

Patient education: Hemoglobin A1C tests (The Basics)

Written by the doctors and editors at UpToDate

What is hemoglobin A1C? — Hemoglobin A1C is a blood test that shows what your average blood sugar level has been for the past 2 to 3 months ([table 1](#)). Doctors and nurses use this test for 2 reasons:

- To see whether a person has diabetes
- To see whether diabetes treatment is working the right way

Other names for hemoglobin A1C are "glycated hemoglobin," "HbA1C," or just "A1C."

What should my A1C numbers be? — That depends on why you have the test.

- **When checking for diabetes** – If you had an A1C test to see if you have diabetes, your A1C should be 6 or less.
 - If your A1C is 6.5 or higher, it probably means you have diabetes, but you should have the test done again to be sure.
 - If your A1C is between 5.7 and 6.4, you are at risk for getting diabetes. You should probably start doing things that can help prevent diabetes. For example, you should become more active and lose weight (if you are overweight).
- **When checking how treatment is working** – If you already know you have diabetes, and you had an A1C test to see how well controlled your blood sugar is, your A1C should probably be 7 or less. But you need to check with your doctor on what your level should be. Not everyone with diabetes is the same. Some people need to aim for different A1C levels than others.

Can I do this test at home? — It is now possible to buy kits to test your A1C at home. But home testing of A1C is not usually necessary.

How often should I have an A1C test? — That depends on whether you have diabetes and on what your last A1C test showed.

- If you had an A1C test to check for diabetes and your A1C was less than 5.7 (meaning you do NOT have diabetes), you should have A1C tests done every 3 years.
- If you had an A1C test to check for diabetes and your A1C was between 5.7 and 6.4 (meaning you do not have diabetes but are at risk for it), you should have A1C tests done every year.
- If you do have diabetes and your blood sugar is well controlled, you should have A1C tests every 6 months.

- If you have diabetes and you recently changed treatment plans or you are having trouble controlling your blood sugar, you should have A1C tests every 3 months.

Why do my A1C numbers matter? — Studies show that keeping A1C numbers close to normal helps keep people from getting:

- Diabetic retinopathy, an eye disease that can cause blindness
- Nerve damage caused by diabetes (also called neuropathy)
- Kidney disease

For people with newly diagnosed diabetes, keeping the A1C close to normal might also prevent heart attacks and strokes in the future.

Do I still need to measure my blood sugar at home? — If your doctor wants you to check your blood sugar at home, you should keep doing so even if you have routine A1C tests. Blood sugar tests tell you what your blood sugar is from moment to moment. That's important information to have, because it lets you know if your medications and lifestyle changes are keeping your blood sugar in a safe range.

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[Patient education: Using insulin \(The Basics\)](#)

[Patient education: Diabetic retinopathy \(The Basics\)](#)

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This topic retrieved from UpToDate on: Sep 28, 2016.

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GRAPHICS

A1C level and average blood sugar

If your A1C level is (percent):	That means your average blood sugar level during the past two to three months was:	
	If you live <i>within the United States</i> , use these values. Your blood sugar is measured in milligrams/deciliter (mg/dL).	If you live <i>outside the United States</i> , use these values. Your blood sugar is measured in millimoles/liter (mmol/L).
5	97	5.4
6	126	7
7	154	8.6
8	183	10.2
9	212	11.8
10	240	13.3
11	269	15
12	298	16.5
13	326	18.1
14	355	19.7

The A1C blood test tells you what your average blood sugar level has been for the past two to three months. This table lists which A1C levels go with which average blood sugar levels. Blood sugar is measured differently within the United States than it is in most other countries. The column in the middle is for people in the United States. The column on the right is for people who live outside the United States.

A1C: glycated hemoglobin.

Graphic 76310 Version 3.0

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