TEST

Toxicology screen

A toxicology screen checks a sample for selected drugs, medicines, or their breakdown products.

WHAT IT MEASURES
Selected drugs or their breakdown products in a sample

SAMPLE
Usually urine; sometimes blood, saliva, hair, or breath

FASTING NEEDED?
No, unless required for another test

HOW LONG IT TAKES
About 5 to 15 minutes for most sample collections

RESULTS IN
Minutes for rapid screens; days for laboratory confirmation

USED FOR
Screening, supporting diagnosis, and monitoring drug exposure

MAIN LIMITATION
Panels miss drugs outside their targets or detection windows

Overview

A toxicology screen checks for selected drugs, medicines, or chemicals. It is not one standard test. The substances included, the type of sample, and the testing method differ according to why the test is being done.

Urine is the most common sample. Blood, saliva, hair, or breath may be used in certain settings. For example, a breath test can measure alcohol, while a blood test may measure the amount of a specific medicine.

Many first-line screens use an immunoassay . This is a quick laboratory method that recognizes a drug or a group of similar drugs. It can produce false-positive results, where a drug is reported even though it is not present, and false-negative results, where a drug is missed.

An unexpected result may therefore need a more specific confirmation test. Confirmation commonly uses mass spectrometry, a method that identifies individual chemicals by their molecular features.

A toxicology result shows evidence about exposure. By itself, it usually cannot show exactly when a substance was taken, how much was taken, whether someone is impaired, or whether they have a substance use disorder.

Why the test is ordered

A toxicology screen may be ordered to:

In an emergency, clinicians often order targeted tests rather than relying on a broad screen. Specific blood tests for substances such as paracetamol, salicylates, alcohol, lithium, or certain seizure medicines may be more useful because the measured amount can guide treatment.

A routine urine panel may not include many substances involved in poisoning. Emergency treatment should not be delayed while waiting for a screen.

- Help assess possible poisoning, overdose, or unexpected changes in alertness
- Check whether a prescribed medicine or another substance is present
- Monitor treatment involving controlled medicines
- Support care during pregnancy or before some procedures
- Meet workplace, legal, sports, or safety-program requirements

Who should have the test

You may be offered testing when the result could answer a specific medical or safety question. Examples include suspected exposure, unexplained drowsiness, monitoring of certain prescribed medicines, or a testing program with defined rules.

Routine testing is not useful in every situation. The person ordering the test should be able to explain what substances the panel includes and how the result could affect your care.

Workplace, court-ordered, and sports testing follow different procedures from medical testing. They may require identity checks, witnessed collection, specimen seals, and a documented chain of custody , meaning a record of everyone who handled the sample.

If someone may have taken an overdose and is difficult to wake, has trouble breathing, has a seizure, or is severely confused, call emergency services. Do not wait for a home or laboratory toxicology result.

How to prepare

Fasting is not usually needed. You can generally eat and drink normally unless you are having another test that requires fasting.

Tell the testing team about prescription medicines, over-the-counter products, supplements, cannabis or cannabidiol products, and any substances taken recently. Give the actual names when possible. This information helps explain results but does not necessarily prevent a medicine from being reported.

Do not stop a prescribed medicine to change the result unless the prescriber has specifically told you to do so.

Avoid drinking unusually large amounts of water before a urine test. Excess water can dilute the sample enough to lower drug concentrations or make the sample unsuitable for interpretation.

For workplace or legal testing, follow the collection site's instructions. Bringing identification and a current medicine list may be required.

What happens during the test

For a urine test, you urinate into a labelled container. The collection may be private or observed, depending on the testing program. The sample may be checked for temperature, concentration, acidity, or signs that it has been altered.

A blood sample is taken from a vein in your arm. Blood is more likely to be used when the current concentration matters, especially during assessment of a possible poisoning.

For a saliva test, a swab or absorbent pad is held inside your mouth. For a hair test, a small lock is cut close to the scalp. Breath alcohol testing involves blowing into a calibrated device.

Some tests are performed at the collection site. Others are sent to a laboratory. A preliminary positive screen may be followed by confirmation using a second, more specific method.

Understanding your results

Results may be reported as negative , presumptive positive , or confirmed positive .

A negative result means the tested substance was not found above the test's reporting threshold. It does not always mean no substance was taken. The test may have been performed too early or too late, the concentration may have been low, or the panel may not have included that substance.

A presumptive positive means the first screen reacted to a drug group. It is not always a final result. Confirmation can identify the specific substance and help rule out interference from a medicine or a similar chemical.

A confirmed positive means a specific drug or breakdown product was detected. It still may not show the dose, exact timing, level of impairment, or reason for use.

Some blood tests give a numerical concentration. There is no single reference range for toxicology testing. Reporting limits and interpretation vary by laboratory, age, sex, pregnancy status, medicines, kidney or liver function, and the clinical context.

What affects the results

Timing is one of the most important factors. Different substances remain detectable for different periods. Blood and saliva often reflect more recent exposure, while urine may stay positive after the immediate effects have ended. Hair can show exposure over a longer period but is not useful for identifying very recent use.

Other factors include:

Some screening assays may confuse certain prescription or over-the-counter medicines with amphetamines, opioids like oxycodone or morphine , benzodiazepines like diazepam or lorazepam , or other drug groups. The exact interferences differ between manufacturers. Poppy seeds and products containing THC or contaminated cannabidiol can also affect some results.

Standard opioid screens may detect morphine-related substances but miss fentanyl, methadone, buprenorphine, or oxycodone unless separate tests are ordered. Some benzodiazepines are also poorly detected by common screens.

A recent blood transfusion does not usually affect urine drug testing. It may complicate interpretation of uncommon blood-based toxicology tests, depending on the substance and timing.

- The dose, frequency of use, and time since the last exposure
- Kidney and liver function, which affect how substances are cleared
- Age, pregnancy, body composition, and individual metabolism
- Dilute urine caused by high fluid intake
- The test's cutoff, meaning the concentration required for a positive result
- Medicines or related chemicals that react with an immunoassay

- Hair treatments, hair colour, and external contamination in hair testing

Accuracy and limitations

Rapid immunoassays are useful for screening, but they are not perfectly accurate. They may report a drug group when the target drug is absent, particularly when another medicine has a similar chemical structure. They can also miss a drug because the wrong assay was used, the amount is below the cutoff, or the sample was collected outside the detection window.

Confirmation by gas or liquid chromatography with mass spectrometry is much better at identifying a specific substance. Even confirmation only finds substances that the laboratory was asked or equipped to test for.

A broad negative screen cannot rule out poisoning. Many chemicals, newer synthetic drugs, inhalants, and prescribed medicines are not included in routine panels. Symptoms, examination findings, known exposures, and targeted blood tests may provide more useful information.

Urine results do not reliably measure current impairment. A positive result can remain after the noticeable effects have passed. Hair testing can suggest past exposure but generally cannot establish the exact date, dose, or impairment.

Home tests are preliminary. Their cutoffs and included drugs differ, and any result with medical, employment, or legal consequences should be interpreted under the appropriate testing process.

Risks and complications

Giving a urine, saliva, breath, or hair sample has little physical risk. Observed collection may feel uncomfortable, and privacy procedures should be explained.

A blood draw can cause brief pain, bruising, or light-headedness. Serious complications are uncommon.

Testing can also have personal, employment, or legal consequences. Ask how the result will be stored, shared, confirmed, and reviewed, especially outside routine medical care.

What happens next

A negative result may need no further action when it fits the reason for testing. If it does not fit the clinical situation, a different or more targeted test may be needed.

An unexpected positive screen is often sent for confirmation. Review should include your medicines, the substances included in the panel, the sample timing, and whether the result matches other clinical information.

Routine follow-up may involve discussing a prescribed medicine, repeating a test, or arranging support for substance use without judgment.

Seek emergency help for trouble breathing, inability to wake, a seizure, severe confusion, blue or grey lips, collapse, or suspected overdose. These symptoms need immediate assessment regardless of the screening result.

Common questions

Can I drink coffee before a toxicology screen?

Usually, yes. Coffee does not normally interfere with standard drug screens. Avoid excessive fluids, including coffee, before a urine test because a very dilute sample may be difficult to interpret.

Does the time of day matter?

Usually not, but the time since the substance was taken matters greatly. Follow any collection-time instructions provided for medicine monitoring, workplace testing, or legal testing.

Can I exercise beforehand?

Normal activity generally does not affect common toxicology screens. Heavy exercise is not a reliable way to clear a substance and may change hydration, which can affect urine concentration.

Will my prescription medicine cause a positive result?

It may be detected directly or occasionally cause a screening reaction with a related drug group. Provide a complete medicine list. Do not stop treatment without medical advice.

How long do drugs stay detectable?

There is no single detection period. It depends on the substance, dose, frequency of use, sample type, metabolism, kidney and liver function, and the laboratory cutoff.

Can a positive result show that I was impaired?

Usually not. Urine and hair results mainly show exposure. Assessing current impairment requires the full situation and, for some substances, more appropriate testing.

Sources

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