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# A1C Testing

Bayer Health Facts



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REVIEWED

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## A1C Testing

Keeping your diabetes well managed is one of the keys to staying healthy. Checking your blood sugar at different times of the day is helpful to see the effects of your diabetes management on your blood sugar (see our Bayer Health Facts brochure on **Blood Sugar Testing**). When you self-monitor your blood sugar it tells you what your blood sugar level is at that moment. But your blood sugar may change a lot over the course of the day. Self-monitoring your blood sugar is just one important part of your diabetes management plan. By itself you may not have the entire picture of how well your diabetes treatment plan is working.

There is another test that can give you information about your diabetes management. It is called an “A1C” test and it can tell you and your healthcare team your average blood sugar for the past 2 to 3 months. You may be familiar with this test because your healthcare provider usually performs it several times a year. The A1C test may also be called:

- Hemoglobin A1C (HbA1C)
- Glycosylated or glycated hemoglobin



A1C tests tell you your average blood sugar for the past 2 to 3 months.

## What is Hemoglobin?

Hemoglobin is a protein inside your red blood cells. It is part of the red blood cell that carries oxygen from your lungs to the rest of the body.

Hemoglobin, like most proteins in the body, can also carry blood sugar throughout the body. Once blood sugar attaches to hemoglobin it stays there for the life of the red blood cell. This lifetime ranges from 3 to 4 months. The more sugar there is in the blood, the more that will attach to the hemoglobin in the red blood cells. This makes the A1C number higher.

## What Does the A1C Measure?

A1C measures how much sugar attaches to the hemoglobin. Your A1C reading tells you what your average blood sugar level has been for the past 2 to 3 months. If you have a lot of sugar in your blood and your average blood sugar has been high over the past few months, then your A1C will likely be high. The A1C test allows you to see how your overall blood sugar management has been.

## How Does My A1C Reading Compare to My Daily Blood Sugar Readings?

Healthcare professionals and people with diabetes have been using the A1C test for many years to gauge overall blood sugar management. There has been a recent study confirming that A1C translates to an average blood sugar number. This study was called the A1C-Derived Average Glucose (ADAG) Study and proved that A1C is an accurate test of average blood sugar. As a result, your healthcare provider can accurately tell you that an A1C reading of 6.5% indicates your estimated average daily glucose<sup>†</sup> (eAG) reading is 140 mg/dl.

## A1C to Estimated Average Glucose<sup>†</sup> (eAG) Conversion Table\*.

This table shows how A1C compares to your estimated average glucose<sup>†</sup> (eAG).

A1C %	Estimated Average Glucose mg/dl
6	126
6.5	140
7	154
7.5	169
8	183
8.5	197
9	212
9.5	226
10	240

<sup>†</sup>Glucose is another word for sugar.

\*These numbers are for non-pregnant adults. Individual laboratories may have different ways to test A1C and report normal ranges. Talk with your healthcare provider about your results.

As you look at this table, you may wonder why these numbers are different than the average blood sugar number on your meter. Most people check their blood sugar more often when their blood sugar levels are lower rather than when they are higher. Using this new average blood sugar number may give you and your provider a better idea of your daily blood sugar management, when to test and decide if changes are needed to your diabetes treatment plan.



## How Can A1C Testing Help Me?

Your A1C test results can help you and your healthcare provider assess your overall diabetes management and risk for developing complications. It can also help you set goals together for improving your diabetes management. A person without diabetes has an A1C of 4-6%. The American Diabetes Association recommends an A1C of less than 7% as a treatment goal.

It is normal to have changes in your diabetes treatment plan from time-to-time to help improve your A1C. When your A1C is less than 7%, you know that you are doing all that you can to stay healthy. Research shows that controlling blood sugar as close to normal as possible lowers your risk of developing complications such as heart disease, stroke, kidney disease, eye disease, nerve damage, amputations, and circulation problems.

## Where Do I Go for an A1C Test?

- Your healthcare provider's office. A drop of blood is taken from a finger stick to test your A1C. This allows you to wait for the results and discuss them right away.
- A medical lab. A blood sample is drawn and these results are sent to your healthcare provider. You may be asked to set up an appointment to discuss the results.

(An A1C test does not require you to fast.)

## How Often Should I Have an A1C Test?

The American Diabetes Association (ADA) recommends having an A1C test based on the following schedule:

- At least two times a year if the diabetes treatment plan is being met and blood sugar levels are in the target range.
- At least every three months if the diabetes treatment plan has changed or blood sugar goals are not in the target range.

Two major studies, the Diabetes Control and Complications trial (DCCT) and the United Kingdom Prospective Diabetes Study (UKPDS) have shown the importance of good blood sugar management in reducing the risk of diabetes complications. The DCCT trial showed that those people with type 1 diabetes with close to normal A1C levels had fewer diabetes-related complications, including eye and kidney disease and nerve damage. The UKPDS study showed that in people with type 2 diabetes, the higher the A1C, the more at risk they were for diabetes related complications. Your hard work to manage your blood sugar can pay off. Having an A1C under 7% (average blood sugar less than 154 mg/dl) can reduce your risk of diabetes complications.

### **My A1C Target Goal is: less than 7%**

\*Or as recommended by your healthcare provider.

## How A1C Testing Helped Maria

Maria has type 2 diabetes. She was testing her blood sugar every morning before breakfast. Her results were usually normal, below 100 mg/dl. When Maria's A1C was tested, she was very surprised that the result was high (9%). This result meant that her estimated average blood sugar was 212 mg/dl. The diabetes educator asked Maria to test her blood sugar after meals as well as before breakfast. Maria found out that her blood sugar was normal in the morning, but it was high at other times in the day. She needed to control her morning blood sugar *and* her after-meal and bedtime blood sugar. Maria's healthcare team helped her to make changes in her diabetes care plan to help her control her blood sugar. Maria was happy to learn that her A1C went down to 7.5% (average blood sugar of 169 mg/dl) by her next visit. This showed that her new plan was already helping, all day long.



**It is important to test your blood sugar regularly and have your A1C tested at least twice per year. Both can help give you the information you and your healthcare provider need to come up with the best possible treatment plan. You can then work toward a path of success together by making changes in your medications, activity level or eating plan to improve your health.**

### **References:**

American Diabetes Association

The Art and Science of Diabetes Self-Management Education

[www.diabetes.org](http://www.diabetes.org)

[www.mayoclinic.com](http://www.mayoclinic.com)



Controlling your blood sugar is key to good health and managing your diabetes. Testing your blood sugar regularly is an important part of your health care plan. The A1C test is another way to track your diabetes. Be sure that you use this helpful tool, as well as your blood sugar meter, to track the positive changes that you make toward improving your diabetes management. The power to improve your diabetes is in your hands.

For more information about Diabetes Care Systems and support from Bayer, or help with your diabetes testing supplies, call our toll-free Customer Service Help Line at [1-800-348-8100](tel:1-800-348-8100) (24 hours, 7 days a week)

[www.simplewins.com](http://www.simplewins.com)

For more help in managing your diabetes, see a diabetes educator. To find an educator: [www.diabeteseducator.org](http://www.diabeteseducator.org)



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