Supraventricular Tachycardia

What is supraventricular tachycardia?

Supraventricular tachycardias (SVT) is a kind of abnormally fast heart rhythm (heartbeat). It's a problem in the electrical system of the heart. The word supraventricular means above the ventricles. With SVT, the abnormal rhythm starts in the upper heart chambers (atria). This condition is also called paroxysmal supraventricular tachycardia. That's because the fast heart rhythms may start and stop abruptly. They can also occur with intervals of normal heart rhythm.

Normally, a special group of cells begin the electrical signal that triggers your heartbeat. These cells are in the sinoatrial (SA) node. In an adult, the sinus node sends out a regular electrical pulse 60 to 100 times per minute at rest. This node is in the right atrium, the upper right chamber of your heart. The signal quickly travels down your heart's conducting system to the ventricles, the 2 lower chambers of your heart. Along the way, the signal moves through the atrioventricular (AV) node, a special group of cells between your atria and your ventricles. From there, the signal travels to your left and right ventricle. As it travels, the signal triggers nearby parts of your heart to contract. This helps your heart pump in a coordinated way.

In SVT, the signal to start your heartbeat doesn't come from the SA node. Instead, it comes from another part of the left or right atrium, or from the AV node. An area outside the SA node begins to fire quickly, causing a rapid heartbeat of over 100 beats per minute. This shortens the time your ventricles have to fill. If your heartbeat is fast enough, your heart may not be able to pump enough blood forward to the rest of your body. The abnormal heart rhythm may last for a few seconds to a few hours before your heart returns to its normal rhythm.

There are several types of SVT:

- **Atrioventricular nodal reentrant tachycardia (AVNRT).** This is the most common type in adults. It occurs when you have 2 channels or pathways through the AV node, instead of just 1. The electricity can get into a looping circuit with signals going down one channel and up the other. It can occur at any age. But it most often starts in young adulthood. It's slightly more common in women.

- **Atrioventricular reciprocating tachycardia (AVRT).** This is another common type of SVT. In this type, you are born with an extra electrical connection between the atrium and the ventricle (known as an accessory pathway) that can conduct electricity. This type lets your heart get caught up in a looping electrical circuit. The electricity either goes down the AV node and returns back to the atrium through the accessory pathway. Or the reverse occurs with the signal traveling down the accessory pathway and returning through the AV node. This circuit continues until it's interrupted and the tachycardia stops. This type of SVT is slightly more common in younger women and children. It's also called Wolff-Parkinson-White (WPW) syndrome.

- **Atrial tachycardia.** In this common type of SVT, a small group of cells in the atria start to fire abnormally, triggering the fast heartbeat. Multifocal atrial tachycardia is a related type. In this case, many groups of cells in your atria fire abnormally. These types of SVT happen more often in middle-aged people. Multifocal atrial tachycardia is more common in people with heart failure or other heart or lung diseases.

In general, SVT is somewhat uncommon. But it's not rare. Atrial fibrillation and atrial flutter are also technically types of SVT. But these are often separated into their own category because they are linked with other risks. They can also last for days or even years and have a different mechanism.

What causes supraventricular tachycardia?

SVT is often caused by faulty electrical signaling in your heart. It's often brought on by premature beats. Some types of SVT run in families, so genes may play a role. Other types may be caused by lung problems. It can also be linked to some lifestyle habits or health problems. Some of these include:

- Too much caffeine or alcohol

- Heavy smoking

- Certain medicines
- Heart attack
- Mitral valve disease

What are the symptoms of supraventricular tachycardia?

You may not have any symptoms if you have SVT. Symptoms may vary based on how long the tachycardia lasts and how fast the heart rate is. Common symptoms include:

- Chest discomfort
- Shortness of breath
- Fatigue
- Lightheadedness or dizziness
- Pulsations in the neck
- Unpleasant awareness of the heartbeat (palpitations)

Fainting, more severe chest pain, and nausea are less common symptoms. In rare cases, SVT can cause sudden death.

How is supraventricular tachycardia diagnosed?

Diagnosis starts with a health history and physical exam. Your healthcare provider will also use tests to help diagnose SVT. These tests will help your provider identify the type of SVT you have. They also help your provider check for possible underlying causes and complications. Tests might include:

- Electrocardiogram (ECG), the most important first test to check the abnormal rhythm
- Continuous electrocardiogram to watch your heart rhythm over a longer period
- Blood work to test for various causes
- Chest X-ray to check for lung problems and look at the size of your heart
- Exercise stress test to see how your heart works during exercise
- Echocardiography to check your heart structure and function
- Electrophysiologic study (EPS) to evaluate the electrical activity and pathways in your heart

Your primary healthcare provider might first diagnose your SVT. But they'll likely send you to a healthcare provider who specializes in the heart (cardiologist).

How is supraventricular tachycardia treated?

SVT needs short-term and long-term treatment. Options for short-term treatment include:

- Maneuvers to stop SVT, such as bearing down
- Medicines to stop SVT, like calcium channel blockers, beta blockers, or adenosine
- Electrocardioversion, which sends a shock to the heart to get it back to a normal rhythm
- Catheter ablation

Maneuvers are often the first treatment unless you have severe symptoms. These attempt to activate a nerve called the vagus nerve. Activating this nerve can cause a brief slowing of your heartbeat to break the abnormal

circuit. Your healthcare provider might have you do a Valsalva maneuver (you bear down with your stomach muscles, as though you were trying to have a bowel movement). Your provider might also try massaging the carotid artery in your neck, having you blow in a straw, or coughing hard. Each of these techniques can sometimes bring you out of SVT. If they don't, your provider might give you medicines. If your symptoms are severe or your condition is unstable, you will often have electrocardioversion as the first treatment.

Long-term treatment depends on the type of SVT and the intensity of symptoms. You may not need any treatment for SVT if you have had only 1 episode or the episodes are very rare, especially if SVT went away with maneuvers alone. In some cases, your healthcare provider may prescribe medicines to stop SVT that you will need to take only as needed. Beta-blockers or calcium channel blockers are common choices. This may be an option for you if you have fewer than 3 episodes of SVT per year. But the medicines may often take 15 to 30 minutes to take effect. If your SVT is more frequent, you may need to take medicine every day. Some people may need to take several medicines to prevent episodes of SVT.

Catheter ablation is the preferred treatment for recurring SVT. In some cases, it may be the first advised treatment. Ablation can often cure SVT. The procedure involves placing a small catheter through a blood vessel in the groin and threading it to your heart. Your healthcare provider then does a small burn or small freeze on the part of your heart that is causing the fast heart rhythm. Ask your healthcare provider about what treatment option is right for you.

How is supraventricular tachycardia managed?

Your healthcare provider might make other recommendations to manage your SVT. These might include:

- Cutting back on alcohol and caffeine
- Not smoking
- Reducing stress
- Eating a heart-healthy diet

When should I call my healthcare provider?

Call your healthcare provider if you have severe symptoms like palpitations, lightheadedness, chest pain, or sudden shortness of breath. If your symptoms are increasing in severity or frequency, plan to see your healthcare provider as soon as possible.

Key points about supraventricular tachycardia

- SVT is a type of abnormal heart rhythm. Something signals a part outside of the SA node to fire much faster than it should or something triggers the signal to follow a looping circuit. This results in a fast heartbeat that can last anywhere from a few seconds to several hours.
- There are several subtypes of SVT. Your treatment options may vary based on what subtype you have.
- In rare cases, SVT can cause sudden death.
- You might need a shock to the heart if you are having severe symptoms from SVT.
- Some people with SVT need to take medicines only when an episode of SVT happens. Others need to take medicine all the time. Ablation is often a good option for many people.
- It is important to follow your healthcare provider's instructions about medicine and lifestyle management.

Next steps

Tips to help you get the most from a visit to your healthcare provider:

- Know the reason for your visit and what you want to happen.
- Before your visit, write down questions you want answered.

- Bring someone with you to help you ask questions and remember what your provider tells you.
- At the visit, write down the name of a new diagnosis and any new medicines, treatments, or tests. Also write down any new instructions your provider gives you.
- Know why a new medicine or treatment is prescribed and how it will help you. Also know what the side effects are.
- Ask if your condition can be treated in other ways.
- Know why a test or procedure is a and what the results could mean.
- Know what to expect if you do not take the medicine or have the test or procedure.
- If you have a follow-up appointment, write down the date, time, and purpose for that visit.
- Know how you can contact your provider if you have questions.