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Rapid Heart Beat or Tachycardia

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A normal adult heart beats between 60 and 100 times a minute. A heart rate over 100 beats a minute is called tachycardia. Some tachycardias are relatively harmless and need no treatment, but others can be life-threatening. Treatment for recurrent tachycardia can range from daily medication to open-heart surgery. A specific diagnosis is necessary before finding the right treatment.

Symptoms of tachycardia

When your heart rate is too rapid, it may not effectively pump blood to your body, depriving your organs and tissues of oxygen. This can cause these signs and symptoms:

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

Some people with tachycardia have no symptoms and don't realize they have this condition until a doctor discovers it during a physical examination

Your heart is a muscular pump that circulates blood all around your body. There are four hollow chambers in your heart — the two upper chambers are the atria, and the lower, more muscular chambers are the ventricles. Each heartbeat begins in the right atrium. There, the heart's natural pacemaker, called the sinus node, sends an electrical signal that causes the atria to contract, filling the ventricles with blood. A split second later, the electrical impulse travels across the atrioventricular (AV) node into the ventricles. This makes the ventricles contract, sending blood throughout the body. In people with tachycardias, this normal rhythm is disrupted somewhere along the electrical path, causing the heart to beat too quickly.

Types of tachycardias -- Tachycardias are classified according to where they originate — in the atria or in the ventricles.

Tachycardias originating in the upper heart chambers, the atria

- Atrial fibrillation. In this most common arrhythmia in the U.S., electrical impulses make the atria beat extremely quickly — up to 400 beats a minute. Only some of these electrical impulses travel across the AV node and reach the ventricles, causing a rapid and irregular heartbeat. This tachycardia is most common in people over 60 years of age.
- Atrial flutter. Atrial flutter is similar to atrial fibrillation, except the extremely fast beating is more controlled and rhythmic. The most common symptom of atrial flutter is chest pain.
- Supraventricular tachycardia (SVT). SVT is a broad term that includes many forms of arrhythmia originating above the ventricles (supraventricular). SVTs usually cause a burst of rapid heartbeats that begin and end suddenly and can last from seconds to hours. These often start when the electrical impulse from a premature heartbeat begins to circle repeatedly through an extra pathway. SVT may cause your heart to beat 160 to 200 times a minute. Although generally not life-threatening in an otherwise normal heart, symptoms from the racing heart may feel quite uncomfortable. These arrhythmias are common in young people.

Tachycardias originating in the lower chambers of the heart, the ventricles

Because the ventricles supply blood to the entire body, a tachycardia that starts in the ventricles can be a medical emergency. Types include:

- Ventricular tachycardia. This is a rapid, rhythmic heartbeat that most often affects people with structural heart disease with damage to the heart muscle (myocardium), such as occurs with a heart attack. Ventricular tachycardia can be life-threatening by itself, and without treatment it can rapidly turn into fatal ventricular fibrillation.
- Ventricular fibrillation. During ventricular fibrillation, rapid, chaotic electrical impulses cause the ventricles to quiver uselessly instead of pumping necessary blood to the body. This serious malfunction results in death if the heart isn't restored to a normal rhythm within minutes.

Tachycardia triggers

In some people, external substances can affect the heart's electrical system and cause a tachycardia to develop. People with sensitivities to the substances can develop tachycardias after moderate exposure, but abuse of these substances can also cause the arrhythmia directly. Substances include:

- Caffeine
- Alcohol
- Tobacco
- Dietary supplements and over-the-counter medications
- Illicit drugs
- Prescription drugs

Risk factors for tachycardias

Certain factors can increase your risk of developing tachycardias. They include:

- Coronary artery disease. Hardening or narrowing of the heart's arteries, a previous heart attack or heart damage puts you at higher risk of developing an arrhythmia.
- Damaged heart muscle (cardiomyopathy). When cardiomyopathy damages your heart muscle, the electrical pathways can be affected.
- Damaged heart valves. Your heart valves can become damaged due to cardiovascular disease, increasing your tachycardia risk.
- Older age. Aging-related wear on the heart makes you more susceptible to developing an arrhythmia.
- Genetics. If you have a family history of arrhythmia disorders or heart disease, you're at higher risk.
- Overactive thyroid (hyperthyroidism). An overactive thyroid gland releases excess hormones, causing your metabolism to speed up. This can lead to fast or irregular heartbeats.
- Sleep apnea. When this sleep disorder causes you to stop breathing repeatedly during sleep, the lack of oxygen can lead to bursts of atrial fibrillation.
- Electrolyte imbalance. An imbalance of minerals in your blood, such as potassium, sodium, calcium and magnesium can affect your heart's electrical system, leading to irregular heartbeats.
- High blood pressure (hypertension). High blood pressure, especially if poorly controlled, puts a strain on the heart and can result in enlargement of the heart chambers or weakness of the heart muscle with an increased risk of tachycardia or both.

When to seek medical advice

Watch for these symptoms:

- Dizziness
- Shortness of breath
- Lightheadedness
- Rapid heartbeat
- Palpitations
- Chest pain
- Blackouts
- Visual changes
- Skipped heartbeats

While it's important to take these symptoms seriously, they aren't always related to tachycardia. Sometimes, they can occur spontaneously for unknown reasons. The only way to know whether your symptoms signal tachycardia is for your doctor to document the heart rhythm while the symptoms are occurring.

If you've had abnormal heart rhythm spells in the past, contact your doctor. You may be advised to come in for an evaluation, or you may be instructed to document any future symptoms and report them to your doctor.

Prevention

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

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, whole grains and antioxidants.
- Maintain a healthy weight. Obesity puts you at higher risk of developing heart disease and tachycardias.
- Keep blood pressure and cholesterol under control. Make lifestyle changes or take medications to correct high blood pressure (hypertension) or high cholesterol.
- Stop smoking. Tobacco use increases your risk of cardiovascular disease and heart arrhythmias.
- Control stress. Avoid unnecessary stress, and learn coping techniques to handle normal stress in a healthy way.
- Go to 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, there are steps you can take to lower your risk of developing a tachycardia or other arrhythmia:

- Follow the plan. Be sure you understand your treatment plan, and take all medications as prescribed.

- Get your electrical system checked. Talk to your doctor about whether a heart attack or another cause has compromised your heart's electrical system and put you at risk of sudden cardiac death.
- **Report changes immediately.** If your symptoms change, get worse or you develop new symptoms, tell your doctor immediately.

Complications

If you have a heart arrhythmia, your heartbeat irregularities may put you at higher risk of developing blood clots in the heart, which can dislodge and lead to a heart attack or stroke. Some people with known arrhythmias take blood-thinning medications called anticoagulants to prevent blood clots from forming. Talk to your doctor about what you can do to reduce your risk of heart attack and stroke.

Tachycardias can be mild and cause no symptoms. They can also happen suddenly with potentially serious and even fatal results. Even a relatively harmless tachycardia can quickly turn into something deadly, or at least predict that you'll have a more significant arrhythmia in the future. Proper diagnosis and treatment are key in preventing these complications.

Treatments and drugs

Treatment of a tachycardia depends on your symptoms, how often you have episodes of tachycardia and whether you have any underlying heart conditions. Your doctor may prescribe medications to control your heart rate, use minimally invasive procedures to destroy tachycardia trigger spots, or suggest the placement of a heart device that monitors and resets your heart rhythm as needed.

Medications

Doctors often use medications in tachycardia emergencies, and they also prescribe them for long-term control of the arrhythmia. Medications may be used alone or in combination with other treatments.

- Anti-arrhythmic medications. These medications work to slow the conduction of electrical signals or prolong the time it takes the heart muscle to recharge after a beat. In some people with tachycardia, however, these medications can make arrhythmias worse.
- Calcium channel blockers, potassium channel blockers and beta blockers. These medications work in various ways to slow nerve impulses in the heart muscle or reduce the workload on the heart. These medications are also used to treat high blood pressure, coronary artery disease and chest pain.
- Blood thinners. Also called anticoagulants, these medications are not used to treat the abnormal heart rhythm, but rather to reduce the risk that the abnormal

rhythm will trigger a blood clot that may lead to a stroke or heart attack. Anticoagulants make it more difficult for blood to clot.

Nonsurgical procedures

Nonsurgical techniques may be used if medications don't work. Some examples include:

- **Cardioversion.** Most effective for atrial tachycardias, this technique uses either drugs or an electrical shock to restore a normal rhythm. In electric cardioversion, the doctor shocks your heart to stop its beat for a split second to "reset" it. Cardioversion drugs may be given through an intravenous (IV) line to reset the heart.
- **Radiofrequency catheter ablation.** In this procedure done under mild sedation, several electrode-tipped tubes (catheters) are threaded through your blood vessels to specific electrical pathways in your heart. Then radiofrequency energy is used to destroy the area of heart tissue responsible for the arrhythmia.

Implantable cardioverter-defibrillator

If your underlying heart condition puts you at high risk of having a life-threatening tachycardia, your doctor may recommend an implantable cardioverter-defibrillator (ICD). An implantable cardioverter-defibrillator — a pager-sized device implanted in your chest like a pacemaker — detects and stops dangerous arrhythmias. The ICD continuously monitors your heartbeat and delivers precisely calibrated electrical shocks to restore a normal heart rhythm.

