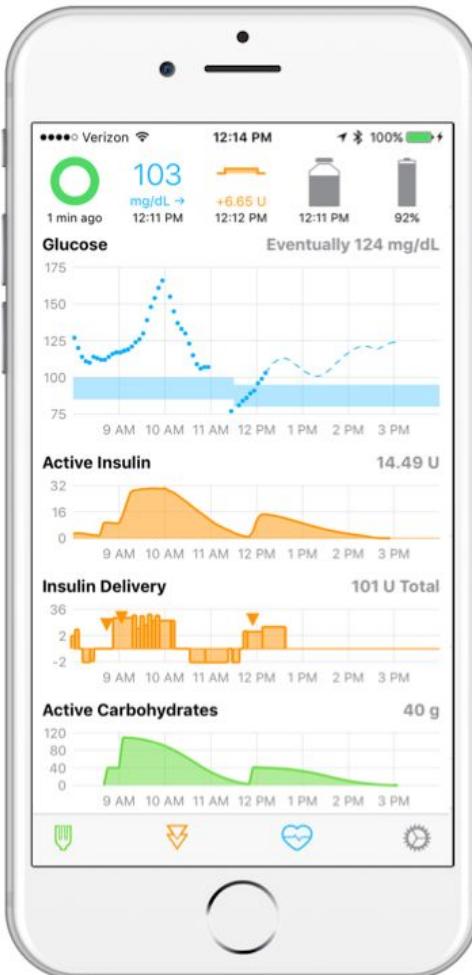
# Loop

## Schedule (8 mins)

1. Brief Intro to Loop
2. How to Start Looping
3. Ben's Perspective - Looping with Medtronic
4. Saveli's Perspective - Looping with Omnipod
5. Q & A after other presentations

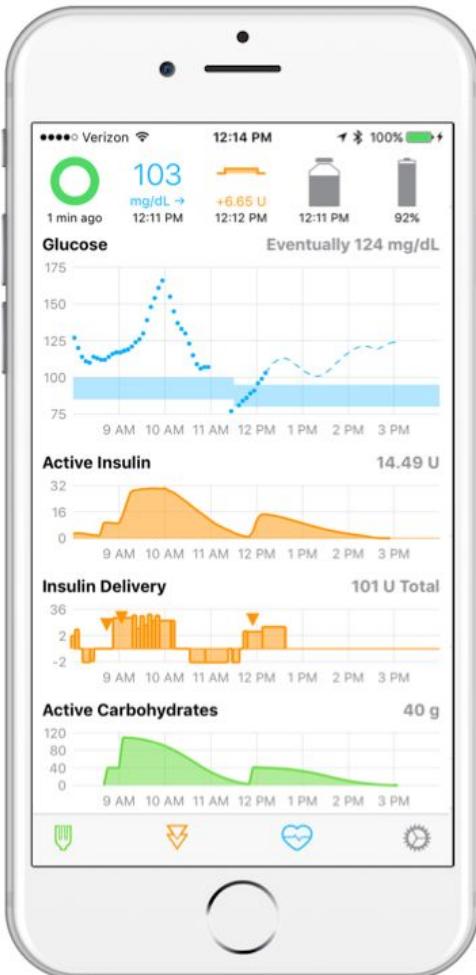
# What is Loop?

Loop is an iPhone app that controls your insulin pump



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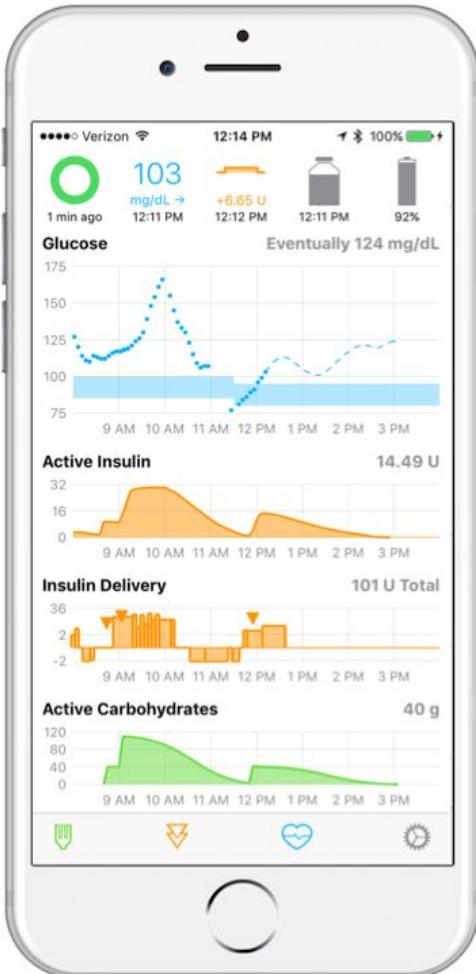


High BG

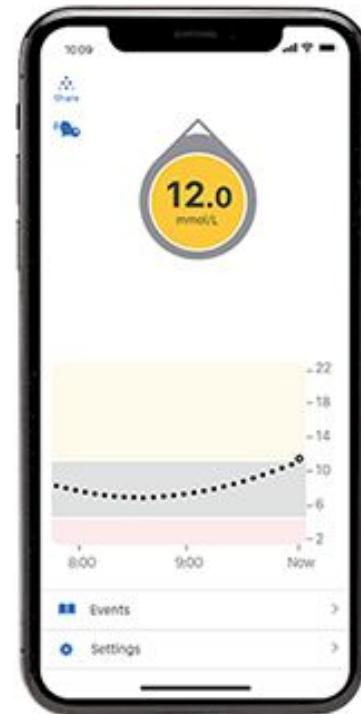


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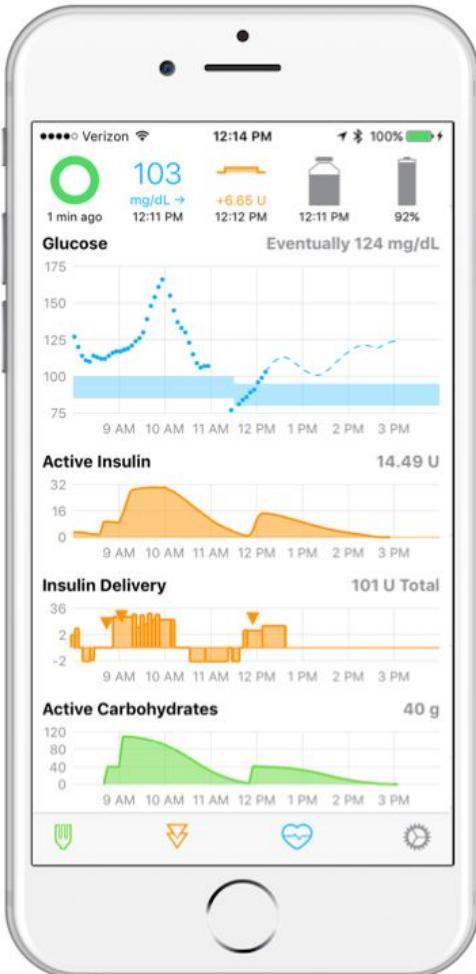


High BG



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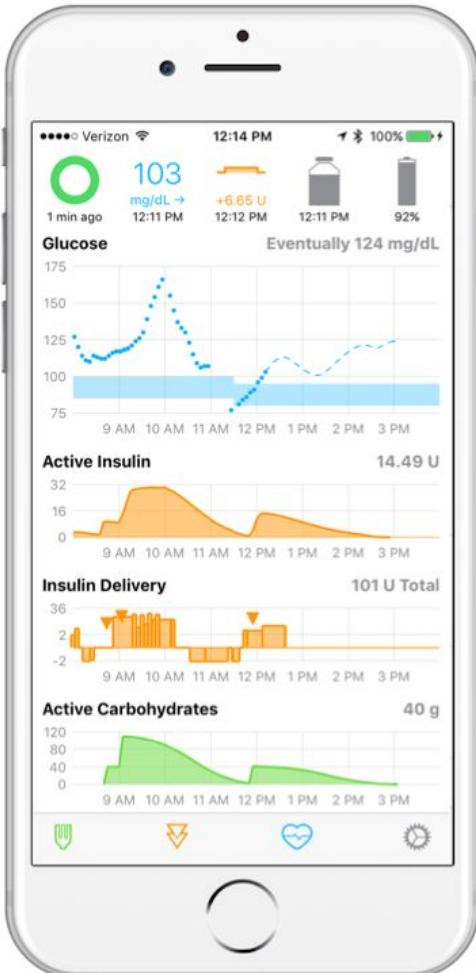


Low BG



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Low BG

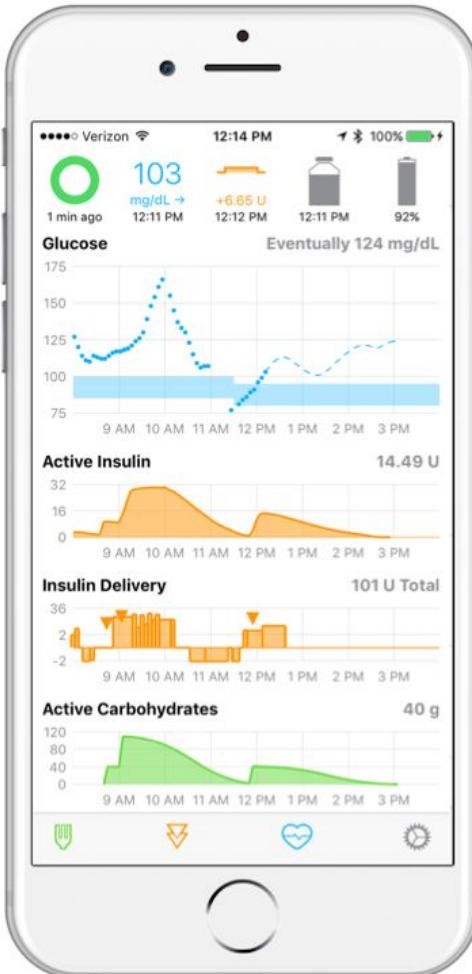


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**AUTOMATICALLY!**

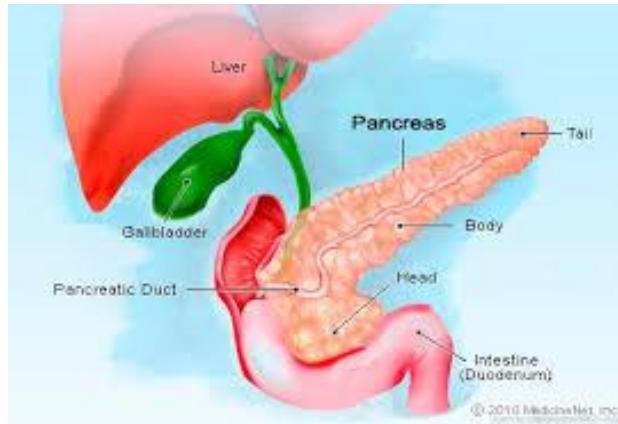


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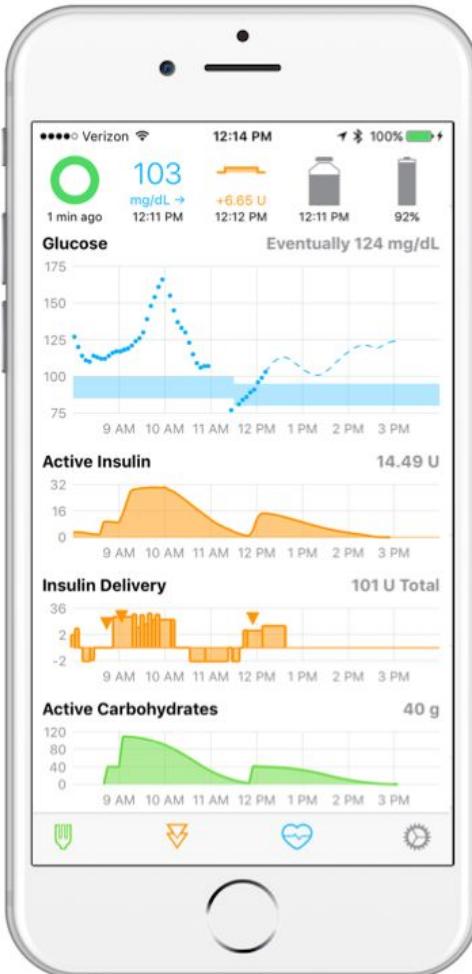


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NOT available in the App store

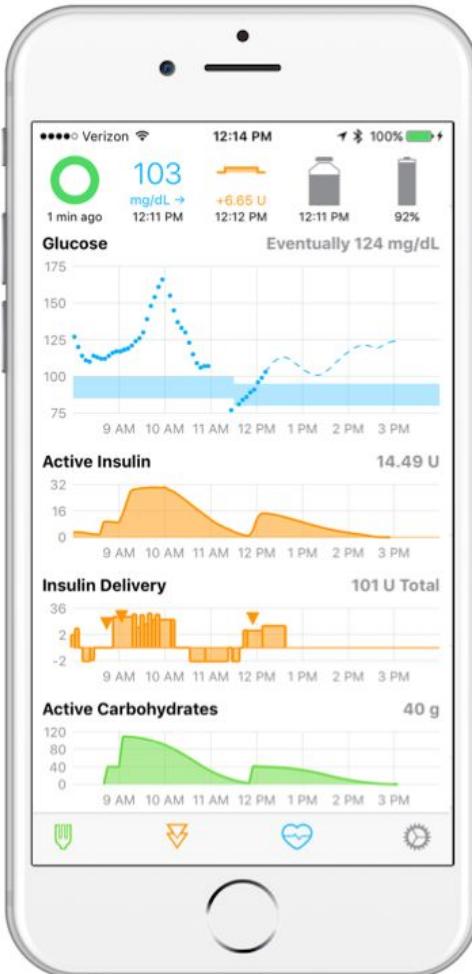


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- Not regulated by Health Canada, not medically approved, highly experimental
- Open source movement - App and hardware built by volunteer software engineers with T1D and shared on the internet for free
- #WeAreNotWaiting

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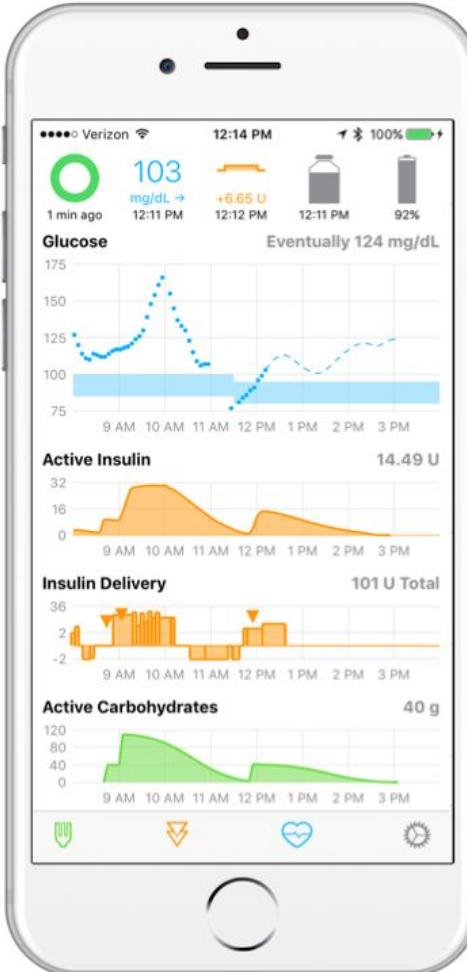


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NOT available in the App store



Reliant on Apple ecosystem

Android NOT supported

Other DIY options exist:

- [OpenAPS](#)
- [AndroidAPS](#)

Not covered in this presentation

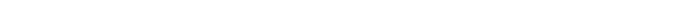
# How does Loop work?

## 1. CGM (continuous glucose monitoring)

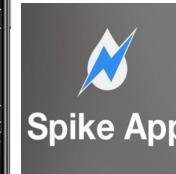
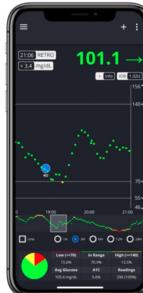
a.



Blood glucose data every 5 mins



b.



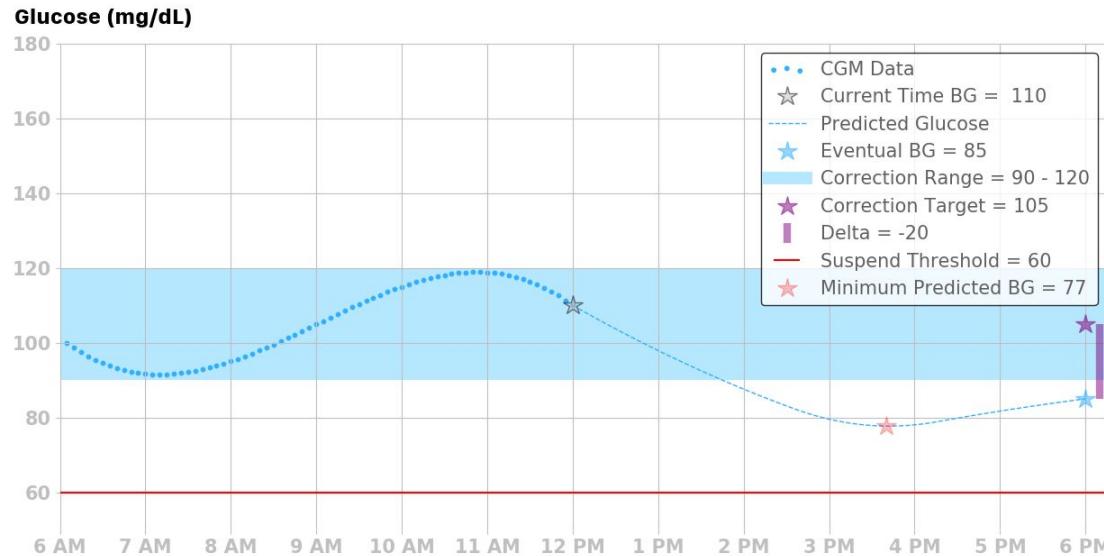
Loop

Libre + MiaoMiao + Spike

# How does Loop work?

## 2. Loop

The app runs an algorithm every 5 mins and recommends basal rate adjustments (increase, decrease, suspend or resume) and/or boluses based on a prediction model



## Loop

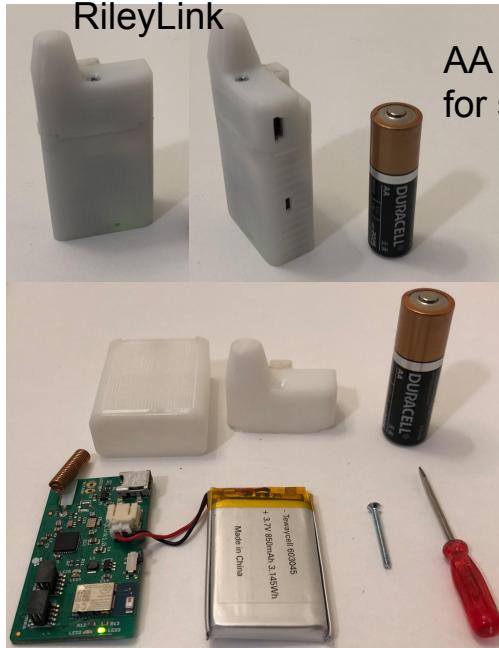
# How does Loop work?

## 3. RileyLink + Pump

a.



Radio Frequency



b.



Radio Frequency

Bluetooth



Loop

Obsolete  **Medtronic**

# What do I need to start Looping?

- Compatible insulin pump: Medtronic or Omnipod
- Compatible CGM (continuous glucose monitor)
- RileyLink (\$150 USD)
- Compatible iPhone/iPod Touch
- Apple computer
- Xcode (Free)
- Apple Developer Membership (\$99 USD/year)



RileyLink



# Looping with Medtronic



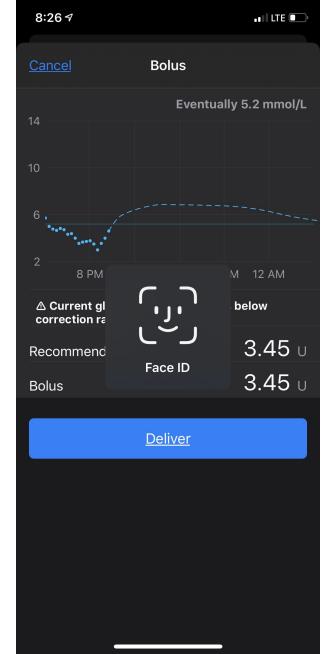
# Benefits

Improved glycemic control with less work

Reduce acute risks of hypoglycemia

Reduce long term risks of complications

Use iPhone and smartwatch to control insulin delivery



# Safety Measures

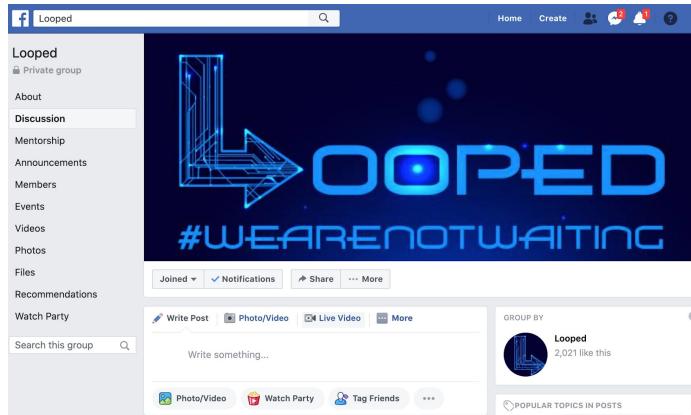
If any issues, the pump defaults to the manually programmed basal rates

Max basal rates and boluses are programmed in Loop

Bolus requires Touch/Face ID or device passcode

# Downsides to Looping

- RileyLink - \$\$, extra hardware to carry around/charge
- Setup requires patience and instruction reading
- Apple developer license \$\$
- For Medtronic: Using out of warranty pump
- Support only through [Looped Facebook group](#)



# Who Should Use Loop?

- Want the most cutting edge technology available for diabetes management
- Want greater flexibility with hardware (CGM/Insulin Pump) and software



- Are willing to stay up to date and troubleshoot online
- Can afford 24/7 CGM, and the cost of RileyLink/Apple Developer membership
- Have enough computer skills to follow online instructions



### The advantages of Looping with Omnipod

- Paid by the provincial health insurance in most cases
- Brand new equipment that is replaceable every 3 days
- Any hardware problem - just put on a new pod
- Waterproof, No dangling chord, Not noticeable

### Disadvantages:

- If you displace the cannula while enjoying the mobility that the pod allows you, you might not notice it right away and there is a chance of going to high blood sugars and DKA
- If you lose your phone or it breaks, you will not be able to operate your pump. You will need to pair a new POD with the OmniPod PDM until you can get another phone, install loop on it and start all of it again
- You have to carry at least 2 PODs and insulin with you (and PDM or a full backup phone) at all times.
- You have to have a RileyLink backup at home if you get serious with looping.

