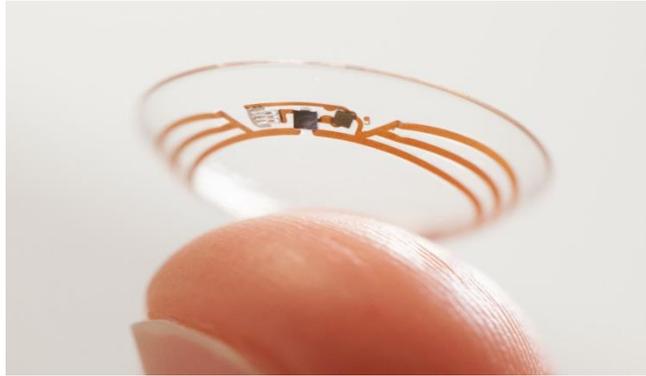




Eyeing a new contact lens that could monitor blood sugar



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Some experts say the Google device looks promising

Could a contact lens-sized device that is worn on the surface of the eye ever permit individuals with diabetes to better control their blood sugar? Google (x) is hoping that its new wearable eye device will prove to be so accurate that users will be able to rely on it to get an accurate blood sugar reading and to calculate their insulin dose.

The lens came about as a possible solution to measure the glucose in tears to get an accurate blood sugar reading. At Google (x), “We wondered if miniaturized electronics - think: chips and sensors so small they look like bits of glitter, and an antenna thinner than a human hair - might be a way to crack the mystery of tear glucose and measure it with greater accuracy,” wrote project co-founders Brian Otis and Babak Parviz in a Google blog.

Putting this idea into an actual device was the natural next step. Google (x) recently revealed a functional prototype of its smart lens, which uses a tiny wireless computer chip and miniature glucose sensor that are sandwiched between two layers of soft contact lens material. The unit is being touted as “a way to crack the mystery of tear glucose and measure it with greater accuracy,” note Otis and Parviz in a blog. Once the glucose is detected, the information can be sent to a smart phone or to another device.

So could this teensy device actually provide an accurate blood sugar reading?

“At this point in time, it is a ways down the road,” says Leann Olanski, MD, an endocrinologist at the Cleveland Clinic. “One question to be answered is timing. If the lens gives a reading of what the blood sugar was an hour ago, it would not be that useful, but if it could tell what the blood sugar was 10 minutes ago, it could be worthwhile.”

One possible problem with the little device is that the glucose found in tears may not accurately reflect an individual’s blood sugar, says **Mark Fromer, MD**, an eye surgeon at Lenox Hill Hospital in New York City. “Tears are right on the surface of the eye,” he explains. “But the Google lens does not have access to the aqueous fluid underneath. What we need to find out is how quickly the tear film will change based on what someone’s blood sugar level is. If the tears give a delayed response, then it is not useful information.”

Joel Zonszein, MD, an endocrinologist at Montefiore Medical Center in New York City, says the device is far from ready for general use. "If there is a lack of accuracy, people could give themselves too much or too little insulin," he says. "We always welcome technology where diabetes care is concerned, but I think this needs a lot more testing before it's ready."

Actually, Google (x) is "in discussions with FDA," note Otis and Parviz. Additionally, they are currently investigating the potential for the lens to signal to the wearer when an episode of low blood sugar is imminent.

"We are investigating the potential for this to serve as an early warning for the wearer, so we're exploring integrating tiny LED lights that could light up to indicate that glucose levels have crossed above or below certain thresholds," they blogged.

And, they add, "There's still a lot more work to do to turn this technology into a system that people can use."