Continuous blood glucose monitoring system

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Slovakia-Zvolen-11-13 September 2024

Regular blood glucose monitoring is essential in diabetes for several reasons:

- For patients with diabetes, but not only, the continuous glucose monitoring system is an innovative technology for evaluating the level of sugar in the body. Here's how these medical devices work, how much they help manage diabetes, and what else they can do.

The first continuous glucose monitoring devices were developed in the 1990s, and for several years, they have become affordable. These systems are extremely useful for people who have type 1 or type 2 diabetes.

Regular blood glucose monitoring is essential in diabetes for several reasons:

• prevents large blood sugar fluctuations that lead to immediate complications, such as hypoglycemia (sudden drop in blood sugar), hyperglycemia (sudden rise in blood sugar) and ketoacidosis (dangerous accumulation of ketones in the body). Untreated, they can be life-threatening;

• also prevents long-term complications of the disease, such as neuropathy (nerve damage), retinopathy (eye damage), cardiovascular disease, kidney failure and wounds that are difficult to heal;

• allows patients to monitor response to treatment, diet and exercise. This allows the treatment plan to be adjusted for optimal glycemic control.

Continuous glucose monitoring system vs. meter

- The system provides real-time blood glucose data at regular intervals, usually every 5-10 minutes. Unlike the usual glucometers used to measure blood sugar, these new medical devices provide more detailed information about how food, drugs, physical activity and other factors influence blood sugar levels throughout the day.
- Continuous glucose monitoring systems can sound alerts when blood sugar gets too high or too low, according to information published by the American Diabetes Association. Alerts help diabetics take prompt action to keep their blood sugar steady.
- Continuous monitoring allows tighter blood sugar control and reduces the risk of large blood sugar fluctuations. Long-term complications associated with diabetes can thus be prevented.

Who is the continuous glucose monitoring system recommended for?

The continuous glucose monitoring system was originally created for people diagnosed with diabetes. Those with type 1 diabetes in particular need this constant assessment of their body sugar levels because their pancreas does not produce insulin. These medical devices are also recommended for patients with type 2 diabetes, but can also be used by people who do not have diabetes.

- In general, anyone concerned about metabolic health, how food affects their metabolism, can turn to such a system. In the case of athletes, for example, blood sugar control helps to increase performance.

- How the continuous glucose monitoring system works
- Continuous glucose monitoring systems do not measure the level of glucose in the blood, but in the interstitial fluid that is in the space between the cells of the skin. Glucose tends to flow from the blood vessels to the surrounding tissues. The level of glucose in the interstitial fluid is similar to that in the blood, but with a delay of 10-15 minutes. This means that any increase in the level of glucose in the bloodstream leads to an increase in the interstitial fluid as well, but after 10-15 minutes.

Sensor

The most important component of this system is the small sensor that is implanted subcutaneously, in the fat layer of the skin. He takes measurements of the glucose level in the interstitial fluid at regular intervals – usually every 5 or 10 minutes.

Here's how it works:

The monitoring system kit contains a special device (applicator) for implantation;

- Common implantation areas are the arm, abdomen, leg, lumbar area (above the buttocks);
- The implantation process is not very painful, but the discomfort varies according to individual sensitivity. Some people only feel a slight sting, while others have more discomfort;
- Wearing the device itself is not painful;
- The sensor is not affected by contact with water. It attaches to the skin with waterproof adhesive tapes. You can swim and take a shower or bath without problems while wearing it. The adhesive also prevents the sensor from peeling or snagging during everyday activities;
- Sensors must be replaced at regular intervals to ensure accuracy and proper system operation. Depending on the model, replacement may be required every 7, 10 or 14 days. Each manufacturer has its own recommendations regarding the duration of use;
- The implantation area must also be changed periodically

Receiver or reading device

A transmitter attached to the sensor sends the measurements taken to another device capable of capturing the signal. He can be:

- smartphone
- tablet
- dedicated reader
- insulin pump (if the sensor is integrated with such a pump).

Here's how it works:

- The receiver or reading device receives the data from the sensor and displays the blood glucose value in real time;
- The continuous glucose monitoring system can provide alerts or notifications if the glucose level falls or rises above the preset limits;
- Modern devices store all this data and can show glycemic fluctuations over a longer period of time. This information helps patients and doctors understand how the body reacts to diet, physical activity, medication and other factors;
- Advanced continuous glucose monitoring systems can be integrated with insulin pumps that make automated therapy possible. This means that based on the data received from the sensor implanted under the skin, the insulin pump can automatically adjust the dose of insulin to keep the blood glucose level within normal limits

SIZING

The continuous glucose monitoring system does not necessarily replace the traditional glucometer, which measures the glucose level through a finger prick. Several times a day, you need to measure your blood sugar level with this device to compare the actual blood glucose values with those obtained by the sensor in the interstitial fluid.

The values measured with the glucometer are entered into the reading device of the continuous glucose monitoring system. It will compare the data with the measurements made by the sensor and adjust the operating algorithm to ensure future measurements as accurate as possible.

The process is called calibration and helps to correct possible sensor deviations. For correct calibration, it is important to follow the manufacturer's instructions and the doctor's recommendations.Some continuous glucose monitoring systems are designed to work without manual calibration.

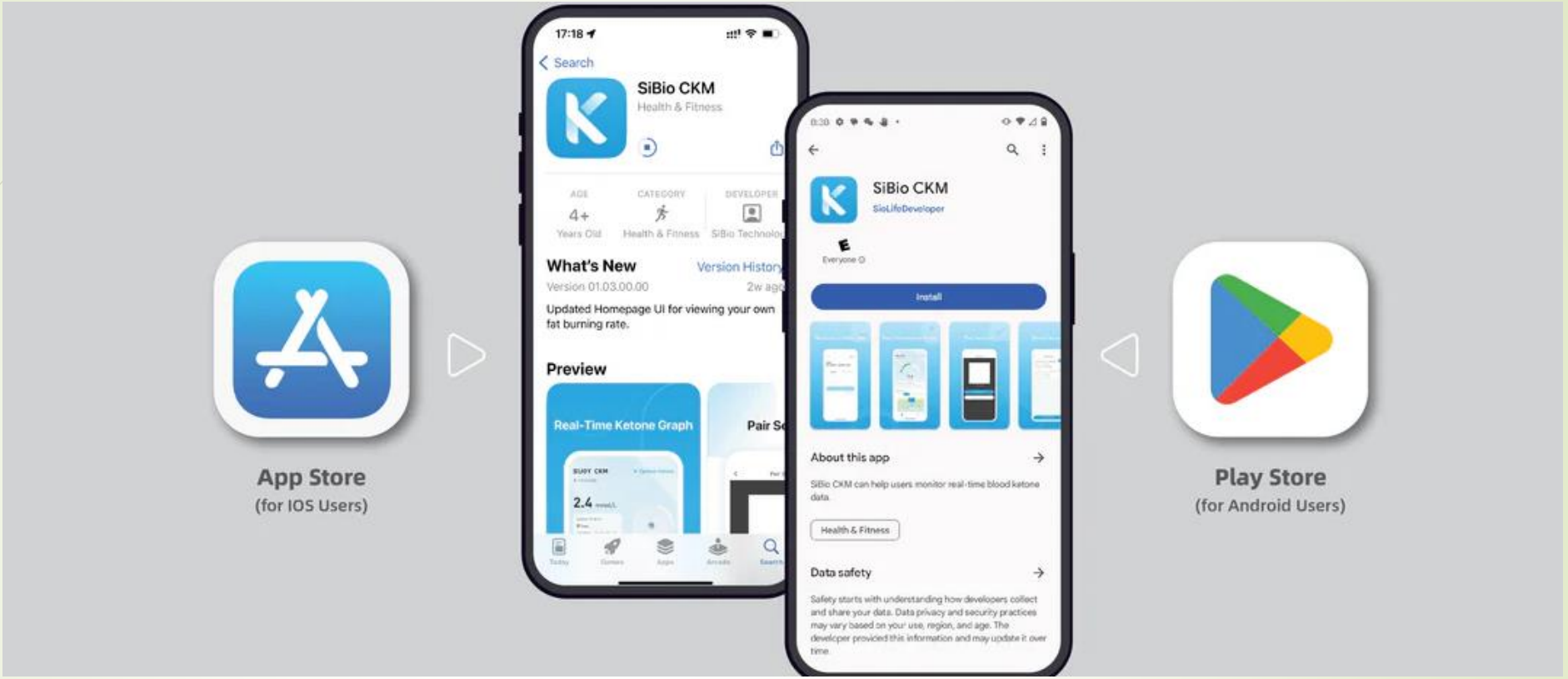
These self-calibrating systems use advanced algorithms and technologies to automatically adjust the data measured by the sensor, without the need for measurements obtained with a glucometer. Some sensors are more accurate than others, but it can also be influenced by external factors, such as the degree of dehydration.

Dehydration reduces the amount of interstitial fluid and delays the equilibration of blood glucose levels.

Certain medications can also decrease the accuracy of the measurements.

The decision to use continuous glucose monitoring should be made with your doctor based on your individual needs, lifestyle, and how each person manages their diabetes.

Installation:



Step 1: **Download**

Search App Store (for iOS Users) or Play Store (for Android Users) to download the CKM App on your phone. Follow the instructions to create your account.

Step 2: Clean

Select an area on the back of your upper arm where the sensor will be applied. Clean this area with a sanitizing wipe and allow it to dry completely before proceeding.

Step 3: Unpack

Peel the lid completely off the sensor pack, and then unscrew the cap from sensor applicator. At this point, the sensor pack and applicator are ready to be assembled.

Step 4: Assemble

Place the sensor pack on a flat, stable surface and secure it with one hand to prevent unnecessary movement during assemble. Line up the sensor applicator with sensor pack, then press down firmly on the sensor applicator until it comes to a stop. Lift the applicator out of the sensor pack.

Step 5: Unlock

Remove the clip on the applicator and place the applicator on the prepared area where the sensor will be worn.

Step 6: Apply

Apply the CKM system onto your arm with single-click. Slowly pull sensor applicator away from the arm and make sure that the sensor is firmly attached

Step 7: Connect

Open the CKM APP and follow the instructions to pair it with your sensor. You can either scan the QR code on the box or manua lly enter the 8-digit code.