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Short Commentary

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Do Seasonal Temperature Changes Affect Blood Glucose Levels?

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Commentary

Diabetics of type 1 and type 2 are very vulnerable to the seasonal changes of temperature. Both high and low temperatures can have serious complications. People often look forward to changes of season but in tropical areas or in hot weather during hot summers, high temperatures can be uncomfortable for healthy individuals. But for diabetics, the heat and humidity can be particularly a very dangerous health risk. Sizzling temperatures can also affect metabolism and the release of hormones resulting in many complications. It can cause an impaired ability to adjust to rises in temperature which will cause hyperglycemia especially during episodes of thirst and exhaustion which leads to blurry vision, weight loss, and increased urination frequency depleting body's fluids even more. Extreme heat can affect blood sugar control if insulin is administered or if glucose levels are not controlled [1].

Dehydration can cause blood sugar to rise as the blood glucose becomes more concentrated. When fluid level is low, the kidneys receive less blood flow and work less effectively. This might cause hyperglycemia [2]. High temperatures can also cause blood vessels to dilate, which can enhance insulin absorption, potentially leading to low blood sugar. While many diabetics observe higher blood sugar in hot weather, some individuals need less insulin when the weather turns warmer. It may be explained by the dilation of small blood vessels in hot temps. As these tiny blood vessels dilate, the body's delivery system becomes more efficient extra insulin and glucose can feed the peripheral Tissues [3].

Diabetics with vascular problems often do not have proper blood flow, especially to their extremities, and cold weather may exacerbate slow blood flow. On the contrary, when temperature is too low during winters or cold weather, Diabetics also need to be aware of an autoimmune condition called Raynaud's phenomenon. Symptoms of this condition include numbness and coldness in the fingers and toes. This usually occurs when blood vessels constrict in the hands and feet. It can lead to an abnormally low blood sugar reading. During warmer months, it is especially important for diabetics to stay properly hydrated. It is best for diabetics to stay indoors during the hottest part of the day and check blood sugar regularly for changes when temperatures start to rise. Hot weather can increase the risk of hypoglycemia for those on blood glucose lowering medication [3].

Diabetics who have other health problems such as lupus, the effect can be greater as these conditions will undermine the body's response to heat and its management of insulin and glucose.

Changes in temperatures do not affect metabolism and blood glucose levels only but extreme heat and cold can affect testing supplies such as insulin, test strips and glucose monitors. The supplies should be kept in proper storage areas away from heat and moisture. Dehydration can be an issue in hot weather, and higher blood glucose levels can further increase this risk. People with diabetes may need to increase their intake of fluids in hot weather, drinking at least 8 cups of water a day depending on the temperature and their physical activity.

Diabetics should recognize hypoglycemia symptoms, such as sweating and tiredness, as a result of hot weather. To prevent that, diabetics should be prepared to test their blood glucose more often, particularly if performing physical activity in hot weather and they should keep a source of simple carbohydrate, such as glucose tablets, to hand in case they have such a condition and they also may need to adjust insulin levels during changes in temperature through talking to their medical service provider.

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