TEST

Pulse

A pulse check measures how fast and regularly your heart is beating by detecting blood flow in an artery.

WHAT IT MEASURES
Heartbeats per minute, rhythm, and pulse strength

SAMPLE
None

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually one to five minutes

RESULTS IN
Immediately; no laboratory processing

USED FOR
Screening and monitoring heart rate and rhythm

MAIN LIMITATION
Brief readings may miss intermittent rhythm changes

Overview

Your pulse is the pressure wave created when your heart pumps blood through your arteries. Checking it can show your heart rate, meaning the number of beats per minute, and whether the beats feel regular or irregular.

A pulse can be checked by placing fingers over an artery, usually at the wrist or neck. It can also be measured with a blood pressure monitor, pulse oximeter, hospital monitor, fitness tracker, or smartwatch.

Pulse and heart rate are often the same. However, some heartbeats may be too weak to create a pulse that can be felt at the wrist. If there is a difference, an electrocardiogram, or ECG, gives a more direct record of the heart's electrical activity.

A pulse check does not measure blood pressure. A pulse oximeter also estimates blood oxygen, but its pulse reading and oxygen reading are separate measurements.

Why the test is ordered

Pulse is commonly checked as part of routine vital signs. These are basic measurements used to understand how your body is functioning at that moment.

A healthcare professional may check your pulse to:

"Palpitations" means being unusually aware of your heartbeat. You may feel pounding, racing, fluttering, or skipped beats. A pulse check can provide useful information, but it cannot identify every cause of these sensations.

- Measure your resting heart rate
- Look for a fast, slow, or irregular rhythm
- Assess symptoms such as palpitations, dizziness, fainting, or breathlessness
- See how your heart responds to exercise
- Monitor recovery after an illness, procedure, or operation
- Check the effect of medicines that change heart rate
- Decide whether another test, such as an ECG, may be useful

Who should have the test

Pulse checks are appropriate for people of any age when vital signs are being assessed. They are often performed during appointments, hospital stays, emergency assessments, exercise testing, and some medicine reviews.

You may be asked to check your pulse at home if you have symptoms that come and go or if a clinician wants to monitor your heart rate over time. Some people also check it when exercising.

Most people do not need to monitor their pulse repeatedly when they feel well. Frequent checking can be misleading because normal heart rate changes from minute to minute.

A pulse check is not a substitute for medical assessment if you have chest pain, severe difficulty breathing, fainting, new confusion, or other serious symptoms.

How to prepare

No fasting is needed. You can usually eat, drink, and take your regular medicines unless you have been given different instructions for another test being performed at the same time.

For a resting pulse, sit quietly for several minutes beforehand. Keep your arm supported and relaxed. Recent activity, caffeine, nicotine, stress, or pain may raise the result, so tell the person taking the measurement if any of these apply.

Do not stop a medicine because it may affect your pulse unless the prescriber has told you to do so.

What happens during the test

For a manual wrist check, two fingertips are placed on the thumb side of your inner wrist. The pulse is counted for a set period and converted into beats per minute. If the rhythm feels irregular, it may be counted for a full minute.

The thumb is usually not used because it has a noticeable pulse of its own. A pulse may also be felt at the side of the neck, but firm pressure should not be applied, and both sides should not be pressed at once.

Electronic devices detect the pulse automatically. A pulse oximeter clips onto a finger. A blood pressure monitor records pulse while inflating a cuff. Watches and fitness trackers usually shine light into the skin to detect changes in blood flow.

The person checking may record:

- Rate in beats per minute
- Whether the rhythm is regular or irregular
- Whether the pulse feels strong, weak, or difficult to detect
- Your position, activity, symptoms, and relevant medicines

Understanding your results

Pulse results must be interpreted alongside your age, sex, pregnancy status, fitness, medicines, symptoms, and the circumstances of the measurement. Device settings and clinical reference ranges may also differ.

For resting adults, 60 to 100 beats per minute is a commonly used clinical range. It is not a universal target. Some healthy, physically fit adults have resting rates below 60, and heart rate normally slows during sleep. Children generally have faster rates than adults, with expected values changing by age.

A rate above 100 at rest is described as tachycardia, meaning a fast heart rate. A rate below 60

is described as bradycardia, meaning a slow heart rate. These words describe the measured rate; they do not identify the cause or automatically mean something is wrong.

Exercise, fever, pain, stress, dehydration, and some medicines can produce an expected change. A repeated result when you are rested is usually more informative than one isolated number.

An irregular pulse may feel uneven or as though beats are being missed. Occasional early beats can occur, but a pulse check cannot tell which rhythm is present. An ECG is usually needed to identify it.

What affects the results

Your pulse changes naturally throughout the day. A different number does not necessarily mean the test or device is wrong.

Factors that can genuinely change your heart rate include:

Measurement problems can also create a misleading result. Movement is a common cause, particularly with watches and pulse oximeters. Cold hands, poor circulation, loose device contact, bright external light, nail products, and some skin or device factors can interfere with optical sensors.

A manual count may be wrong if the pulse is weak, the counting period is too short, or the rhythm is irregular. Electronic devices can sometimes count movement or extra beats as pulse waves, or fail to detect weak beats.

Record whether you had recently exercised, consumed caffeine, or had symptoms. This context can make the number much easier to interpret.

- Recent exercise or physical work
- Stress, anxiety, excitement, or pain
- Fever, infection, or dehydration
- Caffeine, nicotine, alcohol, and some recreational drugs
- Standing up, lying down, or changing position
- Sleep, physical fitness, age, and pregnancy
- Medicines such as beta blockers like metoprolol or propranolol , stimulants like methylphenidate or lisdexamfetamine , and some decongestants
- Heart rhythm changes and conditions affecting the thyroid or blood count

Accuracy and limitations

A carefully measured manual pulse is usually suitable for checking the resting rate. Electronic devices can also be useful, but accuracy differs by device, fit, circulation, movement, and the type of rhythm.

There is no single reliable figure for how often pulse checks miss a problem or incorrectly suggest one. A short check can miss rhythm changes that happen only occasionally. Conversely, movement, an early heartbeat, or a poor sensor signal can make a regular rhythm appear irregular.

Pulse checks are less reliable when the heartbeat is very irregular or some contractions are too weak to produce a detectable pulse. A normal pulse between episodes does not rule out an intermittent rhythm problem.

An ECG is better when the exact rhythm needs to be identified. A portable ECG or longer-term heart monitor may be more useful if symptoms come and go. A pulse check also cannot show the heart's structure, measure blood pressure, or explain why the rate has changed.

Risks and complications

A pulse check is non-invasive and does not usually cause pain or complications. A finger clip or watch may cause brief pressure or mild skin irritation, but this is uncommon.

What happens next

If your pulse is expected for your situation and you feel well, no further testing may be needed. If you are monitoring at home, keep a brief record of the rate, rhythm, time, activity, symptoms, and medicines taken.

Arrange routine follow-up if your resting pulse is repeatedly outside the range expected for you, feels persistently irregular, or has changed without an obvious reason. Bring your device or written readings if possible.

Seek prompt medical advice if a new fast, slow, or irregular pulse occurs with dizziness, unusual weakness, breathlessness, or near-fainting.

Call emergency services for chest pain, severe breathing difficulty, fainting, new confusion, blue or grey lips, or symptoms suggesting a stroke, such as sudden facial weakness, arm weakness, or difficulty speaking. Do not delay emergency care to keep checking your pulse.

Common questions

Can I drink coffee before having my pulse checked?

Yes, unless you were asked to avoid it. Caffeine can temporarily raise your pulse or cause palpitations, so mention when and how much you had. For a resting baseline, checking before caffeine may give a more representative result.

Does the time of day matter?

It can. Heart rate changes with sleep, activity, meals, stress, and medicines. When comparing readings, measure under similar conditions and at roughly the same time.

Can I exercise beforehand?

Not if the aim is to measure your resting pulse. Sit quietly until your breathing and heart rate have settled. Exercise is appropriate when the purpose is to measure your response to activity.

How long should I count my pulse?

Counting for 30 seconds and doubling the number may be reasonable when the rhythm is regular. Count for a full minute if it feels irregular, unusually slow, or difficult to detect.

Is a smartwatch reading enough?

A smartwatch can help track trends, but one reading does not confirm a heart rhythm diagnosis. Repeat unexpected readings while still and check manually if you can. Persistent changes or symptoms may need an ECG.

Which wrist should I use?

Either wrist is usually suitable. Use the side where the pulse is easiest to feel, and place your index and middle fingers over the artery rather than using your thumb.

Sources

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- US Food and Drug Administration. Pulse Oximeter Accuracy and Limitations: FDA Safety Communication