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Tachycardia

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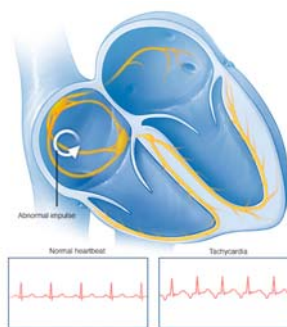
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Overview

Tachycardia is the medical term for a heart rate over 100 beats per minute. There are many heart rhythm disorders (arrhythmias) that can cause tachycardia.

Sometimes, it's normal for you to have a fast heartbeat. For instance, it's normal for your heart rate to rise during exercise or as a response to stress, trauma or illness. But in tachycardia (tak-ih-KAHR-dee-uh), the heart beats faster than normal due to conditions unrelated to normal physiological stress.



**Tachycardia
heartbeat**

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In some cases, tachycardia may cause no symptoms or complications. But if left untreated, tachycardia can disrupt normal heart function and lead to serious complications, including:

- Heart failure
- Stroke
- Sudden cardiac arrest or death

Treatments, such as drugs, medical procedures or surgery, may help control a rapid heartbeat or manage other conditions contributing to tachycardia.

Types of tachycardia

There are many different types of tachycardia. They're grouped according to the part of the heart responsible for the fast heart rate and cause of the abnormally fast heartbeat. Common types of tachycardia include:

- **Atrial fibrillation.** Atrial fibrillation is a rapid heart rate caused by chaotic, irregular electrical impulses in the upper chambers of the heart (atria). These signals result in rapid, uncoordinated, weak contractions of the atria.

Atrial fibrillation may be temporary, but some episodes won't end unless treated. Atrial fibrillation is the most common type of tachycardia.

- **Atrial flutter.** In atrial flutter, the heart's atria beat very fast but at a regular rate. The fast rate results in weak contractions of the atria. Atrial flutter is caused by irregular circuitry within the atria.

Episodes of atrial flutter may go away themselves or may require treatment. People who have atrial flutter also often have atrial fibrillation at other times.

- **Supraventricular tachycardia (SVT).** Supraventricular tachycardia is an abnormally fast heartbeat that starts somewhere above the lower chambers of the heart (ventricles). It's caused by abnormal circuitry in the heart that is usually present at birth and creates a loop of overlapping signals.

- **Ventricular tachycardia.** Ventricular tachycardia is a rapid heart rate that starts with abnormal electrical signals in the lower chambers of the heart (ventricles). The rapid heart rate doesn't allow the ventricles to fill and contract efficiently to pump enough blood to the body.

Ventricular tachycardia episodes may be brief and last only a couple of seconds without causing harm. But episodes lasting more than a few seconds can become a life-threatening medical emergency.

- **Ventricular fibrillation.** Ventricular fibrillation occurs when rapid, chaotic electrical impulses cause the lower heart chambers (ventricles) to quiver instead of pumping necessary blood to the body. This can be deadly if the heart isn't restored to a normal rhythm within minutes with an electric shock to the heart (defibrillation).

Ventricular fibrillation may occur during or after a heart attack. Most people who have ventricular fibrillation have an underlying heart disease or have experienced serious trauma, such as being struck by lightning.

Mayo Clinic Minute: Identifying and treating atrial fibrillation

Mayo Clinic electrophysiologist Fred Kusumoto, M.D., explains what happens in the heart to create atrial fibrillation and what can be done to fix it.

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Symptoms

When your heart is beating too fast, it may not pump enough blood to the rest of your body. This can starve your organs and tissues of oxygen and can cause the following tachycardia-related signs and symptoms:

- Shortness of breath
- Lightheadedness
- Rapid pulse rate
- Heart palpitations — a racing, uncomfortable or irregular heartbeat or a sensation of "flopping" in the chest
- Chest pain
- Fainting (syncope)

Some people with tachycardia have no symptoms, and the condition is only discovered during a physical examination or with a heart-monitoring test called an electrocardiogram.

When to see a doctor

A number of conditions can cause a rapid heart rate and tachycardia symptoms. It's important to get a prompt, accurate diagnosis and appropriate care. See your doctor if you or your child has any tachycardia symptoms.

If you faint, have difficulty breathing or have chest pain lasting more than a few minutes, get emergency care, or call 911 or your local emergency number. Seek emergency care for anyone experiencing these symptoms.

Causes

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Tachycardia is caused by something that disrupts the normal electrical impulses that control the rate of your heart's pumping action. Many things can cause or contribute to a fast heart rate. These include:

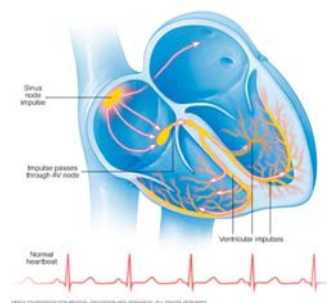
- Anemia
- Drinking too many caffeinated beverages
- Drinking too much alcohol
- Exercise
- Fever
- High or low blood pressure
- Imbalance of electrolytes, mineral-related substances necessary for conducting electrical impulses
- Medication side effects
- Overactive thyroid (hyperthyroidism)
- Smoking
- Sudden stress, such as fright
- Use of stimulant drugs, such as cocaine or methamphetamine

In some cases, the exact cause of tachycardia can't be determined.

The heart's electrical system

To understand the causes of heart rate or rhythm problems such as tachycardia, it helps to understand how the heart's electrical system works.

Your heart is made up of four chambers — two upper chambers (atria) and two lower chambers (ventricles). Your heartbeat is normally controlled by a natural pacemaker called the sinus node, which is located in



Normal heartbeat

the right atrium. The sinus node produces electrical impulses that normally start each heartbeat.

From the sinus node, electrical impulses travel across the atria, causing the atrial muscles to contract and pump blood into the lower chambers of the heart (ventricles).

The electrical impulses then arrive at a cluster of cells called the atrioventricular (AV) node — usually the only pathway for signals to travel from the atria to the ventricles.

The AV node slows down the electrical signal before sending it to the ventricles. This slight delay allows the ventricles to fill with blood. When electrical impulses reach the muscles of the ventricles, they contract, causing them to pump blood either to the lungs or to the rest of the body.

When anything disrupts this complex system, it can cause the heart to beat too fast (tachycardia), too slow (bradycardia) or with an irregular rhythm.

Risk factors

Growing older or having a family history of tachycardia or other heart rhythm disorder makes you more likely to develop tachycardia.

Any condition that puts a strain on the heart or damages heart tissue can increase your risk of tachycardia. Such conditions include:

- Anemia
- Diabetes
- Heart disease
- Heavy alcohol use
- Heavy caffeine use
- High blood pressure
- Overactive or underactive thyroid
- Psychological stress or anxiety
- Sleep apnea

- Smoking
- Use of stimulant drugs

Lifestyle changes or medical treatment for related health conditions may decrease your risk of tachycardia.

Complications

Complications of tachycardia depend on the type of tachycardia, how fast the heart is beating, how long the rapid heart rate lasts and if you have any other heart conditions.

Possible complications include:

- Blood clots that can cause a stroke or heart attack
- Inability of the heart to pump enough blood (heart failure)
- Frequent fainting spells or unconsciousness
- Sudden death, usually only associated with ventricular tachycardia or ventricular fibrillation

Prevention

The most effective way to prevent tachycardia is to maintain a healthy heart and reduce your risk of developing heart disease. If you already have heart disease, monitor it and follow your treatment plan to help prevent tachycardia.

Prevent heart disease

Treat or eliminate risk factors that may lead to heart disease. Take the following steps:

- **Exercise and eat a healthy diet.** Live a heart-healthy lifestyle by exercising regularly and eating a healthy, low-fat diet that's rich in fruits, vegetables and whole grains.
- **Maintain a healthy weight.** Being overweight increases your risk of developing heart disease.
- **Keep blood pressure and cholesterol levels under control.** Make lifestyle changes and take medications as prescribed to

correct high blood pressure (hypertension) or high cholesterol.

- **Stop smoking.** If you smoke and can't quit on your own, talk to your doctor about strategies or programs to help you break a smoking habit.
- **Drink in moderation.** If you choose to drink alcohol, do so in moderation. If you choose to drink alcohol, do so in moderation. For healthy adults, that means up to one drink a day for women and up to two drinks a day for men. For some conditions, it's recommended that you completely avoid alcohol. Ask your doctor for advice specific to your condition.
- **Don't use recreational drugs.** Don't use stimulants, such as cocaine. Talk to your doctor about an appropriate program for you if you need help ending recreational drug use.
- **Use over-the-counter medications with caution.** Some cold and cough medications contain stimulants that may trigger a rapid heartbeat. Ask your doctor which medications you need to avoid.
- **Limit caffeine.** If you drink caffeinated beverages, do so in moderation (no more than one to two beverages daily).
- **Control stress.** Avoid unnecessary stress and learn coping techniques to handle normal stress in a healthy way.
- **Go to scheduled checkups.** Have regular physical exams and report any signs or symptoms to your doctor.

Monitor and treat existing heart disease

If you already have heart disease, you can take steps to help prevent tachycardia or another arrhythmia:

- **Follow the plan.** Be sure you understand your treatment plan, and take all medications as prescribed.
- **Report changes immediately.** If your symptoms change or get worse or you develop new symptoms, tell your doctor immediately.

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