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Influencer

Product Review: Abbott FreeStyle Libre Flash Glucose Monitor



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Team — Updated on June 1,
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If you're thinking about getting a new tool that can continuously monitor your glucose levels, the FreeStyle Libre from Abbott Diabetes Care is definitely worth considering.

The FreeStyle Libre is a so-called "Flash Glucose Monitoring System" that requires users to wear a small sensor on their upper arm, and scan it with a separate handheld receiver or smartphone app in order to get a glucose reading.

While this system does not automatically produce real-time glucose readings like other [continuous glucose monitoring \(CGM\)](#) systems on the market, it has become very popular as an affordable middle ground between traditional fingerstick blood sugar meters and fully-featured CGMs.

Pros and cons

✓ Pros

ABBOTT Exhibit 2041

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Dexcom v. Abbott Diabetes Care, IPR2023-01409

- the little round sensor is thinner and more discreet than sensors required with other CGMs
- no routine fingerstick tests are required to use or calibrate the system, even if you're relying on the data to make insulin dosing decisions
- you can use your compatible smartphone to scan the sensor and see glucose data, without needing a separate handheld reading device (as of Aug. 2, 2021)
- fewer alerts and complex features makes it less daunting for some people to use
- more affordable, in part because the Libre doesn't include a separate (costly) transmitter that attaches to the sensor
- more accessible, because it's sold directly at pharmacies, has fewer parts needing replacement, and is generally easier to get covered by insurance

XCons

- full view of your glucose data is only available retrospectively on the software platform
- device registers only the last 8 hours of data, so if you don't scan for 8 hours or longer, some data will be lost
- doesn't currently connect to as many other diabetes devices as competing CGMs

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All about Abbott FreeStyle Libre

Launched internationally in 2014 and first approved for use in the United States in 2017, the Libre is quickly becoming a market leader.

The FreeStyle Libre 2 is the latest model available in the United States as of mid-2020, with some important added features like glucose alerts.

Scannable sensor. Users wear a little white disc sensor about the size and thickness of two stacked quarters, and hold the handheld reader or smartphone app over it (about .4 to 1.5 inches) to scan it for data. The sensor measures [interstitial fluid](#) every minute. It is approved by the Food and Drug Administration (FDA) for use only on the upper arm, and attached to the skin using an easy-push inserter device. When inserted, there is a 1-hour warmup period before glucose data is available. With just a 1-second scan, users can see their glucose reading, trend arrow, and 8-hour history.



Wear time. The latest sensor approved in the United States since 2018 lasts up to 14 days. It does not officially require any fingerstick calibrations before making insulin dosing or other treatment decisions.

Handheld reader. While the original Libre model allows the use of a smartphone app for scanning, the Libre 2 didn't originally allow for this because it wasn't cleared by the FDA. Instead, you still needed to use the separate handheld reading device to scan the sensor and see glucose results. However, [Abbott received approval](#) for this mobile app functionality in late July 2021 so you could scan the sensor and see data on your compatible smartphone. Regardless of which device you use, scanning is fast, easy, and can be done over any type of clothing, even thick jackets.



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Real-time alerts. This is new for the Libre 2 as of 2020. Users have an option to turn on real-time alerts, to hear a beep or feel a vibration whenever their glucose levels dip too low or high. Users can adjust the settings for their own preferences on when they want to be alerted:

- Low range: 60 to 100 mg/dL
- High range: 120 to 400 mg/dL

This can help users stay safe, especially when sleeping, and alert them any time their glucose levels might need immediate attention. If you ignore an alarm, it will beep again in 5 minutes if the out-of-range condition still exists.

To be clear, to get an actual glucose reading or see the trend arrow on the direction your sugars are heading (like those on competing CGMs), users will still need to pick up the receiver and scan the Libre sensor.

Ages 4 and older. The FDA has approved this device for kids as young as 4 years old, and adults with either type 1 (T1D) or type 2 diabetes (T2D).

Accuracy and impact. The standard measure of accuracy for continuous glucose monitoring devices is known as MARD (or Mean Absolute Relative Difference). The lower the number, the better the accuracy. The Libre 2 has a **9.3 percent total MARD** score (9.2 percent for adults, and 9.7 percent for children). Generally, anything under 10 is considered good accuracy and most CGMs meet this measurement standard.

Also, the **latest data** from June 2020 on the FreeStyle Libre system shows the technology is successful in helping people with both T1D and T2D stay in range, whether they're using an insulin pump or multiple daily injections. Another **2020 study** out of France showed the Libre helped cut in half the number of hospitalizations due to **diabetic ketoacidosis (DKA)** — 52 percent for those with T1D, and 47 percent for those with T2D.



Data analysis. Glucose data can be analyzed on the reader, or on a smartphone using the company's FreeStyle **LibreLink app**.

App and remote monitoring. The **FreeStyle LibreLink app** displays 90 days worth of data, and has a feature that lets you share your data with up to 20 people from a single account.

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What does the Libre cost?

Keep in mind that you need a [doctor's prescription](#) to get this device. Insurance coverage is available, but of course, out-of-pocket costs vary by plan.

The FreeStyle Libre is available in national U.S. pharmacies like Costco, CVS, Kroger, Rite Aid, Walgreens and Walmart.

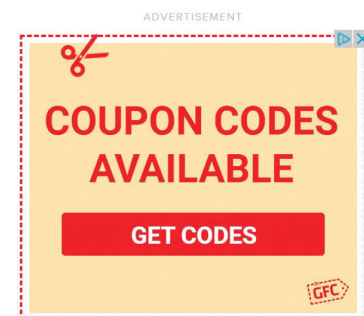
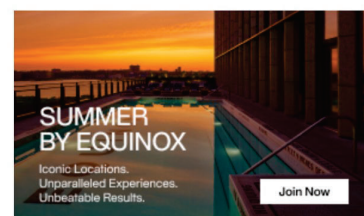
Here are the approximate prices for the FreeStyle Libre 2, according to Abbott:

FreeStyle Libre pricing

- List price of \$54 per 14-day sensor, or generally \$58 to \$69 at retail pharmacies like Costco and Walgreens
- With commercial insurance, most people pay between \$10 and \$75 per month for the 14-day sensors at participating pharmacies
- Handheld reader (one-time purchase, if needed): list price of \$70
- **Total: approximately \$1,582 to \$1,868 annually, or \$160 per month**

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What users say

When the very first Libre model the market, DiabetesMine's own Wil Dubois reported: "To me, the Libre is a game-changer because it adds context to glucose readings, without the need for loads of high-cost test strips or a full-fledged CGM system that's also more costly and probably more complex than many patients need. In short, the Libre is pretty slick, and could be perfect for both doctors and many patients."

Shawn Gotlib in New York was an early Libre 2 user in the United States and shifted between his Dexcom and Libre, but liked the latter more after using it over time with few complaints. Specifically, he preferred the Libre's slimness and discreetness, simplicity of setup and use, and ease of sensor insertion.

Gotlib said his work hours are long and he's an avid jogger, so he can't always 'get away' to do a fingerstick test or interact with a bulkier CGM system.

"I like how easy it is to use right out of the box," he told DiabetesMine. "The size of the sensor is nice. And it's easy to get a quick reading, even in winter when swiping the reader through my coat."



Gotlib warns prospective users or new users to keep a close eye for suspect readings, though. “If you’re not sure about a BG reading, or you get an extreme high or low, do a regular fingerstick test,” he said. “The Libre can be ‘off’ sometimes — especially on the last 23 hours of the sensor life.”

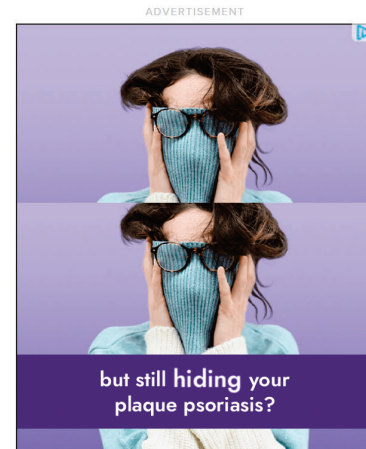
In this [YouTube review](#), Canadian T1D Laura Craven says she finds inaccuracies mostly in the first 24 hours of the sensor. “More often than not, I find it reads lower [rather] than higher than my actual blood glucose readings. To overcome this, I usually insert my sensor 24 hours before I want to activate it,” she said.

Alan Monroe, who lives with T2D southern Illinois, started using the Libre in 2017, as the first and only CGM system he had ever used. He says he felt empowered and learned more about how food and lifestyle choices impact his glucose levels.

“In the past I used various glucometers,” he told DiabetesMine, “but was not the most regular at doing the testing. It didn’t bother me to do the tests. I was just too lazy to pick up the kit, pull out the lancet device, put a strip in the meter, and do the test. I went a lot on how I felt, and not much else. Most recently, I was using the iHealth labs meter, which did a good job of syncing with my phone, but only gave me a snapshot of my glucose levels, instead of the information I am getting with the Libre system. I am very pleasantly surprised at the charts and graphs that are available when I download the data to my computer.”

The professional diabetes educators at [Integrated Diabetes Services](#) in Pennsylvania wrote in 2018: “The great thing about the Libre is that it only gives you as much information as you want, it’s not pushy, it doesn’t beep at you at all! No calibration beeps, no alert beeps, not even a sensor out of range beep. But you still get the full 24 hours of data to look back on for analysis as you like.”

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Alternatives to the FreeStyle Libre

While the FreeStyle Libre is unique because of tiny round sensor and exceptional ease of use, there are other options to know about for continuous glucose monitoring.

The [Dexcom G6](#) and [Medtronic Minimed Guardian CGM](#) are both more “traditional” CGM devices with a sensor-transmitter design that provide automatic continuous results every several minutes without needing to scan the sensor. They also have more advanced alert and alarm options, like “urgent low,” “urgent low soon,” “rise rate” and “fall rate.” And they both integrate currently with insulin pumps. But they are [more expensive](#) and require more supplies on a regular basis.

There is also an implantable CGM called [Eversense](#) by Senseonics. It is distributed by Ascensia (former Bayer) and features an implantable sensor that stays under your skin for 90 days. You wear a transmitter on your arm, over the insertion spot, to stream glucose data continuously to your smartphone. This requires a doctor’s office visit to insert and remove each sensor, and some people find that they incur small scars on their arm from the procedure.

Bottom line

Overall, people seem to love the convenience of the FreeStyle Libre system, and the improvement it brings in diabetes management. The few complaints we’ve spotted have been about accuracy, especially just after the warmup period or at the end of the sensor life — common woes with many CGMs.

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FreeStyle Libre is also among the most accessible and affordable advanced diabetes tools currently available. If you don't mind wearing a small white disk on your arm that will likely be visible, manually waving a device over it to get glucose readings, and getting only very minimal alerts from the system, then the FreeStyle Libre might be a great choice for you.

[See also: [Dexcom vs. Abbott FreeStyle Libre: CGM Function, Accuracy, and Cost](#)]



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HISTORY

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