

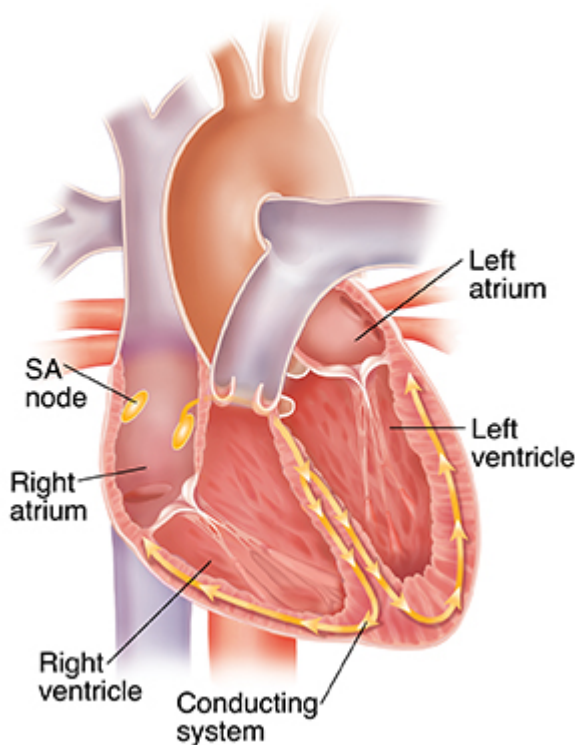
# Understanding Supraventricular Tachycardia

Supraventricular tachycardia (SVT) is a type of abnormal heart rhythm that results in a fast heartbeat. It is caused by 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).

The heart normally beats roughly 60 to 100 beats per minute while you are at rest and awake. With SVT, the heart beats more than 100 times a minute. It may even beat over 200 times a minute. Because the heart is beating so fast, the chambers of the heart don't have enough time to fully fill. So less blood is pumped through the heart.

## How the heart beats

A heartbeat is the rhythm of the heart as it contracts to squeeze blood through the body. It is driven by electrical signals in the heart. A beat normally starts when a special group of cells give off an electrical signal. These cells are in the upper right chamber of your heart (right atrium). This is called the sinoatrial (SA) node. The signal from the SA node travels down the atria to the atrioventricular (AV) node. This is another special group of cells between the atria and ventricles. The AV node serves as a gatekeeper for signals passing through the heart to your lower chambers. From the AV node, the signal travels to your left and right ventricles. As the electrical signal travels along this pathway, it tells nearby parts of your heart to contract. This causes your heart to pump in a coordinated way.



## What is SVT?

When you have 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 it may come from the AV

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node itself. In SVT, the electrical signals are rapid. This causes a rapid heartbeat of over 100 beats per minute. In some cases, the electrical signals are caught up in a looping circuit. This rapid beating shortens the time your ventricles have to fill. If your heartbeat is fast enough, your heart may not be able to pump enough blood to the rest of your body. As a result, you may feel many symptoms linked to not getting enough blood flow. The problem heartbeat may last for a few seconds to a few hours. Then your heart returns to its normal rhythm. Some SVT rhythms can last for days or weeks. Some even become lifelong (permanent).

## Types of SVT

There are several types of SVT. They include:

- **Atrial fibrillation (AFib).** This is the most common type of SVT. The upper chambers of the heart quiver very fast instead of pumping. This is caused by electrical problems in the atria. The contractions of the heart are very irregular.
- **Atrial flutter.** The upper chambers of the heart flutter in a regular pattern instead of pumping normally. This may cause a regular or irregular pulse.
- **Atrioventricular nodal re-entrant tachycardia.** This occurs when you have two pathways instead of one through the AV node. The signal goes down one pathway and up the other. So the signal "re-enters" the atria. This causes a fast heart rate.
- **Atrioventricular reciprocating tachycardia.** With this condition, there is an extra connection of muscle between the atrium and the ventricle. This extra connection is known as an accessory pathway. It can conduct electricity both upward and downward. The signal starts down the normal pathway through the AV node. But then it goes back up to the atrium through the accessory pathway. The signal then goes down the AV node again. This circular pattern leads to an abnormal heart rhythm. This type of SVT is generally not serious (benign). In rare cases, it may lead to an abnormal heart rhythm that may cause sudden death. This type of SVT is from a problem you were born with (congenital).
- **Atrial tachycardia.** This is another common type of SVT. A small group of cells in the atria begin to fire abnormally and compete with the sinus node. This starts an abnormally fast heartbeat.
- **Multifocal atrial tachycardia.** With this type of SVT, several groups of cells in your atria fire abnormally and set off a fast heartbeat.

## What causes SVT?

Some types of SVT run in families. Some people have heart problems from birth that may lead to SVT. High blood pressure, heart failure, heart valve disease, sleep apnea, thyroid problems, and heart attacks can also cause SVT. Smoking, excess caffeine or alcohol, and some medicines can raise your risk for SVT.

## Symptoms of SVT

When SVT happens, you may feel no symptoms. Or you may have:

- Fluttering feelings in your chest (palpitations).
- A tight feeling or pain in your chest.

- A pulsing feeling in your neck.
- Dizziness.
- Shortness of breath.
- Tiredness.
- Fainting.
- Nausea.

In very rare cases, SVT can cause sudden death.

## Diagnosing SVT

Your main health care provider may diagnose you. Or you may see a provider who specializes in heart conditions (cardiologist). The provider will ask about your health history. They will also give you a physical exam and do 1 or more tests. These tests can help show what kind of SVT you have, and what may be causing it. They also help check for other problems. The tests may include:

- An electrocardiogram (ECG), to look at the abnormal rhythm.
- Continuous heart monitors, such as a Holter monitor or an event recorder. This is to watch your heart rhythm over a longer period of time to catch and document the SVT rhythm.
- Blood tests, to look for causes such as thyroid problems or electrolyte problems.
- A chest X-ray, to check for lung problems and look at the size of your heart.
- Exercise stress test, to see how well your heart works under stress.
- Echocardiography (echo), to check your heart structure and function.
- Electrophysiology studies. This is an invasive procedure using a thin tube (catheter) put into a blood vessel to the heart. This test checks the heart's electrical signals and can help find out the type of SVT.

## Treating SVT

Treatment for SVT will depend on the length of time you have had it. It will also depend on how often you have it and how serious it is. Treatments may include:

- Vagal maneuvers.
- Medicines to slow your heart rate.
- Electrical shock to get your heart back into rhythm (cardioversion).
- Catheter ablation.
- Blood thinners to prevent stroke. This depends on the type of SVT you have.

If you develop SVT, talk with your health care provider about the best treatment choices for you.