

# Is Your Glucose Meter Accurate?

When you purchase a new glucose meter and you compare it to your old one, some times the test results come back different. Or when you go to the doctor and compare your glucose meter results to the laboratory test, oftentimes the test results may vary, and vary greatly. Either scenario will cause many diabetics to wonder: Is my glucose meter accurate?

At first glance, you would expect all blood glucose meters and laboratory equipment to give the same result. After all, they're measuring the same thing - the amount of glucose in a specific blood sample. But meters and lab equipment are calibrated, or set, to measure blood glucose in different ways and will give different results.

So even though your old glucose meter and your new one are showing different test results and your laboratory test doesn't match either meter, all the test results including both glucose meters could be accurate.

## How is Accuracy Defined?

Before deciding if your meter is accurate, it's important to understand how accuracy is defined. A home blood glucose meter's test result is considered accurate if it falls within  $\pm 20\%$  of the lab test. Comparing a meter's test result with a lab test is the only valid method of determining whether or not your glucose meter is accurate.

## How Are Glucose Meters Calibrated?

Some home glucose meters are calibrated to use whole blood to measure glucose. Lab equipment only uses the plasma portion of blood, meaning that the red blood cells are removed before blood glucose testing. Because of this difference in sample types, whole blood test results are approximately 12% lower than plasma test results.

More of the newer glucose meters are beginning to test plasma, or both, or have testing strips that can test for plasma. You must first know how your glucose meter is calibrated to accurately compare your glucose meter to lab results.

$100 - 20 = 80$  (Low Range)

If your glucose meter fell between 80 and 120 ( $\pm 20\%$ ), it would be considered accurate. If your glucose meter falls outside of that range, you should contact the manufacturer for assistance and possible replacement of your meter.

## Comparing the Test Results of Two Glucose Meters

No two glucose meters, even the same model from the same manufacturer, will give identical test results every time. The best way to check to is if your glucose meter is accurate is to compare it to lab results.

## **Tips on Comparing your Meter Results with a Lab Test**

Here are some important tips to follow whenever you want to compare a glucose meter result with a laboratory result to determine if the meter is accurate.

1. Make sure your glucose meter is clean and properly coded to match the test strips you are using.
2. Perform a check strip and/or control solution test to ensure your glucose meter and test strips are performing properly.
3. Know how your meter is calibrated and whether or not you must make a conversion before comparing results.
4. Do not eat for four hours before your lab test.
5. Make sure blood samples for both glucose tests are drawn at the same time. Once blood has been drawn for your lab test, prick your finger and perform a test with your glucose meter.
6. Request that the lab test be done within 30 minutes of drawing blood.
7. Ask the laboratory technician if your hematocrit (red blood cell count) is normal. If it isn't, your meter test result may be inaccurate.
8. If you are severely dehydrated from excessive vomiting, diarrhea, or urination, your meter test result may be inaccurate.