

Hybrid Closed Loop

Hybrid Closed Loop systems dispense insulin through a pump continuously and adjusts automatically based on blood glucose readings provided by the CGM. The first hybrid closed loop system is Medtronic's 670G. It currently can be prescribed for 8 years of age and older. It includes an insulin pump and a sensor that communicates with the pump.

How the MiniMed 670G Works

When you first initialize the MiniMed 670G, you must wear the pump and sensor for six days. On the sixth day, you switch to auto mode. The system uses the last six days of data to calculate your basal rate, and then continually senses your glucose to adjust to a target of 120.

When eating, you still need to check your blood glucose with a meter and then enter that number into the pump. You still need to accurately count carbohydrates and bolus for meals. However, if you over- or under-bolus, the pump helps you. Since the CGM is sensing the blood glucose every 5 minutes, it will constantly decrease or increase insulin to get to a target of 120.

To be effective in auto-mode, you must check and bolus regularly for meals. If you choose to use the system in manual mode, it will not treat to 120. There is a safety feature called "auto-suspend before low" that is particularly useful at night. The pump predicts when you are going to go low and suspends the pump 30 minutes before you are anticipated to go low. It stays suspended for 20 minutes and/or until your trend improves. It then turns the insulin flow back on.

The research has shown that people who have used the system have increased time in target range. It has shown improved glucose control overnight, significantly lowering the risk of hypoglycemia. It also assists during the day by decreasing the amount of both high and low blood glucose fluctuations.

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This document is not intended to take the place of the care and attention of your personal physician or other professional medical services. Our aim is to promote active participation in your care and treatment by providing information and education. Questions about individual health concerns or specific treatment options should be discussed with your physician.

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Sources

[Medtronic MiniMed™ 670G](#)