



High Blood Sugar After Meals: A Cause for Concern

Since the start of self-monitoring of blood glucose in the 1970s, people with diabetes have been instructed to measure their blood glucose levels before meals. This may seem backwards, as we know that food raises blood glucose, and to see how levels rise 1-2 hours after meals would seem to be of more value. One of the main reasons for stressing before meal measurements was that up until a few years ago, the medications used to treat diabetes (both insulin and pills) did not have a peak effect 1-2 hours after meals. Another reason is that we did not have data or evidence to suggest this was an important time to check levels.

Today the situation is quite different. We now have insulins and oral medications targeted to have a maximum effect 1-2 hours after a meal. We also now have evidence suggested by numerous research studies, that high blood glucose levels after meals (known as postprandial hyperglycemia) are linked to an increased risk of long-term diabetes complications. It is also now recognized that high blood glucose levels after meals are a very early sign of type 2 diabetes. These levels will be out of the normal range before the fasting levels begin to show a rise. Several studies have shown that people with high blood glucose levels after meals, even before a diagnosis of diabetes has been made, are at a higher risk of heart disease, heart attack and early death. It is felt this happens because an early sign of type 2 diabetes is the inability of the pancreas to secrete enough insulin in the first few minutes after a meal. This is also known to be a defect early on in the development of type 1 diabetes. Other studies have shown that high glucose levels after meals can also cause certain fats in the blood to rise. This may be a contributing factor to the increase in heart disease associated with postprandial hyperglycemia.

So, how do we use this important information? If measurements before meals seem to always be on target, and the HbA1C test (which measures an average of all blood glucose levels in a 2-3 month period) is above target, it is likely that postprandial hyperglycemia is the culprit. Checking after meals will determine if this is the reason the HbA1C test is high. Individuals can then use their problem-solving skills to correct the problem. Sometimes this involves looking at the amount of carbohydrate in the meal to see if it was too much. For people taking medication that targets the levels after meals (Humalogin®, Prandin®, Starlix®, Precose® and Glyset®), an adjustment in the dose may be needed. This should always be done in consultation with your diabetes-care provider.

How high is too high?

As with all target ranges in diabetes, this varies from individual to individual. In general, a level greater than 180mg/dl 1-2 hours after a meal is considered to be too high. For others, the after-meal target may be as low as 140mg/dl or as high as 200mg/dl. These targets need to be developed in collaboration with your diabetes care team. Many people require a combination of medications to treat both blood glucose levels before and after meals. People with type 1 diabetes often take a long-acting insulin to control fasting blood glucose levels, and a very quick-acting insulin

to lower blood glucose levels after meals. People with type 2 diabetes may need a combination of two oral medications, or a combination of pills and insulin to lower their readings throughout the day. The bottom line, as demonstrated by very important research studies, is that the key to preventing long-term complications associated with diabetes is keeping blood glucose levels as close to normal as possible. We now have the tools to achieve this goal. If you discover your levels after meals are consistently higher than 160mg/dl to 180mg/dl, contact your diabetes care team to help determine the cause.

Note: This information is designed for educational purposes only and is not to be used as a substitute for professional medical advice. If you have specific concerns, please see your doctor.

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