

Cool News About the Cure

A JDRF Research Update

Continuous Glucose Monitors

Have you heard about continuous glucose monitors (CGM)? Are you using one? A CGM uses a sensor that lies under your skin to track your blood sugar levels. It transmits them to an electronic receiver you carry with you so you can take your readings without sticking your fingers. A CGM also shows you the pattern your glucose levels have taken over several days and alerts you when your blood sugar starts to get too high or low. This is great because even when you're doing finger pricks several times a day, you still don't know every rise or fall in your blood sugar level, especially when you are sleeping.

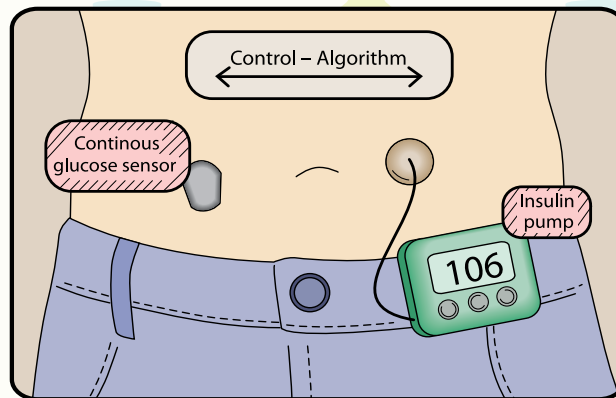
JDRF recently funded a major 10-site clinical trial to study the impact of CGM usage on patients with type 1 diabetes. The trial showed some really great things like:

- Consistent use of a CGM led to significant improvements in blood sugar control (this means better control with fewer finger pricks!);
- Better blood sugar control leads to fewer hospitalizations (hospital stays are not much fun!);
- Fewer future complications like eye disease or heart problems (we know you may not be thinking about complications, but it's still important to take care of yourself now so you don't have to think about them later in life); and
- Improved quality of life for people with type 1 (this means that you feel better overall and have more free time to just enjoy life!).

JDRF is committed to supporting research on the best ways to help people with type 1 control their blood sugar. One way we are doing that is through research on the development of a “closed-loop” artificial pancreas (figure 1)—joining a CGM with an insulin pump. With the help of a computer program, the two devices will work together to measure glucose levels and automatically deliver the right amount of insulin to your body. An artificial pancreas is especially exciting because this means technology is doing the majority of the diabetes management for you. That makes living with diabetes a little easier! Researchers predict that a closed-loop system could be ready for use in just a few years time.

clinical trial: A study to determine whether medications or medical devices are safe and effective, by testing their use in a large group of people.

figure 1



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SmartInsulin

How many times a day do you test your blood sugar and give yourself insulin? Do you ever think that you've hit the perfect balance of insulin, food, and exercise, but then your blood sugar goes high or low anyway? This happens to everybody with type 1 diabetes. With a grant from JDRF, a company in Massachusetts called SmartCells, Inc. is working to create a new kind of insulin—SmartInsulin—that would help control your blood sugar with just one injection a day.

SmartInsulin is designed to be “glucose-regulated,” meaning it can sense how high or low your blood sugar is and will only release insulin when it is needed, just like a healthy pancreas does. If your blood sugar level is high, SmartInsulin will release insulin, but if you're going low, it will stop releasing insulin—hopefully preventing a scary episode of low blood sugar. SmartInsulin would require only one daily shot and would also reduce the number of times you have to test. Very cool!

Researchers still have lots of testing and clinical trials to do, but there is good reason to hope a new kind of insulin that makes your diabetes management easier may be available in the years ahead.

Celiac Disease

Do you or does someone you know have both type 1 diabetes and celiac disease? It's a pretty common occurrence—in fact, one in 10 kids with type 1 will also be diagnosed with celiac disease, a disorder that causes problems with digesting gluten, a protein found in wheat, barley, and rye—that means no bread, cake, pasta, or pizza crust. Scientists may now know why. JDRF-funded researchers in the United Kingdom have compared the DNA of people with type 1, people with celiac disease, and people with neither disease, and they have discovered that people with type 1 and celiac disease have some similarities in their genes. This means that the two diseases are possibly caused by the same/similar genes and by similar environmental factors. JDRF researchers will continue to study this topic so that we can develop a better understanding of the causes of both diseases and search for possible cures.

environ- mental factors:

**Anything influencing
disease that takes place
outside your body like
viruses or your diet.**

JDRF Juvenile
Diabetes
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dedicated to finding a cure