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## Diabetes Health Center

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## The Hemoglobin A1c (HbA1c) Test for Diabetes

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### Importance of Hemoglobin A1c Test

The hemoglobin A1c test -- also called HbA1c, glycated hemoglobin test, or glycohemoglobin -- is an important blood test used to determine how well your diabetes is being controlled. Hemoglobin A1c provides an average of your blood sugar control over a six to 12 week period and is used in conjunction with home blood sugar monitoring to make adjustments in your diabetes medicines.

Hemoglobin is a substance within red blood cells that carries oxygen throughout your body. When your diabetes is not controlled (meaning that your blood sugar is too high), sugar builds up in your blood and combines with your hemoglobin, becoming "glycated." Therefore, the average amount of sugar in your blood can be determined by measuring a hemoglobin A1c level. If your glucose levels have been high over recent weeks, your hemoglobin A1c test will be higher. The amount of hemoglobin A1c will reflect the last several weeks of blood sugar levels, typically encompassing a period of 120 days.

### What's a Normal Hemoglobin A1c Test?

For people without diabetes, the normal range for the hemoglobin A1c test is between 4% and 6%. Because studies have repeatedly shown that out-of-control diabetes results in complications from the disease, the goal for people with diabetes is an hemoglobin A1c less than 7%. The higher the hemoglobin A1c, the higher the risks of developing complications related to diabetes.

People with diabetes should have this test every three months to determine whether their blood sugars have reached the target level of control. Those who have their diabetes under good control may be able to wait longer between the blood tests, but experts recommend checking at least 2 times a year.

Patients with diseases affecting hemoglobin such as anemia may get abnormal results with this test. Other abnormalities that can affect the results of the hemoglobin A1c include supplements such as vitamins C and E and high cholesterol levels. Kidney disease and liver disease may also affect the result of the hemoglobin A1c test.

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### WebMD Medical Reference

SOURCES: American Diabetes Association: "A1C Test." Droumaguet, C. Diabetes Care, 2006; 29:1619. Steffes, M. Clin Chem, 2005; 51:1569. Selvin, E. Diabetes Care, 2006; 29:877.

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