TEST

Sodium blood test

A sodium blood test measures sodium concentration to assess fluid and electrolyte balance.

WHAT IT MEASURES
Sodium concentration in the liquid part of your blood

SAMPLE
Blood from a vein

FASTING NEEDED?
No, unless other tests in the same panel require it

HOW LONG IT TAKES
Usually less than 10 minutes

RESULTS IN
Often same day; timing differs by laboratory

USED FOR
Screening, diagnosis, and monitoring of fluid or electrolyte problems

MAIN LIMITATION
A single result cannot show the cause of an abnormality

Overview

A sodium blood test measures the concentration of sodium in your blood. Sodium is an electrolyte, meaning a mineral with an electrical charge. It helps control fluid balance and supports normal nerve and muscle function.

The result reflects the balance between sodium and water in your bloodstream. It does not directly show how much sodium is stored in your body. For example, a low result often relates to having too much water compared with sodium, rather than simply not eating enough salt.

Sodium is commonly measured as part of an electrolyte panel, basic metabolic panel, or comprehensive metabolic panel. These panels may also check potassium, glucose, and kidney function.

Why the test is ordered

The test may be used during a routine health assessment or when a healthcare professional

needs information about your fluid and electrolyte balance.

It can help investigate or monitor:

In hospital, sodium may be checked repeatedly because illness, surgery, fluids, and medicines can change it over a short period.

- Dehydration or excess body fluid
- Vomiting, diarrhoea, or heavy sweating
- Kidney, heart, liver, thyroid, or adrenal conditions
- Confusion, weakness, muscle cramps, or seizures
- Medicines that can change sodium or water balance
- Treatment with intravenous fluids

Who should have the test

You may be offered the test if you have symptoms or a condition that could affect fluid balance. It is also commonly included in blood tests for people taking diuretics like furosemide or hydrochlorothiazide , sometimes called water tablets, or other medicines known to affect sodium.

People receiving intravenous fluids, dialysis, or treatment for a known sodium abnormality may need regular monitoring. Routine testing is not required solely because you have eaten a salty meal.

How to prepare

No fasting is needed for a sodium test by itself. If sodium is being measured with glucose, cholesterol, or another test, follow the preparation instructions for the full panel.

Drink your usual amount of water. Drinking unusually large amounts shortly before the test may temporarily lower the concentration, while arriving dehydrated may raise it.

Tell the person who ordered the test about prescription medicines, over-the-counter products, and supplements. Do not stop a medicine unless you have been specifically advised to do so.

What happens during the test

A healthcare professional usually takes blood from a vein in your arm. A band is placed around your upper arm, the skin is cleaned, and a small needle is inserted into the vein.

The blood is collected into a tube and sent to a laboratory. The needle is usually in place for less than a minute, and the whole appointment often takes under 10 minutes.

Sodium can also be measured using blood collected from an artery or through a blood gas analyser, but this is usually done in hospital for a specific clinical reason.

Understanding your results

Sodium is usually reported in millimoles per litre, written as mmol/L. Because sodium carries one electrical charge, the numerical value is the same when reported in milliequivalents per litre, or mEq/L.

Many adult laboratories use a reference interval close to 135 to 145 mmol/L. This is not a universal range. Use the interval printed beside your result because ranges and interpretation vary by laboratory, age, sex, pregnancy status, medicines, and clinical context.

A result below the laboratory range is called hyponatraemia. Possible explanations include excess water in relation to sodium, fluid loss followed by drinking mostly water, certain medicines, or conditions affecting the kidneys, heart, liver, thyroid, or adrenal glands.

A result above the range is called hypernatraemia. This usually means there is too little water compared with sodium. It can occur with inadequate fluid intake, heavy water loss, or conditions that cause unusually large amounts of dilute urine. A large sodium load is a less common explanation.

An abnormal result does not identify the cause on its own. The size and speed of the change, your symptoms, and your other test results all affect its meaning.

What affects the results

Some factors cause a genuine short-term change even when there is no underlying sodium disorder:

High blood glucose can pull water from cells into the bloodstream, lowering the measured sodium concentration. Medicines such as mannitol can have a similar effect. The result may need to be interpreted alongside glucose and blood concentration tests.

Very high amounts of fat or protein in the blood can produce a falsely low result with some laboratory methods. This is called pseudohyponatraemia: the reported value is low even

though sodium in the watery part of the blood is not. A direct measurement method, such as some blood gas analysers use, can clarify this.

Blood drawn from an arm receiving intravenous fluid may be contaminated. Saline can make sodium appear higher, while other fluids may dilute it. A surprising result is often repeated using a fresh sample from a different site.

- Vomiting, diarrhoea, fever, sweating, or strenuous exercise
- Drinking much more or much less water than usual
- Recent intravenous fluids or large-volume transfusion
- Pregnancy-related changes in fluid balance
- Reduced kidney function
- Medicines such as diuretics, some antidepressants like sertraline or fluoxetine , carbamazepine, desmopressin, and corticosteroids like prednisone or hydrocortisone

Accuracy and limitations

Laboratory sodium measurements are generally precise, but no single result is perfect. There is no fixed rate for how often the test misses a problem or reports one incorrectly because this changes with the testing method, cut-off, timing, and clinical setting.

The test may miss an intermittent or developing problem if sodium is normal when the sample is collected. It may appear abnormal when the sample is contaminated by intravenous fluid or when very high blood fat or protein interferes with an indirect measurement method.

Most importantly, the test measures concentration rather than total body sodium or total body water. It cannot determine the cause of an abnormality. Glucose, kidney tests, serum osmolality, urine sodium, and urine osmolality may provide more useful information about why the result has changed.

Risks and complications

A blood draw may cause brief discomfort, a small bruise, or minor bleeding at the needle site. Some people feel light-headed or faint during or shortly after the sample is taken.

What happens next

A result within the laboratory range may need no further action, although it must still be considered with your symptoms and other results.

A mildly abnormal result without concerning symptoms is commonly handled through routine follow-up. This may involve repeating the test, reviewing fluid intake and medicines, or checking glucose, kidney function, and urine measurements.

More marked abnormalities may require prompt assessment, particularly if the sodium level has changed quickly. Treatment is based on the cause and must be carefully controlled because correcting sodium too rapidly can harm the brain.

Seek emergency medical help for a seizure, loss of consciousness, severe confusion, or difficulty waking. These symptoms can have many causes, but they require immediate assessment rather than waiting for a routine appointment.

Common questions

Can I drink coffee before a sodium blood test?

Usually, if sodium is the only test. Coffee with milk or sugar may not be allowed if another test requires fasting. Large amounts of caffeine may also affect fluid balance, so follow the instructions for your full blood panel.

Can I drink water beforehand?

Yes. Drink your normal amount unless you have been given fluid restrictions. Do not force yourself to drink several large glasses immediately before the test.

Does the time of day matter?

Sodium testing usually does not need to happen at a particular time. Timing may matter when results are being compared during treatment or when the test is combined with hormone measurements.

Can I exercise before the test?

Light everyday activity is unlikely to matter. Prolonged or strenuous exercise can change sodium through sweating and through the amount and type of fluid you drink, so avoid unusually hard exercise beforehand when possible.

Should I stop my medicines?

No, not unless the healthcare professional who manages them tells you to. Bring an up-to-date medicine list because diuretics and several other medicines can affect interpretation.

Why has my sodium test been repeated?

Repeating the test can confirm an unexpected value, exclude sample contamination, and show whether the level is stable, improving, or changing. A repeat may use a different measurement method if laboratory interference is suspected.

Sources

- MedlinePlus, National Library of Medicine: Sodium Blood Test
- Spasovski G, Vanholder R, Allolio B, et al. Clinical practice guideline on diagnosis and treatment of hyponatraemia. European Journal of Endocrinology . 2014;170:G1-G47
- Hoorn EJ, Zietse R. Diagnosis and treatment of hyponatremia: compilation of the guidelines. Journal of the American Society of Nephrology . 2017;28:1340-1349
- Seay NW, Lehrich RW, Greenberg A. Diagnosis and management of disorders of body tonicity: hyponatremia and hypernatremia. American Journal of Kidney Diseases . 2020;75:272-286
- Fortgens P, Pillay TS. Pseudohyponatremia revisited: a modern-day pitfall. Archives of Pathology & Laboratory Medicine . 2011;135:516-519