CONDITION

Low blood sodium

Low blood sodium is an imbalance in which sodium is too diluted in the bloodstream.

WHAT IT IS
Too little sodium relative to water in the blood

BODY SYSTEM
Whole-body fluid balance and nervous system

MAIN SYMPTOMS
Nausea, headache, confusion, muscle weakness

WHAT CAUSES IT
Excess water from medicines, illnesses, or hormone problems

HOW IT IS DIAGNOSED
Blood sodium, blood osmolality, and urine tests

MAIN TREATMENT
Careful fluid management and treatment of the cause

CAN IT BE CURED?
Sometimes - when the underlying cause is corrected

IS IT AN EMERGENCY?
Sometimes - seizures, severe confusion, or unconsciousness

LONG-TERM OUTLOOK
Usually good when corrected safely and the cause controlled

Overview

Low blood sodium is called hyponatremia . It usually means there is too much water compared with sodium in your bloodstream. It does not always mean that your body has run out of salt.

Sodium helps control the amount of water in and around your cells. It also supports nerve signals and muscle function. A typical blood sodium range is about 135 to 145 millimoles per litre, although laboratory ranges can differ slightly. A result below 135 is generally considered low.

How quickly the sodium falls often matters more than the number alone. A mild reduction that develops gradually may cause few symptoms. A rapid or severe fall can allow water to enter brain cells, causing swelling and neurological symptoms.

Low blood sodium can develop because of medicines, fluid loss, organ disease, hormone

problems, or drinking more water than the kidneys can remove. Treatment must match the cause. Simply eating more salt or drinking less water is not always safe or effective.

Symptoms

Symptoms depend on how low the sodium is, how quickly it changed, your age, and your general health.

Mild or slowly developing low sodium may cause no obvious symptoms. When symptoms occur, they can include:

Severe or rapidly developing low sodium can cause marked drowsiness, seizures, loss of consciousness, or breathing problems. These are emergency symptoms.

Symptoms such as tiredness and nausea have many possible causes. A blood test is needed to know whether low sodium is responsible.

- Nausea, sometimes with vomiting
- Headache
- Tiredness or low energy
- Muscle weakness, cramps, or unsteadiness
- Difficulty concentrating
- Irritability, confusion, or unusual behaviour

Causes and risk factors

Low blood sodium is mainly a problem of water balance. Your kidneys normally adjust how much water leaves the body in urine. This process is influenced by hormones, especially antidiuretic hormone, also called ADH or vasopressin.

In syndrome of inappropriate antidiuretic hormone secretion , or SIADH, the body releases or responds to too much ADH. The kidneys retain water, which dilutes sodium in the blood. SIADH can be linked to certain medicines, lung or brain disorders, pain, surgery, and some cancers. Sometimes its cause is not found.

Medicines that may contribute include thiazide diuretics, which are often used for high blood pressure, and some antidepressants like sertraline or fluoxetine , seizure medicines, and pain medicines. This does not mean you should stop a medicine on your own. Sudden changes can create other risks.

Low sodium can also occur when the body loses both salt and water through prolonged vomiting, diarrhoea, heavy sweating, burns, or diuretic use. Replacing these losses with large amounts of plain water may dilute the remaining sodium.

Heart failure, advanced liver disease, and some kidney disorders can cause the body to retain water. Although there may be swelling or extra fluid in the body, the sodium measured in the blood can still be low.

Other causes include adrenal insufficiency, in which the adrenal glands do not make enough of certain hormones. Severe thyroid hormone deficiency can sometimes contribute. Drinking very large amounts of water, especially over a short period, can overwhelm the kidneys. A diet extremely low in protein and other dissolved nutrients can also limit how much water the kidneys can remove.

High blood glucose can pull water into the bloodstream and lower the measured sodium concentration. Less commonly, very high levels of fats or proteins in the blood can produce a misleading laboratory result rather than true low sodium.

Older adults, people in hospital, endurance athletes, and people with kidney, heart, liver, or hormone conditions may be at greater risk. Risk also rises when several contributing factors occur together.

Diagnosis

Low blood sodium is found with a blood test. The result should be interpreted alongside your symptoms, recent fluid intake, medicines, and medical history.

A repeat test may be used to confirm an unexpected result. Blood glucose is usually considered because high glucose can make sodium appear lower. Serum osmolality , a measure of how concentrated the blood is, helps show whether there is a true excess of water relative to sodium.

Urine tests may measure urine concentration and urine sodium. These results give clues about whether the kidneys are conserving or releasing water and sodium.

Your assessment may also include:

There is no single urine result that identifies every cause. Results must be interpreted together, particularly if you take diuretics or have kidney disease.

- A review of prescription, non-prescription, and recreational substances
- Questions about vomiting, diarrhoea, thirst, diet, and fluid intake

- An examination for dehydration, swelling, or other signs of fluid imbalance
- Kidney, thyroid, liver, or adrenal hormone tests when relevant

Treatment and management

Treatment is guided by your symptoms, sodium level, how quickly it changed, and the underlying cause. Sodium must be corrected carefully. Raising it too quickly can injure brain cells, particularly when the level has been low for more than a short time.

Severe neurological symptoms are treated in hospital. A concentrated sodium solution, called hypertonic saline, may be given through a vein while sodium levels and symptoms are closely monitored. This is not the same as adding salt to food.

When low sodium is caused by loss of body fluid, such as from vomiting or diarrhoea, treatment may involve replacing both fluid and sodium. The type of replacement matters because plain water does not replace lost sodium.

For SIADH or other conditions involving excess retained water, treatment may include limiting fluid intake and addressing the trigger. In selected cases, specialists may use medicines or other treatments that help the kidneys remove water. These approaches require monitoring and are not suitable for every cause.

A medicine contributing to low sodium may be reduced, changed, or stopped under medical supervision. Hormone deficiencies are treated with appropriate hormone replacement. Management of heart, liver, or kidney disease focuses on the underlying condition as well as fluid balance.

Do not try to correct a low result by taking salt tablets, greatly increasing dietary salt, or sharply restricting fluids without advice. The wrong approach can worsen the imbalance or another health condition.

Blood tests are often repeated during treatment. Frequent testing is especially important during active correction because sodium can change faster than expected.

Complications

A rapid, severe fall in sodium can cause water to move into brain cells. The resulting brain swelling may lead to seizures, reduced consciousness, coma, or breathing failure.

Long-standing mild hyponatremia is less likely to cause sudden brain swelling, but it may be associated with poor concentration, unsteadiness, falls, and fractures. These problems may

also have other causes, especially in older adults.

Correction that occurs too rapidly can cause osmotic demyelination syndrome . This is uncommon but serious damage to the protective covering of nerve cells in the brain. Careful monitoring is intended to prevent it.

The condition causing low sodium may produce separate complications. For example, adrenal insufficiency, heart failure, or kidney disease needs its own treatment and follow-up.

Prevention

Low blood sodium cannot always be prevented. It may result from an illness, necessary treatment, or an unexpected hormone problem.

If you take a medicine known to affect sodium, your healthcare team may arrange blood tests, especially after it is started or changed. Attend these tests, but do not stop the medicine because of a suspected side effect without medical advice.

During prolonged vomiting, diarrhoea, or heavy sweating, fluid replacement may need to include electrolytes, which are minerals such as sodium. The right choice depends on your health and the degree of fluid loss.

Avoid forcing yourself to drink very large amounts of water over a short time. Endurance athletes should use an event-appropriate hydration plan rather than automatically drinking as much as possible.

If you have previously had low sodium, understanding its cause is the most useful prevention step. Any fluid limit or monitoring plan should be specific to that cause.

Living with it and what to expect

An episode caused by a short-term problem, such as a medicine effect or temporary fluid loss, may resolve once the trigger is treated. Follow-up blood tests help confirm that the sodium remains stable.

Some people have an ongoing condition that makes low sodium more likely. SIADH, heart failure, liver disease, kidney disease, or adrenal problems may require monitoring over months or years. Sodium can improve and later fall again if the illness changes, a new medicine is added, or fluid intake changes.

Mild chronic low sodium may remain stable without major symptoms, but it should not be ignored. Your follow-up plan may include periodic blood tests, medicine reviews, and attention

to balance or concentration problems.

Any fluid restriction can be difficult, particularly in hot weather or when medicines cause a dry mouth. A restriction should be based on your situation rather than a general target found online. Your care team can also explain which drinks and liquid foods count toward the total.

Most people can continue their usual activities once the sodium level and its cause are stable. If you have had confusion, seizures, fainting, or severe weakness, ask when it is safe to resume driving, swimming alone, working at height, or using machinery.

When to get medical help

Call emergency services for:

These symptoms need urgent assessment, whether or not low sodium is already known.

Seek prompt same-day medical advice for new confusion, marked drowsiness, repeated vomiting, severe headache, worsening unsteadiness, or significant muscle weakness. This is particularly important if you have a known low sodium result or recently started a medicine that can affect sodium.

Arrange routine follow-up if a blood test shows mildly low sodium and you feel well. The result still needs review to identify the cause and decide whether repeat testing is needed.

Do not delay emergency care while trying to correct symptoms with salt, food, sports drinks, or fluid restriction.

- A seizure
- Loss of consciousness or difficulty waking
- Severe or rapidly worsening confusion
- Serious breathing difficulty

Common questions

Is low blood sodium the same as not eating enough salt?

Usually not. Most cases happen because there is too much water relative to sodium, not because the diet lacks salt. Eating extra salt may not correct the cause and can be harmful in some heart, liver, or kidney conditions.

How dangerous is low blood sodium?

A mild, slowly developing reduction may cause few problems. A rapid or severe fall can affect

the brain and become an emergency. Symptoms and the speed of change are important, not just the laboratory number.

Can drinking too much water cause it?

Yes. The kidneys can remove a large amount of water, but not an unlimited amount at once. Risk is higher if an illness or medicine prevents the kidneys from releasing water normally.

Can I be dehydrated and still have low sodium?

Yes. Vomiting, diarrhoea, sweating, or diuretics like furosemide or hydrochlorothiazide can cause the body to lose both water and sodium. If proportionally more sodium is lost, the blood sodium concentration can be low even when you are dehydrated.

Which medicines can lower sodium?

Thiazide diuretics are a common example. Some antidepressants, seizure medicines, pain medicines, and other drugs can also contribute. Do not stop a prescribed medicine without discussing the result with a healthcare professional.

Will low blood sodium come back?

It can. Recurrence is more likely when an ongoing illness or necessary medicine continues to affect water balance. Follow-up tests and a cause-specific plan can help detect another decline early.

Sources

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