

Reference Range FAQ

Houston Methodist Laboratory Services



What is a Reference Range?

A Reference Range, sometimes called “normal” range or reference interval, is the results for the test that are most often obtained when testing samples from healthy individuals.

Why are Reference Ranges important?

Test results in and of themselves are not meaningful. Test results’ significance comes when they are compared to the reference range (the results expected in most healthy individuals).

How are Reference Ranges determined?

Most often, reference ranges are determined by testing a large number (at least 100) of samples collected from healthy volunteers. The results are then statistically analyzed, and the reference range is set as the range of values found for 95% of the healthy volunteers. Therefore, 5% of healthy people will have a result outside of the reference range.

My result is outside of the reference range. What does that mean?

When you and your medical provider review and interpret your test results, some results may be higher or lower than the reference range. Your medical provider may alter your treatment plan or perform additional tests for further evaluation. Alternatively, you may be perfectly fine, and are like the 5% of healthy people that have a result outside the reference range.

My result is within the reference range, does that mean everything is good?

Hopefully, yes. However, your results are one part of your clinical picture. Test results within the reference range do not guarantee you are healthy. You and your medical provider must consider your symptoms and other clinical testing when evaluating your results even if they are within the reference range. Please consult with your medical provider if you have any concerns about your test results.

I’ve gone to several labs and had the same test. Why aren’t the reference ranges the same?

Laboratories use different instruments and different methods for measuring the same test. Each of these methods has its own reference range. Each laboratory is required to verify that the reference range is appropriate for the people they test. In general, if a patient’s test result is within the reference range in one laboratory, it will also be within the reference range when tested at other laboratories. That is not always the case, especially with results towards the limits of the range (that is, at the high end or the low end). You and your medical provider must take your whole clinical picture into account when interpreting these results.

Are there on-line references where I can learn more about reference ranges?

There are many resources available including:

<https://www.testing.com/articles/laboratory-test-reference-ranges/>

<https://www.cancer.gov/publications/dictionaries/cancer-terms/def/reference-range>

<https://medlineplus.gov/lab-tests/how-to-understand-your-lab-results/>