TEST

Aldosterone blood test

A blood test that measures aldosterone, a hormone that regulates salt, potassium, and blood pressure.

WHAT IT MEASURES
Hormone controlling sodium, potassium, and blood pressure

SAMPLE
Blood

FASTING NEEDED?
Sometimes, when paired testing or laboratory instructions require it

HOW LONG IT TAKES
About 5 to 10 minutes

RESULTS IN
One to several days, varying by laboratory

USED FOR
Investigating hormone-related blood pressure or electrolyte problems

MAIN LIMITATION
Posture, salt intake, potassium, and medicines can distort results

Overview

An aldosterone blood test measures aldosterone, a hormone made by the adrenal glands above the kidneys. Aldosterone tells the kidneys to retain sodium and water and release potassium into the urine, helping regulate blood volume, potassium, and blood pressure.

The result is usually interpreted with a renin test. Comparing the two may be reported as an aldosterone-to-renin ratio (ARR). An unusual ratio is not a diagnosis because preparation, medicines, kidney function, and laboratory methods can affect it.

Why the test is ordered

The test helps investigate whether the adrenal glands produce too much or too little aldosterone.

It may be ordered when high blood pressure is difficult to control, starts unusually early, or occurs with low potassium. These findings can be associated with primary aldosteronism , in

which one or both adrenal glands produce aldosterone without the usual signal from renin.

Testing may also be considered when an adrenal growth is found on a scan in someone with high blood pressure.

Low aldosterone may be investigated when there are concerns about reduced adrenal function, low blood pressure, dehydration, or abnormal sodium and potassium. Aldosterone alone cannot confirm adrenal insufficiency.

Who should have the test

This is not usually a stand-alone health check. It may be offered for:

Testing practices vary. Your clinician should consider whether the result is likely to change your care.

- High blood pressure that remains above target despite treatment
- High blood pressure with low potassium
- High blood pressure and an adrenal growth found on imaging
- Possible adrenal gland underactivity
- A personal or family history suggesting primary aldosteronism

How to prepare

Follow the laboratory or clinic instructions closely. Aldosterone and renin change with posture, time of day, salt intake, potassium, and medicines.

Testing is often done in the morning after you have been awake and out of bed for a specified period. You may need to sit quietly before collection. Some protocols require standing or lying down, so follow the position stated in your instructions.

Keep your usual salt intake unless your healthcare team advises otherwise. Restricting salt can raise aldosterone and renin, while unusually high salt intake can suppress them.

Tell the healthcare team about all prescription medicines, over-the-counter products, contraceptive hormones, and supplements. Do not stop blood pressure medicines or potassium supplements on your own. Suddenly stopping treatment may be unsafe.

Fasting is not always required. If the sample is taken with other fasting tests, you may be told to have only water beforehand.

What happens during the test

A healthcare professional inserts a small needle into a vein, usually in your arm, and collects blood into one or more tubes. The sample may also be tested for renin, potassium, sodium, and kidney function.

The blood draw usually takes less than 10 minutes, although you may need to sit, stand, or lie down beforehand to standardize your posture.

Repeat testing should ideally use similar conditions, including time of day, posture, medicines, and salt intake.

Understanding your results

Laboratories use different methods, units, and reference ranges. Results also vary with posture, salt intake, pregnancy, medicines, and clinical circumstances. Use the range on your report rather than one found online.

Aldosterone is rarely interpreted alone. Common patterns include:

Kidney disease, diuretics like furosemide or hydrochlorothiazide , vomiting, fluid loss, and heart or liver conditions can produce similar patterns. The ARR may be high when renin is extremely low even if aldosterone is not clearly raised, so clinicians review the individual values as well as the ratio.

- Higher aldosterone with suppressed renin, which may suggest primary aldosteronism
- Higher aldosterone with higher renin, which may reflect reduced blood flow or fluid volume
- Lower aldosterone, which may occur with reduced adrenal production, certain medicines, or low renin activity

What affects the results

Posture and timing: Levels vary depending on whether you are lying, sitting, or standing and change during the day.

Salt and fluid intake: Salt restriction, dehydration, vomiting, or diarrhoea can activate the renin-aldosterone system. High salt intake can suppress it.

Potassium: Low potassium can reduce aldosterone and potentially hide an abnormal result. It may need correction under medical supervision before testing.

Medicines: Diuretics, mineralocorticoid receptor blockers, ACE inhibitors like lisinopril or ramipril, angiotensin receptor blockers, beta blockers like metoprolol or propranolol , anti-inflammatory medicines, and other blood pressure treatments can affect results. Hormonal contraception and hormone therapy may also alter the ratio.

Kidney function: Reduced kidney function or altered blood flow to a kidney can complicate interpretation.

Pregnancy and age: Pregnancy normally increases renin-aldosterone activity, while renin often decreases with age.

Activity or illness: Strenuous exercise, acute illness, pain, and physical stress may temporarily affect results. Recent transfusion usually has no direct effect, but related illness, fluid changes, and medicines may matter.

Accuracy and limitations

The test may miss a problem if potassium is low, preparation is inconsistent, or medicine suppresses aldosterone. It may suggest a problem when renin is low because of age, salt intake, kidney disease, posture, or medication. Borderline or unexpected results may therefore be repeated under controlled conditions.

An abnormal ARR is generally a screening result, not final proof. A specialist may recommend a supervised saline infusion, salt-loading, captopril, or another confirmatory test. These tests are not suitable for everyone and require clinical assessment.

If primary aldosteronism is confirmed, a CT scan can examine the adrenal glands but may not reliably identify which gland is producing excess hormone. Adrenal vein sampling may help when the source would affect treatment.

For suspected adrenal insufficiency, cortisol, adrenocorticotropic hormone, electrolytes, and sometimes an ACTH stimulation test are usually more informative.

Risks and complications

A blood draw may cause brief discomfort, a small bruise, or minor bleeding. Some people feel faint, but serious complications are uncommon.

What happens next

If the result fits your other findings, no further action may be needed. An unexpected result may lead to a review of medicines and preparation, correction of low potassium, or repeat aldosterone and renin testing under standardized conditions.

An abnormal screening result may lead to referral to an endocrinologist, kidney specialist, or blood pressure specialist. Further testing is usually needed before imaging or treatment.

Seek urgent medical advice for severe weakness, repeated vomiting, confusion, fainting, or a fast or irregular heartbeat, especially if you have been told your potassium or sodium is seriously abnormal. Call emergency services for collapse, severe breathing difficulty, or chest pain. These warnings relate to potentially serious blood pressure or electrolyte problems, not the blood draw itself.

Common questions

Can I drink coffee before the test?

Ask the laboratory. If fasting is required, have only water. You may be asked to avoid coffee because caffeine can temporarily affect blood pressure and hormone activity.

Does the time of day matter?

Yes. Morning collection is common, but follow the laboratory's timing and posture instructions.

Can I exercise beforehand?

Avoid strenuous exercise shortly before collection unless told otherwise. Arrive early enough to rest and complete any required sitting, standing, or lying-down period.

Do I need to stop my blood pressure medicine?

Do not stop it yourself. Your healthcare team may continue it, substitute another medicine, or interpret the result with its effects in mind.

Can I eat salt before the test?

Keep your usual salt intake unless given specific instructions. Restricting salt or eating an unusually salty diet can alter the result.

Why are aldosterone and renin tested together?

Their relationship helps show whether aldosterone is responding normally to the body's signals. Aldosterone alone cannot reliably distinguish excess adrenal production from a response to fluid, salt, or blood-flow changes.

Sources

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