



DIABETES TESTS

Decoding Your HgA1c Test Results

Wondering what your A1c level means? Learn the average glucose it correlates to and what low, optimal, and high results indicate so you can work with your doctor to choose appropriate treatment when needed.

Converting HgA1c Levels to Average Glucose

Glucose levels fluctuate a lot. The chief advantage of the hemoglobin A1c test is that it "smooths out" all these short-term fluctuations and gives a much clearer picture of your average glucose level over the most recent three-month period. Your test result can be directly translated to an average glucose level. While the correlations vary a bit from lab to lab, the table below lists typical correlations.

HgA1c Level (%)	Average Glucose (mg/dL)
5	97
6	126
7	154
8	183
9	212
10	240
11	269
12	298
13	326
14	355



About HbA1c

Optimal range: 5 – 5.6%

High range: > 5.6%

The A1c test can be very helpful in initially diagnosing diabetes if your doctor suspects type 1 or [type 2 diabetes](#). More specifically, it can be useful in monitoring [prediabetes](#) to determine whether you are improving, stabilizing, or slipping into overt type 2 diabetes.

The test is also very important in managing diagnosed diabetes. It reflects how well your treatment plan is working and indicates whether additional steps need to be taken for better control.

Low Results

A hemoglobin A1c level of less than 5% is considered low, with an average glucose under 97 mg/dL. In general, a "low" hemoglobin A1c level is not considered to be a problem. It is worth noting, however, that a few studies have found that a low hemoglobin A1c level is statistically associated with early mortality. Other studies have not found this association.

If there is actually an association between low hemoglobin A1c levels and early mortality, it does not appear to have anything to do with blood glucose levels. Rather, such an association would most likely be caused by various illnesses—unrelated to glucose—that produce a rapid turnover of red blood cells. Also, several medical problems could potentially produce such a rapid turnover of red cells, including liver disease or cancer.

The question of whether a low hemoglobin A1c level is a bad thing is currently unsettled. It is fair to say that most doctors do not believe it is anything to worry about. Still, if you have a low A1c level, it may be worth discussing it with your doctor. A general medical evaluation would likely be enough to put both your mind at rest.

Optimal Results

A hemoglobin A1c level of 5% to 5.6% indicates normal glucose metabolism, with an average glucose between 97 mg/dL and around 115 mg/dL. This level is usually not a cause for concern.

However, when interpreting a normal A1c test (depending on your unique situation), your doctor may consider falsely lowered levels. Potential causes may include bleeding, which increases red blood cell production and causes a person to have a relatively "young" population of cells, and thus falsely lowered A1c levels. Certain types of genetic hemoglobin variants may also be a cause.

Falsely lowered A1c levels most often occur in women with gestational diabetes—diabetes that develops shortly after pregnancy begins. It is also seen in people with very recent diabetes onset, where even though recent blood glucose levels are elevated, A1c levels still need to "catch up." [Screening for gestational diabetes](#), therefore, is routinely done with blood glucose measurements. And sudden-onset type 1 diabetes is often a fairly dramatic event, so the diagnosis is not difficult even with a normal hemoglobin A1c level.

High Results

A hemoglobin A1c level of 5.7% or higher indicates that your average blood glucose level over the last three months or so has been higher than normal. It correlates to an average blood glucose higher than about 115 mg/dL. This may indicate [prediabetes](#), diabetes, or poor blood glucose management. But, not every high hemoglobin A1c test result indicates these scenarios.

Sometimes, the test can give results that are falsely elevated in people with iron deficiency anemia, liver disease, kidney failure, or those born with various genetic variants of hemoglobin.

Prediabetes

You likely have prediabetes if your hemoglobin A1c level is between 5.7% and 6.4%. It may come as a shock, especially if you still feel "normal," but there is a lot that you can do. Work closely with your doctor to improve your blood glucose levels.

Diagnosing Diabetes

If you have not yet been diagnosed with diabetes, two separate hemoglobin A1c measurements of 6.5% or higher will clinch the diagnosis. You will need to work closely with your doctor to bring your blood glucose under control and keep it there. At the very least, exercise and a diabetes-friendly diet will set you on the right path. You may also need to take one or more medications.

Managing Diabetes

For most people with diabetes, maintaining a hemoglobin A1c level of less than 7% is considered a standard target of therapy. Sometimes, this target may not seem feasible, so aiming for a target as high as 8% may be more reasonable. If you have diabetes and your A1c measurement is not hitting your target, you will need to work with your doctor to reassess your diabetes treatment plan.