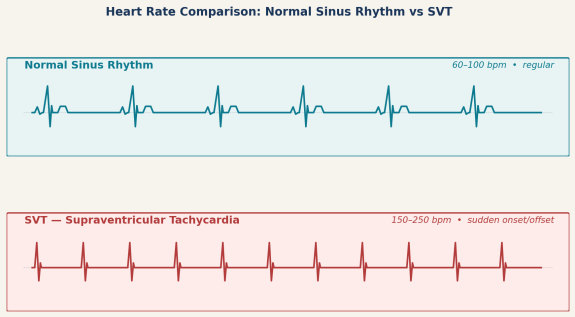
# Supraventricular Tachycardia (SVT)

A Fast Heartbeat Above the Ventricles — Causes, Types, and Treatment

**SVT is a fast heartbeat of 150–250 beats per minute. It starts in the upper heart chambers or AV node. Episodes begin and end suddenly. Most are not dangerous, but they feel alarming. There are good options to stop an episode and to prevent more.**




**Online:** https://go.riasalimd.com/svt-guide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## Names & Terms You Will Hear

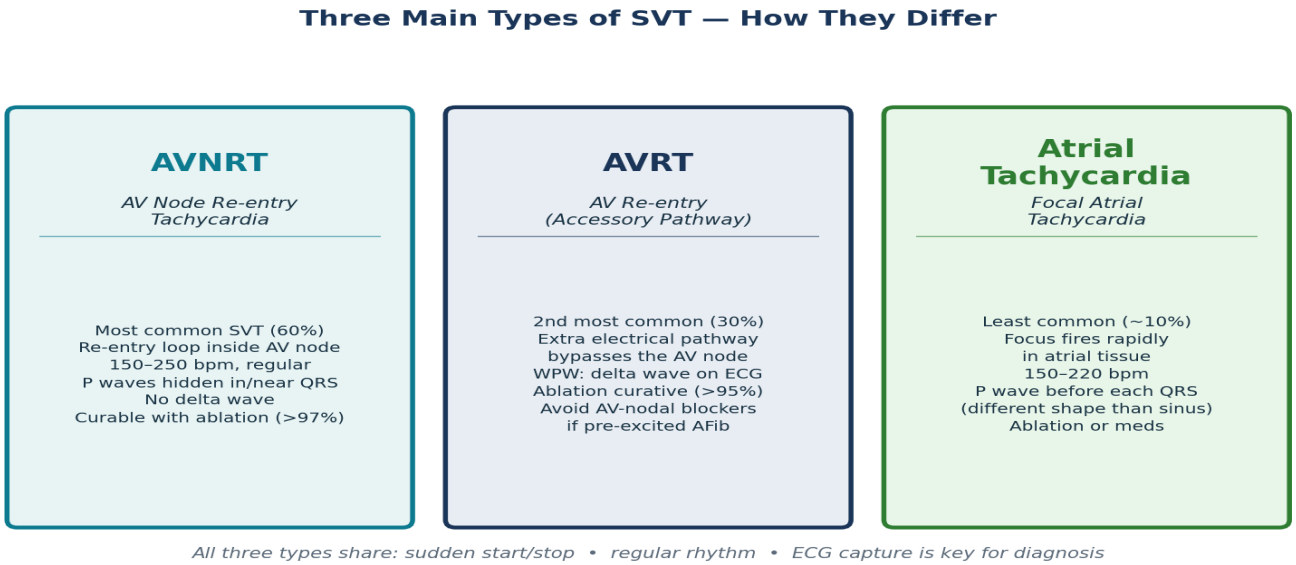
| Term | Meaning |
|---|---|
| SVT (supraventricular tachycardia) | An umbrella term for any fast heartbeat that starts above the lower chambers. Rates are 150–250 beats per minute (bpm). Episodes start and stop without warning. The three main types are AVNRT, AVRT (including WPW), and atrial tachycardia. |
| AVNRT (AV node re-entrant tachycardia) | The most common type — about 60% of all SVT. An extra loop inside the AV node lets the signal circle and fire again and again. This creates a very fast, regular heartbeat. Women are affected slightly more than men. Catheter ablation cures it in more than 97% of cases. |
| AVRT (AV re-entrant tachycardia) and accessory pathway | About 30% of SVT cases. An extra electrical connection (accessory pathway) links the upper and lower chambers. The signal can loop through this extra path and fire very fast. When this path shows on a resting ECG, it is called WPW. |
| WPW (Wolff-Parkinson-White syndrome) | A type of AVRT where the extra path shows as a delta wave on the ECG. A delta wave is a slurred start to the heartbeat tracing. Most people with WPW have no symptoms. Some develop SVT or, less often, fast atrial fibrillation (AFib). If AFib occurs with WPW, certain heart drugs must be avoided. Ablation cures WPW. |
| Palpitations | An awareness of your own heartbeat — a flutter, a racing, or a pounding in the chest. Palpitations are the most common symptom of SVT. They can also come from anxiety, thyroid problems, caffeine, or benign extra beats. An ECG during an episode is needed to know the true cause. |
| Vagal maneuver | A physical action that activates the vagus nerve and slows the AV node. This can break the SVT circuit and stop the fast heartbeat. Common examples: bear down hard as if lifting something heavy, lie back with legs raised (modified Valsalva), or splash cold water on the face. The REVERT trial showed the modified Valsalva stops SVT in about 43% of cases. |

| Term | Meaning |
|---|---|
| Catheter ablation | A procedure done through thin tubes (catheters) passed into the veins. Heat energy destroys the small area of heart tissue that causes SVT. It is not open surgery. Most patients go home the same day. It cures SVT in more than 95% of cases. |
| EP study (electrophysiology study) | A test that maps the electrical pathways of the heart from inside. The team can trigger SVT on purpose to find the exact location of the problem. An EP study is often combined with ablation in the same procedure. |

**What SVT feels like:** A sudden racing heartbeat — 150 to 250 beats per minute. Many people feel it in the throat as much as the chest. It usually ends as suddenly as it started. Between episodes your heart is completely normal.

## Supraventricular Tachycardia (SVT)?

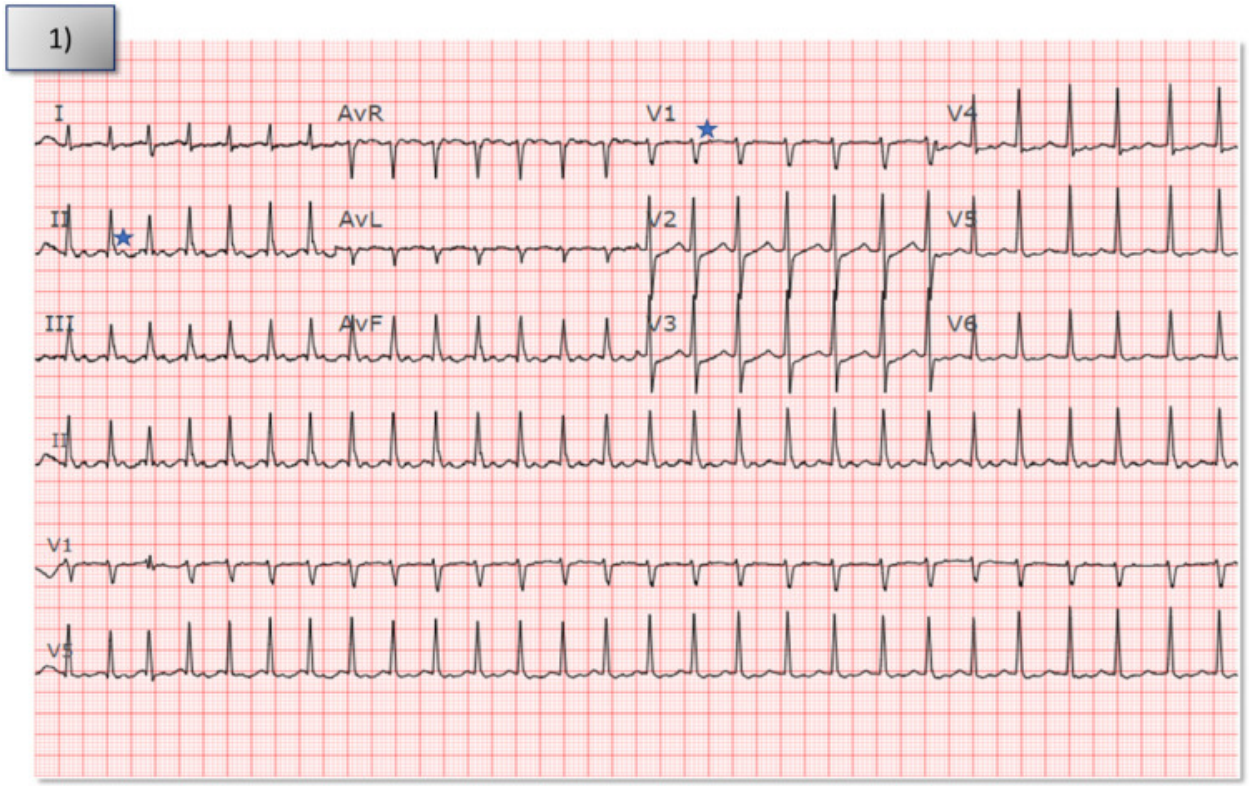
- SVT stands for supraventricular tachycardia. This means a fast heartbeat (tachycardia) that starts above the lower chambers. The signal goes around a loop or fires rapidly from an extra spot.
- During SVT the heart rate is usually 150–250 bpm. The rhythm is regular — each beat is evenly spaced. This even spacing sets SVT apart from atrial fibrillation, which is irregular.
- Episodes start and stop suddenly — sometimes in just a few seconds. This pattern is called PSVT (paroxysmal SVT). An episode can last seconds, minutes, or hours.
- There are three main types: AVNRT (most common, 60%), AVRT or WPW (30%), and atrial tachycardia (10%). Each type has a slightly different circuit.
- SVT can happen at any age. AVNRT is more common in women. AVRT and WPW are more common in young adults and teens.
- Most SVT is not dangerous. But very fast SVT can cause low blood pressure or near-fainting. WPW with fast AFib is the one type that can be serious. Ablation in that case is urgent.




*Three main types of SVT. AVNRT is the most common at 60%. AVRT and WPW account for about 30%. Atrial tachycardia makes up about 10%. All three cause a sudden fast, regular heartbeat. An ECG during the episode tells them apart.*

## Why It Matters

- SVT affects about 2.25 in every 1,000 people in the United States. That is roughly 570,000 Americans. SVT causes about 50,000 ER visits every year.
- Frequent SVT hurts daily life. People worry about heart attacks, cut back on exercise, and make repeated ER trips. Treatment — even one ablation procedure — can end all of that.
- To diagnose SVT you must capture the rhythm during an episode. A resting ECG between episodes is often completely normal. A Holter monitor or event recorder can catch the rhythm when symptoms happen.
- Treatment works very well. Vagal maneuvers stop many episodes at home. IV adenosine stops SVT in the ER in seconds. Catheter ablation cures more than 95% of AVNRT and AVRT cases.
- The risk is higher in WPW. If fast AFib develops, the extra pathway can conduct at 200–300 bpm. This is rare but can cause a dangerous rhythm. Ablation removes that risk.




*A real 12-lead ECG captured during an SVT episode. The heartbeat is fast (163 bpm here) and perfectly regular, with narrow QRS complexes. Blue stars mark hidden P waves close behind each beat. This pattern is what confirms the diagnosis. Image: Raina et al., Frontiers in Cardiovascular Medicine 2023 (CC BY 4.0).*

## Risk Factors

Some patients are more likely to develop this condition. Knowing your risk helps your care team take extra precautions.

| Risk Factor | Why It Increases Risk |
|---|---|
| Caffeine and stimulants | Coffee, energy drinks, and some cold medicines can lower the threshold for SVT. Cutting back on caffeine often reduces how often episodes happen. |
| Alcohol | Even a moderate amount of alcohol can trigger SVT, especially AVNRT. This is similar to how alcohol can trigger AFib. |
| Stress and poor sleep | Stress raises adrenaline, which can set off the SVT circuit. Managing stress and getting enough sleep may reduce episodes. |
| Thyroid disease | An overactive thyroid speeds up the heart and can lower the threshold for SVT. A thyroid blood test is part of the workup for new SVT. |
| Structural heart disease | Mitral valve prolapse and some congenital heart defects can create extra electrical paths or tissue that triggers SVT. Most SVT patients, though, have a structurally normal heart. |
| Pregnancy | Hormone changes and increased blood volume during pregnancy can bring out AVNRT. Adenosine is safe in pregnancy. Ablation is usually put off until after delivery. |
| Family history of WPW | WPW can run in families. If a close relative has WPW, an ECG screening and cardiology review are recommended. |

## Treatment Options

- Step 1 — try a vagal maneuver at home. Modified Valsalva: lie flat, raise legs to 45°, strain hard for 15 seconds. This stops SVT in about 43% of episodes. Cold water splashed on the face is a backup option.
- Step 2 — if the maneuver does not work in 1–2 minutes and you feel okay, go to the ER. IV adenosine stops SVT in over 90% of cases within seconds. It feels like a brief wave of flushing and chest pressure, then it clears.
- Step 3 — if adenosine does not work, the ER team will use IV diltiazem, verapamil, or a beta-blocker. These all slow the AV node and break the SVT circuit.
- Daily medication to prevent recurrence: beta-blockers (metoprolol, atenolol) or calcium channel blockers (verapamil, diltiazem) are the first choice. Some patients take a single dose only when an episode starts (pill-in-the-pocket).
- Catheter ablation: for AVNRT and AVRT, ablation is often chosen over daily pills. Catheters enter through leg veins — no incision needed. Success rates are over 97% for AVNRT and over 95% for AVRT. Serious problems occur in fewer than 1% of cases. Most patients go home the same day.
- WPW with symptoms: ablation is strongly advised. It removes both the SVT circuit and the small risk of a dangerous fast AFib. One procedure, lifelong cure.

### SVT Treatment Ladder — From Home to Curative Ablation

| Step | Treatment | Where | Success Rate | Notes |
|---|---|---|---|---|
| 1 | Modified Valsalva (vagal maneuver) | Home | ~43% | Free, immediate, no side effects — always try first |
| 2 | IV adenosine | ER | >90% | Brief flushing/pressure for 10–20 sec; very safe |
| 3 | IV diltiazem or verapamil | ER | 80–90% | If adenosine fails or contraindicated (e.g., asthma) |
| 4 | Daily beta-blocker or CCB | Home (daily) | Reduces by 50–80% | Controls frequency; does not cure the circuit |
| 5 | Catheter ablation | Cath lab (one-time) | >95–97% | Curative; outpatient; preferred for AVNRT, AVRT, WPW |

## Stopping an SVT Episode at Home

- As soon as you notice the fast heartbeat, sit or lie down. Try to stay calm. Anxiety makes the heart beat faster.
- Try the modified Valsalva: lie on your back and raise your legs to 45°. Blow hard against a closed fist for 15 seconds. Then lower your legs. The REVERT trial (Lancet 2015) found this stops SVT in about 43% of cases.
- If that does not work, try cold water on your face. Splash ice-cold water on your face or dip it briefly. This activates the dive reflex and slows the heart.
- Do not try carotid massage at home. A doctor does this only after checking for artery disease. In some people it can cause a stroke.
- If the episode does not stop in 1–2 minutes, call 911 or go to the ER. IV adenosine at the ER stops SVT in seconds.
- After it ends, write down when it started and stopped and what you felt. This helps your doctor plan the next step.

## Risks, Benefits, and Alternatives

Every choice has trade-offs. Use this table to start the shared decision conversation.

| Option | Risks | Benefits | Alternatives |
|---|---|---|---|
| Vagal maneuvers | No side effects from medication. Straining hard can briefly cause lightheadedness. Carotid massage (doctor-only) carries a tiny stroke risk in some older patients. | Safe, free, and always available. Modified Valsalva stops about 43% of episodes. Lets you manage SVT at home without a trip to the ER. | If it does not work in 1–2 minutes, go to the ER. IV adenosine is the reliable next step. |
| IV adenosine (ER) | Brief side effects: flushing, chest pressure, and breathlessness for 10–20 seconds. Rarely causes bronchospasm (avoid in asthma — use verapamil instead). A short heart pause is expected and self-limited. | Stops SVT in over 90% of cases within seconds. Also helps confirm the diagnosis. | If it fails, IV diltiazem or verapamil are the next options. An electrical shock (cardioversion) is always ready for severe cases. |
| Daily medications | Side effects: tiredness, low blood pressure, or slow heart rate with beta-blockers. Constipation or leg swelling with verapamil. Class IC drugs (flecainide, propafenone) need careful selection. | Reduces SVT episodes by 50–80% in many patients. Non-invasive and reversible. A single on-demand dose works for some patients with rare episodes. | Medications do not cure SVT. Episodes can still occur on therapy. Ablation is the only true cure. |

| Option | Risks | Benefits | Alternatives |
|---|---|---|---|
| Catheter ablation | Rare serious risks (<1%): injury to the AV node needing a pacemaker (<0.5%), bleeding at the access site, fluid around the heart (<0.3%). Same-day procedure with 4–6 hours of recovery. | Cures over 97% of AVNRT and over 95% of AVRT cases. Long-term recurrence is under 3–5%. Most patients need no daily pills after ablation. One-time, outpatient procedure. | For WPW without symptoms, risk testing guides whether ablation is needed. For mild, infrequent SVT, daily pills are a valid choice if ablation is not wanted. |

## Catheter Ablation — What to Expect

- Ablation is done in a cardiac cath lab. You are lightly sedated or fully asleep. No incisions are needed — thin tubes enter through small holes in the groin.
- First, an EP study maps the heart's electrical pathways. The team triggers SVT on purpose to find the exact problem spot.
- For AVNRT: the extra loop inside the AV node is treated. Risk of AV node injury needing a pacemaker is less than 0.5%.
- For AVRT and WPW: the extra path between chambers is treated. A path on the left side may need crossing through the heart wall.
- Most procedures take 1–3 hours. You recover for 4–6 hours and usually go home the same day.
- Success: over 97% for AVNRT, over 95% for AVRT. Recurrence is under 3–5%. Most patients need no daily pills after ablation.
- Avoid heavy lifting and hard exercise for 3–5 days while the entry site heals. Driving is fine once the sedation wears off, usually the next day.
- A follow-up at 4–8 weeks and a Holter at 3 months check for any recurrence.

## Common Misconceptions

| Myth | Reality |
|---|---|
| Palpitations always mean SVT. | Palpitations have many causes: anxiety, thyroid problems, caffeine, dehydration, and harmless extra beats. SVT needs an ECG during an episode to be confirmed. A racing feeling alone is not the same as a diagnosis of SVT. |
| Ablation is major open-heart surgery. | Ablation uses thin tubes passed through leg veins — no incision at all. Most patients have light sedation, not general anesthesia. There is no bypass machine. Most patients go home the same day. |
| SVT is the same as a heart attack. | A heart attack is caused by a blocked artery. SVT is an electrical problem, not an artery problem. SVT does not damage the heart muscle. Both feel alarming, but the causes are very different. |
| A normal ECG means there is nothing wrong. | SVT comes and goes. A normal ECG between episodes is expected and does not rule SVT out. A Holter or event monitor can catch the rhythm the next time it happens. |
| Taking a daily pill means I am cured. | Daily pills reduce how often SVT happens, but they do not remove the circuit. Episodes can still occur on medication. Only ablation destroys the circuit and cures the condition. |
| WPW is only a problem if I have symptoms. | Most people with WPW and no symptoms do fine. But the extra pathway can, rarely, let a fast AFib conduct to the lower chambers at dangerous speeds. A heart specialist should review all WPW cases to decide about ablation. |
| Cold water stops every SVT episode. | Splashing cold water on the face activates the dive reflex and can stop SVT. But it does not work every time. If it fails along with one more vagal maneuver, go to the ER. |

## Possible Complications

Knowing what can go wrong helps you spot problems early. Most complications are uncommon, especially with treatment.

| Where / What | What Can Happen |
|---|---|
| Low blood pressure during SVT | Very fast SVT can cause blood pressure to drop. This brings dizziness, near-fainting, or fainting. It is more common in patients with an existing heart problem. An electrical shock to reset the rhythm (cardioversion) is used in severe cases. |
| WPW with fast AFib — highest-risk situation | In WPW, if AFib develops, the extra pathway can let signals reach the lower chambers at 200–300 bpm. This can trigger a dangerous rhythm in the lower chambers. This is rare, but it is the main reason symptomatic WPW is treated with ablation. Certain heart drugs must not be given in this situation. |
| Fainting during SVT | Fainting from SVT is not common. It happens when the heart rate is so fast that blood flow to the brain drops. Fainting during SVT is a strong reason to choose ablation. |
| Anxiety and reduced daily life | Repeated, unpredictable episodes cause fear and limit daily activities. People avoid exercise and caffeine and make many ER trips. Effective treatment, including ablation, greatly improves daily life. |
| Weakening of the heart muscle | In rare cases, SVT that occurs very often over many months can weaken the heart. Heart function falls. This usually improves once SVT is controlled or cured. |
| Medication side effects | Beta-blockers can cause tiredness and cold hands and feet. Verapamil and diltiazem can cause constipation or low blood pressure. Class IC drugs (flecainide, propafenone) require careful patient selection. |

## WPW — What You Need to Know

- WPW means you were born with an extra electrical connection in the heart. This shows on your ECG as a delta wave — a slurred start to each beat. The extra path can cause SVT.
- Most people with WPW have no symptoms. It is often found on a routine ECG.
- The main risk in WPW: if AFib also develops, the extra path can let signals into the lower chambers at 200–300 bpm. This can cause a dangerous fast rhythm. This is rare, but it is why WPW is taken seriously.
- IMPORTANT — if you have WPW and get a fast, irregular heartbeat, go to the ER and tell staff you have WPW. Some common heart drugs make things worse in this situation. The ER team needs to choose the right treatment.
- Ablation cures WPW in over 95% of cases and removes the rare risk of a dangerous fast rhythm. It is the preferred treatment for people with symptoms.
- For WPW without symptoms, your cardiologist will advise whether to watch or go ahead with ablation based on your age and risk factors.
- After successful ablation, the delta wave usually disappears from your ECG. Follow-up ECGs at 3 and 12 months confirm the extra path is gone.

## Points to Know

If you remember nothing else, remember these key points.

- SVT is an electrical problem — not a blocked artery. It starts above the lower chambers of the heart.
- Episodes start and stop suddenly. A heart that snaps into a fast, even rate and then snaps back is very typical of SVT.
- Modified Valsalva first: lie flat, raise legs to 45°, strain hard for 15 seconds. This stops SVT in about 43% of cases.
- Call 911 or go to the ER if you feel faint, have chest pain, or cannot breathe well — or if vagal maneuvers do not work in 1–2 minutes.
- An ECG during the episode is the only way to confirm SVT. A normal ECG between episodes does not rule it out.
- Ablation cures AVNRT and AVRT in over 95% of cases. Most patients go home the same day. Many people prefer one ablation over daily pills for life.
- If you have WPW: tell any ER doctor. Avoid energy drinks and certain heart drugs. Your cardiologist can advise.
- Cutting back on caffeine and alcohol and managing stress may reduce episodes.

## When to Call Us - and When to Call 911

If you are not sure, call. We would rather hear from you twice than miss a real problem.

- Call 911 right away: fainting or near-fainting during a fast heartbeat. Chest pain or pressure during SVT. Severe shortness of breath that does not ease in a few minutes. Do not drive yourself.
- Call 911 if vagal maneuvers do not stop the episode in 1–2 minutes and you feel unwell or dizzy. IV adenosine in the ER stops SVT within seconds.
- Call our office the same day: a new fast heartbeat episode you have not had before. An episode that lasted more than 30 minutes. Symptoms getting more frequent or more severe.
- Call our office within 2–3 days: your event monitor captured an episode. You want to talk about ablation. Your medicine is not working or is causing side effects.
- If you have WPW: any fast, irregular heartbeat means go to the ER right away. Tell ER staff you have WPW so they choose the right treatment.

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**Related guides from our practice.** If your monitor finds AFib: see the Atrial Fibrillation guide. For fast ventricular rhythms: see the VT / VF guide. For fainting: see the Syncope guide. For wearable heart monitors: see the Holter and Event Monitors guide.

## Trusted Resources

The links below are the trusted resources Dr. Ali used to write this guide and that he recommends you visit for more information. Each is a clickable link in the digital version and a Short.io tracked URL on the printed version.

- American Heart Association — Tachycardia - AHA patient resource on fast heart rates, SVT, and when to seek care.
- Cleveland Clinic — Supraventricular Tachycardia - Cleveland Clinic patient guide on SVT causes, types, symptoms, and treatment options.
- Mayo Clinic — Supraventricular Tachycardia - Mayo Clinic plain-language overview of SVT including lifestyle tips and treatment.
- NIH MedlinePlus — SVT - National Library of Medicine consumer health page on SVT diagnosis and treatment.
- Heart Rhythm Society — Patient Resources - HRS patient guides on SVT, catheter ablation, EP study, and WPW.
- AHA — Catheter Ablation - AHA patient page explaining catheter ablation — what it is, how it works, and what to expect.
- Holter & Event Monitor guide — RiasAliMD.com - Our practice guide on wearable heart monitors — how they work, which device fits which symptom pattern.

# Sources Used to Build This Guide

Every recommendation in this guide is grounded in one or more of the studies, guidelines, or trusted resources below. Short links are tracked so Dr. Ali can see which references patients are reading; nothing personally identifying is captured.


- 2015 ACC/AHA/HRS Guideline for the Management of Adult Patients With Supraventricular Tachycardia *[Guideline]*
  Primary clinical guideline for SVT diagnosis and treatment including ablation and medical therapy recommendations
- REVERT Trial — Modified Valsalva for SVT (Appelboam et al., Lancet 2015) *[Trial]*
  Randomized trial showing modified Valsalva (legs elevated, recumbent) converts 43% of SVT vs 17% with standard Valsalva
- Adenosine for Supraventricular Tachycardia — Pharmacology and Use (DiMarco et al.) *[Clinical-Study]*
  Key evidence for IV adenosine as first-line acute pharmacologic therapy for SVT termination
- Catheter Ablation for SVT — Outcomes and Safety (Wood et al., Circulation) *[Clinical-Study]*
  Ablation outcomes for AVNRT/AVRT — success rates >95% for AVNRT, recurrence <5%, serious complications <1%
- Wolff-Parkinson-White Syndrome — Management and Risk Stratification (Munger et al.) *[Review]*
  WPW clinical features, delta wave ECG recognition, risk of pre-excited AFib, and ablation as curative treatment
- Cleveland Clinic — Supraventricular Tachycardia (SVT) Patient Page *[Patient-Education]*
  Patient-facing overview used as benchmark for plain-language framing and completeness check
- Mayo Clinic — Supraventricular Tachycardia Patient Page *[Patient-Education]*
  Patient-facing benchmark — symptoms, types, triggers, and treatment framing reviewed against our guide
- American Heart Association — Tachycardia Patient Resources *[Patient-Education]*
  AHA patient resource on fast heart rates and SVT — used for bystander and lay-language benchmarking
- NIH MedlinePlus — Supraventricular Tachycardia *[Patient-Education]*
  US National Library of Medicine consumer health overview of SVT causes, types, symptoms, and treatment
- Heart Rhythm Society — SVT Patient Information *[Patient-Education]*
  HRS authoritative patient guidance on SVT, catheter ablation candidacy, and EP study explanations
- AVNRT and AVRT — Mechanisms and Catheter Ablation (Jackman et al.) *[Clinical-Study]*
  Foundational study on re-entry circuit mechanisms for AVNRT (slow-fast) and AVRT, ablation target identification
- Vagal Maneuvers in SVT — Systematic Review (Smith et al., Emerg Med J) *[Systematic-Review]*
  Evidence synthesis on effectiveness of vagal maneuvers (Valsalva, carotid sinus massage, cold water) for SVT termination
- Long-Term Outcomes of Catheter Ablation for AVNRT — Multicenter Registry *[Registry-Study]*
  Contemporary ablation success rates: AVNRT >97% acute success, <3% recurrence at 2 years, <0.5% AV block risk

# About This Guide

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**Reviewer note:** Reviewed against Cleveland Clinic, Mayo Clinic, AHA, NIH MedlinePlus, and HRS. This guide adds a normal vs SVT rhythm strip cover, a step-by-step vagal maneuver diagram, a 3-type SVT panel, a treatment ladder table, REVERT trial data, ablation success rates by type, a WPW warning section, and cross-links to AFib, VT/VF, Holter, and Syncope guides.

## Disclaimer

This guide is for educational purposes only and does not replace medical advice from your physician. Recommendations may not apply to every patient. Always follow the specific instructions of Dr. Ali and your care team. In an emergency call 911 or go to the nearest emergency department.

# Take This Guide With You

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