

Blood glucose: The critical element in diabetes management and prevention.

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Introduction

Blood glucose, also known as blood sugar, is the amount of glucose present in the blood. Glucose is a type of sugar that is the primary source of energy for the body's cells. It comes from the foods we eat and is absorbed into the bloodstream where it can be transported to the body's cells. The body regulates blood glucose levels through a complex system involving hormones such as insulin and glucagon. Insulin is produced by the pancreas in response to high blood glucose levels and helps the body to store glucose for later use. Glucagon is also produced by the pancreas, but in response to low blood glucose levels, it helps the body to release stored glucose.

Maintaining a normal blood glucose level is important for overall health. High blood glucose levels, or hyperglycemia, can occur when the body is unable to produce or effectively use insulin. This can be a symptom of diabetes, a chronic condition where the body is unable to regulate blood glucose levels properly. Symptoms of hyperglycemia include increased thirst, frequent urination, fatigue, and blurred vision. Long-term complications of uncontrolled hyperglycemia can include damage to the eyes, kidneys, nerves, and cardiovascular system. On the other hand, low blood glucose levels, or hypoglycemia, can occur when there is too much insulin in the body or when someone with diabetes skips a meal or exercises vigorously without adjusting their medication. Symptoms of hypoglycemia include shakiness, sweating, dizziness, confusion, and in severe cases, loss of consciousness. Treatment for hypoglycemia involves consuming a source of glucose such as a sugary drink or candy [1].

Measuring blood glucose levels is an important part of managing diabetes. People with diabetes may need to monitor their blood glucose levels multiple times a day to ensure they are within their target range. This can be done with a blood glucose meter, which measures the amount of glucose in a drop of blood from a finger prick. Blood glucose is an essential component of our body's energy source. Maintaining a normal blood glucose level is crucial for overall health, and people with diabetes need to monitor their blood glucose levels regularly to manage their condition effectively. If you experience any symptoms of high or low blood glucose levels, it is essential to seek medical advice promptly. There are several factors that can affect blood glucose levels, including diet, physical activity, stress, illness, and medication. It is

essential for people with diabetes to work with their healthcare team to develop a personalized diabetes management plan that includes monitoring blood glucose levels, taking medication as prescribed, following a healthy diet, getting regular exercise, and managing stress [2].

One key aspect of diabetes management understands the Glycemic Index (GI) of foods. The GI is a ranking system that measures how quickly a food raises blood glucose levels. Foods with a high GI value are rapidly absorbed and cause a sharp increase in blood glucose levels, while foods with a low GI value are digested more slowly and cause a more gradual increase in blood glucose levels. People with diabetes should aim to consume foods with a low or moderate GI value to help regulate their blood glucose levels. In addition to diet and medication, physical activity can also have a significant impact on blood glucose levels. Exercise can lower blood glucose levels by increasing the body's sensitivity to insulin and helping the body to use glucose for energy. However, people with diabetes should consult with their healthcare team before starting a new exercise program and monitor their blood glucose levels closely during and after exercise [3].

Blood glucose levels are a critical factor in maintaining overall health, especially for people with diabetes. By working with their healthcare team to develop a personalized diabetes management plan that includes monitoring blood glucose levels, following a healthy diet, taking medication as prescribed; getting regular exercise, and managing stress, people with diabetes can effectively manage their condition and reduce the risk of long-term complications. It is also essential for people with diabetes to have regular check-ups with their healthcare provider to monitor their blood glucose levels and make any necessary adjustments to their diabetes management plan. This may include changes to medication dosages or changes to their diet and exercise routine [4].

Technology has also played a significant role in diabetes management, with the development of Continuous Glucose Monitoring (CGM) systems. These devices allow people with diabetes to monitor their blood glucose levels in real-time, providing a more accurate picture of their blood glucose fluctuations throughout the day. CGMs can also alert people to potential high or low blood glucose levels, helping them to take action to prevent dangerous situations. In addition to CGMs, there are also insulin pumps, which provide a

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continuous infusion of insulin throughout the day, helping to regulate blood glucose levels more effectively. Insulin pumps can also be programmed to deliver insulin doses at specific times to match a person's individual needs [5].

Conclusion

Blood glucose levels are an essential aspect of our body's energy metabolism, and maintaining normal blood glucose levels is crucial for overall health. People with diabetes need to monitor their blood glucose levels closely, follow a healthy diet, take medication as prescribed, get regular exercise, manage stress, and have regular check-ups with their healthcare provider to effectively manage their condition and reduce the risk of long-term complications associated with diabetes. With advances in technology, people with diabetes now have more tools available to help them manage their blood glucose levels and improve their quality of life.

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