HEALTH BASICS

Understanding lab test results

Lab results show what was measured in a sample and how clinicians interpret it.

WHAT IT IS
A report of substances or cells measured in a sample

WHERE IT COMES UP
Blood, urine, stool, swab, or tissue test reports

WHY IT MATTERS
Guides screening, diagnosis, treatment, and follow-up decisions

WHAT IT IS NOT
Not a disease or diagnosis by itself

WHO TO ASK
Ordering clinician, primary care team, pharmacist, or laboratory service

HOW IT IS CHECKED
Laboratory measurement compared with units, intervals, and previous results

Overview

A lab test measures something in a sample from your body. The sample might be blood, urine, stool, fluid, a swab, or a small piece of tissue.

A lab result is information. It is not a disease and, by itself, is usually not a diagnosis. Clinicians interpret it alongside your health history, medicines, reason for testing, examination, and other test results.

Some results are numbers, such as a blood glucose level. Others use words such as "positive," "negative," "detected," or "not detected." A report may also include units, a reference interval, and flags such as H for high or L for low.

A result outside its reference interval may be important, but it can also occur in a healthy person. A result within range does not always rule out a medical condition. The meaning comes from the whole clinical picture.

How it works

Laboratories use validated methods to examine samples. The result may describe an amount,

the presence of a substance, the appearance of cells, or how a sample reacts in a test.

A reference interval , sometimes called a reference range, shows the values expected in a selected group of people. For many tests, the interval includes most-but not all-healthy people. This means some healthy people will have a result just outside it.

Reference intervals can differ between laboratories. Reasons include different equipment, measurement methods, units, and reference groups. Age, sex, pregnancy, and other personal factors may also affect which interval applies. Compare your number with the interval printed on that specific report rather than one found elsewhere.

A decision limit is different from a reference interval. It is a threshold used to guide a health decision, such as further testing or treatment. Some tests, including certain diabetes and cholesterol tests, may be interpreted using decision limits rather than only the laboratory's reference interval.

Results also need context:

A positive result usually means the test detected what it was designed to find. It does not always confirm a condition. A negative result means the test did not detect it, but it may not completely rule it out.

A false-positive result suggests something is present when it is not. A false-negative result misses something that is present. No test performs perfectly in every person and situation.

- Units: A number has little meaning without its unit of measurement
- Trend: A change over time may matter more than one isolated value
- Timing: Meals, exercise, time of day, and menstrual timing can affect some tests
- Preparation: Certain tests require fasting or a specific collection method
- Medicines and supplements: These can change body measurements or interfere with testing
- Sample quality: Clotting, contamination, delays, or broken blood cells can affect accuracy

Why it matters for your health

Lab testing can support screening, diagnosis, treatment choices, and follow-up. The same number may have different meaning depending on why the test was ordered.

For example, a complete blood count measures blood cells. It may help assess anemia, infection, bleeding, or platelet problems. Creatinine and estimated glomerular filtration rate, or eGFR, help assess kidney function. Liver enzyme tests can relate to liver or bile duct injury.

Glucose and A1C tests are used when assessing diabetes. Thyroid-stimulating hormone, or TSH, helps assess thyroid function.

These tests do not make those diagnoses on their own. An abnormal result may have several possible explanations, and additional testing may be needed.

Trends are especially useful when monitoring a known condition or treatment. A result can move while remaining within range, or stay outside range without representing a new problem. Clinicians look at how large the change is, how quickly it happened, and whether related results changed too.

A flag on a patient portal is not the same as an emergency warning. Computer systems often flag any value outside the listed interval, including small differences that are not clinically important.

What can go wrong

The most common problem is interpreting one result without enough context. Searching for a single abnormal number can produce explanations that do not fit your situation.

Results can also be affected before the sample reaches the analyser. A urine sample may be contaminated during collection. Blood cells may break open in the tube, known as haemolysis , changing some measurements. A sample may be collected at the wrong time or after food when fasting was required. In these situations, the laboratory may reject the sample or suggest repeating the test.

Supplements can interfere with certain laboratory methods. High biotin intake, sometimes found in hair, skin, and nail products, can affect some hormone and heart-related tests. Do not stop a prescribed medicine or supplement solely because of a result. Tell the ordering service what you take and ask whether it affects the test.

Errors can occur when comparing results that use different units or laboratory methods. A result from one laboratory may not be directly comparable with a result from another.

Screening tests can identify people who may need more assessment, but they can produce false-positive results. Confirmatory testing may then show that the condition is not present. False-negative results are also possible, especially if testing occurs too early, the sample is poor, or the test has limited sensitivity.

Rarely, a laboratory identifies a critical value that may require prompt action. This is different from an ordinary high or low flag. The laboratory usually has a process for urgently notifying the responsible clinical service.

What you can do

Read the entire report, including the units, reference interval, comments, and collection date. Check whether the result is final. Some microbiology, tissue, or genetic tests may be released in stages.

Keep a record of:

Before testing, follow the preparation instructions you were given. Ask whether you should fast, avoid heavy exercise, change the timing of a medicine, or collect the sample in a particular way. Do not change medicines unless the prescribing or testing service tells you to.

Useful questions for routine follow-up include:

If a result is normal and no follow-up was recommended, there may be nothing else you need to do. Continue any existing care plan.

Contact the ordering service promptly if the report labels a result critical , instructs you to seek urgent care, or the clinical team asks you to respond quickly.

Seek emergency care for severe symptoms such as chest pain, major difficulty breathing, fainting, new confusion, one-sided weakness, or uncontrolled bleeding. Do this based on the symptoms, even if you have not seen your results or the report appears normal.

- The test name, date, result, unit, and laboratory interval
- Whether you were fasting and what time the sample was taken
- Current medicines, vitamins, and supplements
- Relevant illness, heavy exercise, menstrual bleeding, or pregnancy
- Previous results from the same test
- Why was this test ordered?
- Is this result meaningfully abnormal or only slightly outside range?
- How does it compare with my previous results?
- Could medicines, supplements, timing, or sample quality affect it?
- Does it need repeating or confirming with another test?
- When and how will I receive the next result?

Common questions

Does red text mean something is seriously wrong?

Not necessarily. Patient portals often display any result outside the reference interval in red. A small difference may be expected or unimportant. The degree of change, related results, and your health context matter.

Why is my result abnormal when I feel well?

Some conditions cause no early symptoms, which is why testing can be useful. However, healthy people can also have results outside a reference interval. The result may need comparison with past values or confirmation before any conclusion is made.

Why did my clinician repeat the test?

Repeating a test can confirm an unexpected result, check whether a temporary change has settled, or replace a poor-quality sample. It may also show whether a value is stable, improving, or worsening.

Can I compare my result with someone else's?

Usually not in a useful way. Age, sex, pregnancy, health conditions, medicines, test methods, and units can differ. Use the interval and interpretation attached to your own report.

Can an online calculator interpret my results?

A calculator may convert units or estimate a value, but it cannot reliably account for your complete medical context. Use it only as a tool, not as a diagnosis.

Why is a result missing or marked pending?

Some tests take longer because organisms need time to grow, tissue needs specialist examination, or the laboratory must confirm an initial finding. Ask the ordering service when the final report is expected.

Sources

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- National Institute of Diabetes and Digestive and Kidney Diseases, "The A1C Test & Diabetes" , explanation of test interpretation and factors affecting results