

Premature beats (PACs & PVCs)

Section 1 of 6: The basics

Understand premature beats, recognize symptoms, and explore treatment options.

What should I do now?

Call 911

Call 911 for chest pressure, severe trouble breathing, fainting, or severe dizziness with palpitations. Do not drive yourself.

Contact your care team

Contact your care team for new or increasingly frequent palpitations, reduced activity, or troublesome symptoms.

Keep your care plan

Keep your treatment and follow-up plan. Bring questions, readings, and your medication list.

SECTION 1

What are PACs and PVCs?

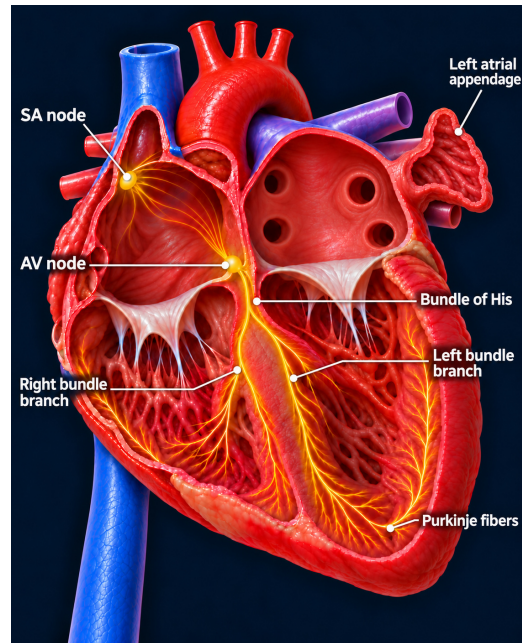
PACs and PVCs are heartbeats that happen earlier than expected. They are called premature beats. Rather than starting with the heart's normal pacemaker, an early electrical signal starts somewhere else in the heart.

The main difference is where that signal begins:

- PAC: A premature atrial contraction starts in an upper chamber, called an atrium.

- PVC: A premature ventricular contraction starts in a lower chamber, called a ventricle.

How does the heart normally beat?



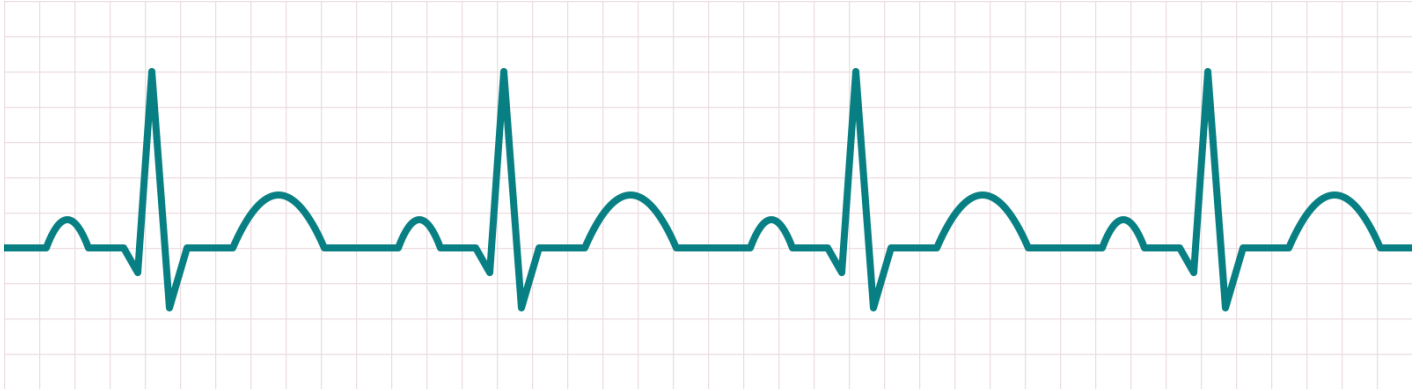
Follow one normal heartbeat

SA node → Atria → AV node → Ventricles

- The SA node starts the signal. The heart's natural pacemaker in the right upper chamber begins each normal sinus beat.
- The signal spreads through both atria. The upper chambers contract, moving blood into the ventricles.
- The AV node briefly delays the signal. This pause gives the ventricles time to finish filling.
- The signal activates the ventricles. It travels through the bundle of His, right and left bundle branches, and Purkinje fibers. The lower chambers contract, pumping blood to the lungs and body.

The atria contract first; the ventricles follow. This organized sequence produces a coordinated heartbeat.

Sinus rhythm

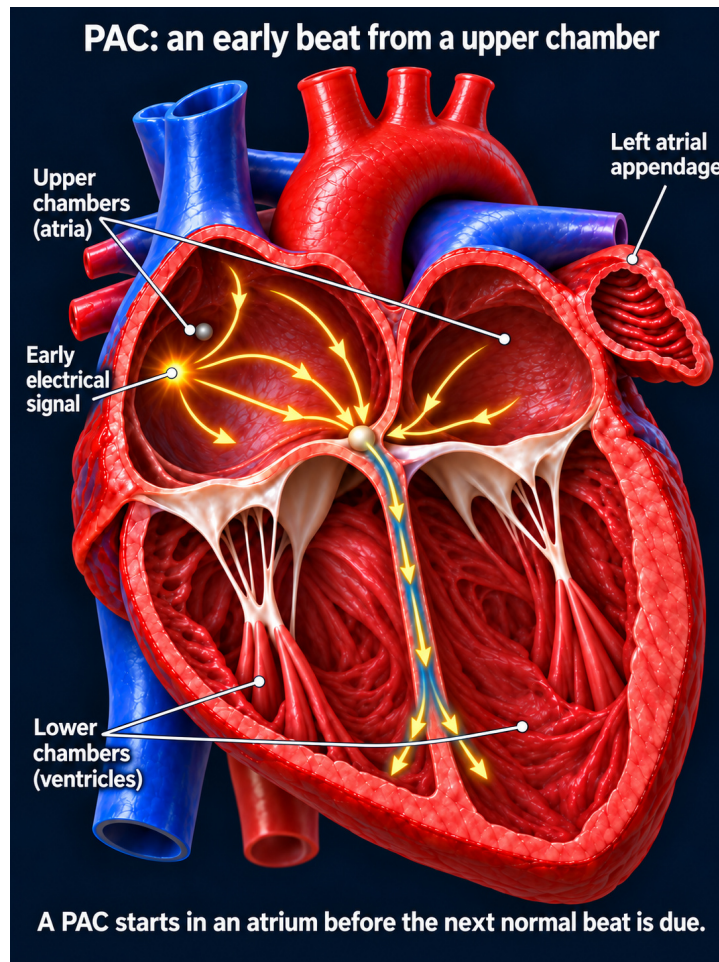


Normal sinus rhythm: an organized electrical signal coordinates the heartbeat. The EKG shows one P wave before each QRS complex and regular spacing between beats. Illustrative tracing; timing and voltage are not calibrated.

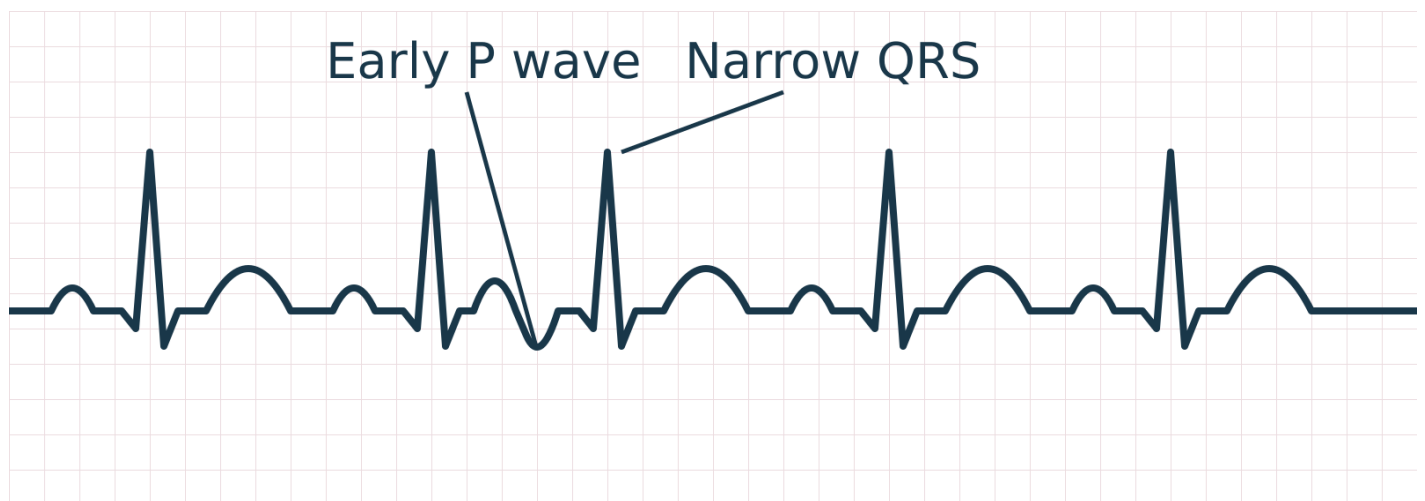
What happens during a PAC?

An electrical signal starts in the atria before the next normal heartbeat is due. It usually travels through the AV node and activates the ventricles through their normal wiring.

Think of it as an upper chamber saying, “Beat now!” a little too early.



Sinus rhythm with one PAC

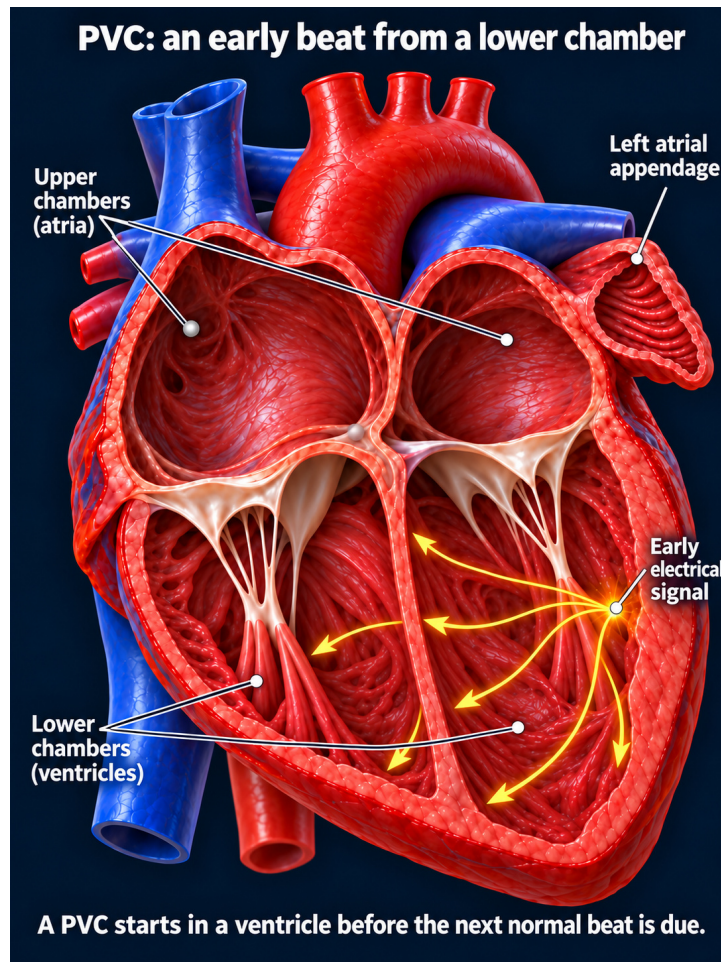


The PAC appears early, with a P wave shaped differently from the normal P waves. In this example, the signal travels through the normal ventricular wiring, producing a narrow QRS complex. Illustrative tracing; timing and voltage are not calibrated. PACs can have other appearances.

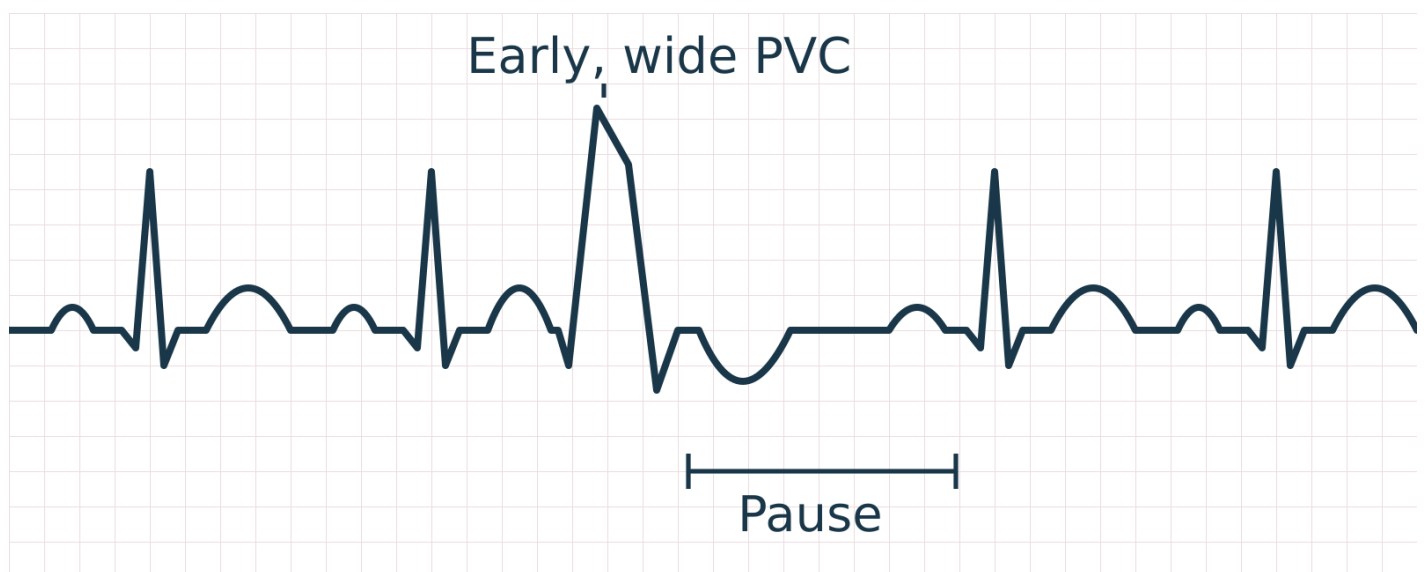
What happens during a PVC?

An electrical signal starts in a ventricle before the next normal heartbeat is due. Because it starts in a different location, the ventricles activate differently from a normal beat.

Think of it as a lower chamber jumping ahead of the heart's usual timing.



Sinus rhythm with one PVC



A premature ventricular beat arrives early and produces a wider QRS complex. In this example, a longer pause follows before normal beats resume. Illustrative tracing; timing and voltage are not calibrated. The heart image shows one possible PVC

origin; PVCs can start in different ventricular locations.

Why does it feel like my heart skipped a beat?

Often, your heart actually beats early rather than missing a beat. The premature beat may feel weak or go unnoticed. A pause may follow, and the next normal beat can feel stronger.

You may notice this as an early beat, a pause, then a thump. Not every premature beat produces the same sensation, and some people feel nothing at all.

Are premature beats dangerous - and when do they need treatment?

Nearly everyone has occasional premature beats - PACs, PVCs, or both. They are common and often harmless, especially when the heart is otherwise healthy. Occasional beats that cause no symptoms usually do not require treatment.

We consider treatment when premature beats cause bothersome symptoms or occur frequently enough to affect the heart's function. Frequent PVCs can sometimes weaken the heart muscle over time, leading to heart failure. Reducing those PVCs may help the heart recover.

PACs and PVCs have different implications. The concern about weakening the heart applies mainly to frequent PVCs. Frequent PACs may warrant evaluation for other atrial rhythm problems.

Your clinician considers your symptoms, the number and type of premature beats, and your heart's pumping function when deciding whether treatment is needed.

The key idea: PACs start in the upper chambers. PVCs start in the lower chambers. Both are early beats - but their significance depends on the individual patient.

Premature beats (PACs & PVCs)

Section 2 of 6: Symptoms

Understand premature beats, recognize symptoms, and explore treatment options.

SECTION 2

What symptoms can PACs and PVCs cause?

PACs and PVCs can feel similar. The sensation alone usually cannot tell you whether an early beat starts in an upper or lower chamber. An EKG or heart monitor helps identify the difference.

What might I feel?

- A skipped or missed beat: The early beat may be difficult to feel, while the pause afterward is more noticeable.
- A strong thump: The next normal beat may feel more forceful.
- Fluttering or an extra beat: A brief interruption in your usual rhythm.
- Repeated irregular beats: These may come and go throughout the day.

Some people also notice shortness of breath or feel anxious when premature beats occur. These symptoms can have other causes, so discuss them with your care team.

Can I have premature beats without feeling them?

Yes. Many people have no symptoms. Premature beats may be found during an EKG or heart monitor recording.

How strongly you feel an early beat does not tell us how frequently it happens. Occasional beats can feel bothersome, while frequent beats

may go unnoticed.

When should I contact my care team?

Contact your care team if symptoms are new, become more frequent, interfere with sleep or daily activities, or are accompanied by reduced exercise tolerance.

Record when symptoms occur, how long they last, and what you were doing. This can help match your symptoms with a rhythm recording.

When should I seek emergency care?

Call 911 for chest pain or pressure, severe shortness of breath, fainting, or severe dizziness that makes you feel you may pass out. Do not drive yourself.

Do not assume new or severe symptoms are just PACs or PVCs - even if you have been diagnosed with them before.

The key idea: Premature beats can feel unsettling or cause no symptoms at all. Recording the rhythm helps us understand what you are feeling and whether treatment may help.

Premature beats (PACs & PVCs)

Section 3 of 6: Diagnosis

Understand premature beats, recognize symptoms, and explore treatment options.

SECTION 3

How are PACs and PVCs diagnosed?

An EKG or heart monitor records the early electrical beats and helps us determine whether they are PACs or PVCs. We also want to understand how frequently they occur and whether the heart's structure and pumping function are normal.

An EKG: identifying the early beat

An electrocardiogram, also called an ECG or EKG, records your heart's electrical activity using small electrodes placed on your chest and limbs.

- A PAC usually shows an early P wave - the electrical signal from the upper chambers - followed by a normal-looking, narrow QRS complex.
- A PVC usually shows an early, wider QRS complex because the electrical signal starts in a ventricle and activates the lower chambers differently.

These are typical patterns. Your clinician reviews the entire tracing to identify the rhythm.

A heart monitor: measuring how often they happen

Premature beats may not occur during a short office EKG. A Holter or patch monitor can record your rhythm during daily activities.



A Holter monitor records the heart's electrical activity while you go about daily activities. This illustration shows one type of monitor; devices and electrode placement vary.

The monitor helps answer:

- Are the premature beats PACs, PVCs, or both?
- How frequently do they occur?
- Do they match the symptoms you report?
- Are there other abnormal rhythms present?

What does “burden” mean?

Burden is the percentage of recorded heartbeats that are premature.

For example, a 10% PVC burden means that approximately 10 out of every 100 recorded heartbeats are PVCs.

A higher PVC burden can increase concern about weakening the heart muscle, but there is no single percentage that determines treatment for every patient. We also consider symptoms, pumping function, and the characteristics of the PVCs.

An echocardiogram: checking the heart's function

An echocardiogram, or echo, uses ultrasound to examine the heart's chambers, valves, and pumping strength.

It helps us determine whether an underlying heart condition is present or whether frequent PVCs may be affecting the heart's function.

Will I need other tests?

Depending on your history and findings, your clinician may recommend blood tests to check electrolytes or thyroid function. Some patients need an exercise stress test or a cardiac MRI to investigate further.

Not everyone needs every test. The evaluation is tailored to your symptoms and rhythm recordings.

Can my smartwatch help?

A watch or handheld device that records an actual EKG may capture an early beat. Save the tracing and share it with your care team.

A heart-rate number alone cannot reliably distinguish PACs from PVCs or measure their burden. An occasional watch recording also cannot replace a continuous monitor when we need to measure how often the beats occur.

The key idea: An EKG identifies the premature beat, a monitor measures its frequency, and an echo helps assess the health of the heart.

Premature beats (PACs & PVCs)

Section 4 of 6: Treatment options

Understand premature beats, recognize symptoms, and explore treatment options.

SECTION 4

How are PACs and PVCs treated?

We treat premature beats when they cause bothersome symptoms or when their frequency raises concern about the heart's function. Treatment depends on whether you have PACs or PVCs, how often they occur, and the health of your heart.

The goal is to help you feel better and protect your heart's pumping function - not necessarily eliminate every occasional early beat.

1. Observation and reducing triggers

If premature beats are occasional, symptoms are mild, and the heart is healthy, reassurance and follow-up may be enough.

Your care team may recommend:

- Getting adequate sleep and staying appropriately hydrated.
- Reducing excessive caffeine or alcohol, especially if they trigger your symptoms.
- Avoiding tobacco and recreational stimulants.
- Reviewing medications, supplements, and decongestants that may contribute.
- Treating contributing conditions, such as an electrolyte imbalance or thyroid problem.

Reducing triggers may help, but frequent or symptomatic premature beats can still require additional treatment.

2. Medications: suppressing premature beats

Beta blockers are commonly used to reduce symptoms and may decrease the number of premature beats. Certain calcium channel blockers may be appropriate for selected patients, particularly those with PVCs.

If these are ineffective, an EP may consider a rhythm-control medication. The choice depends on your heart's pumping function, other heart conditions, and potential side effects.

Medications try to suppress the early electrical signals. They do not remove the source. They must be taken as prescribed, and some require EKG or laboratory monitoring.

3. Catheter ablation: targeting the electrical source

During ablation, an electrophysiologist uses thin catheters to map where the premature beats begin. Energy is then applied to a small area of tissue to stop it from producing those signals.

This is a catheter procedure rather than open-heart surgery.

Ablation for PVCs

Ablation may be appropriate when:

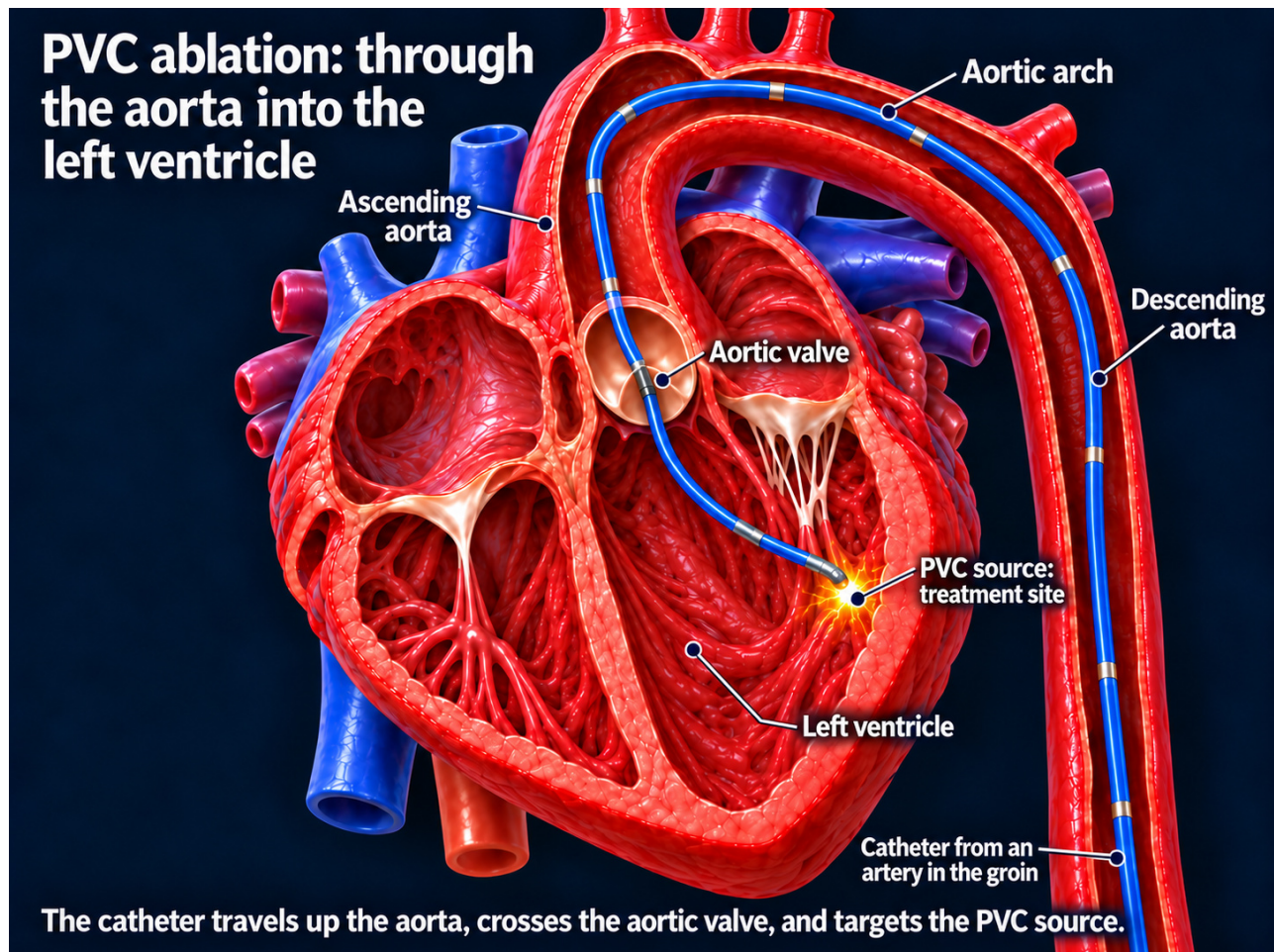
- PVCs cause significant symptoms.
- Medications are ineffective, cause side effects, or are not preferred.
- Frequent PVCs are causing - or are strongly suspected of causing - weakening of the heart muscle.

For certain PVC locations, ablation can be an initial treatment option. You do not always need to try several medications first.

When PVCs are responsible for reduced pumping function, successfully suppressing them can allow the heart to improve. Recovery varies, especially if another heart condition is also present.

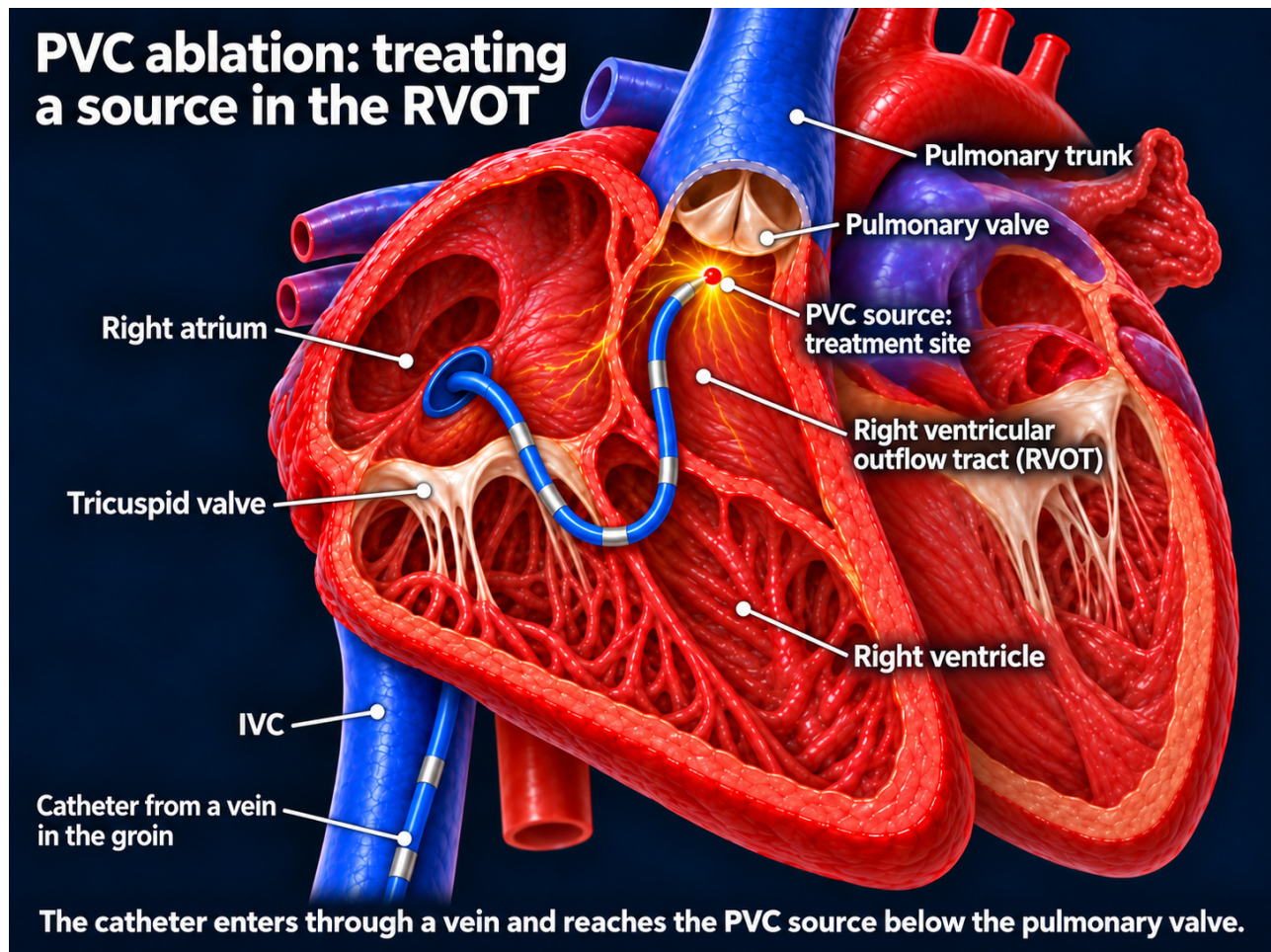
PVCs can start in different ventricular locations. These are two examples; the catheter route depends on the source.

Example: a PVC source in the left ventricle



One possible approach is through an artery, up the aorta, and across the aortic valve into the left ventricle. The catheter tip delivers treatment at the PVC source. This is called a retrograde aortic approach.

Example: a PVC source in the RVOT



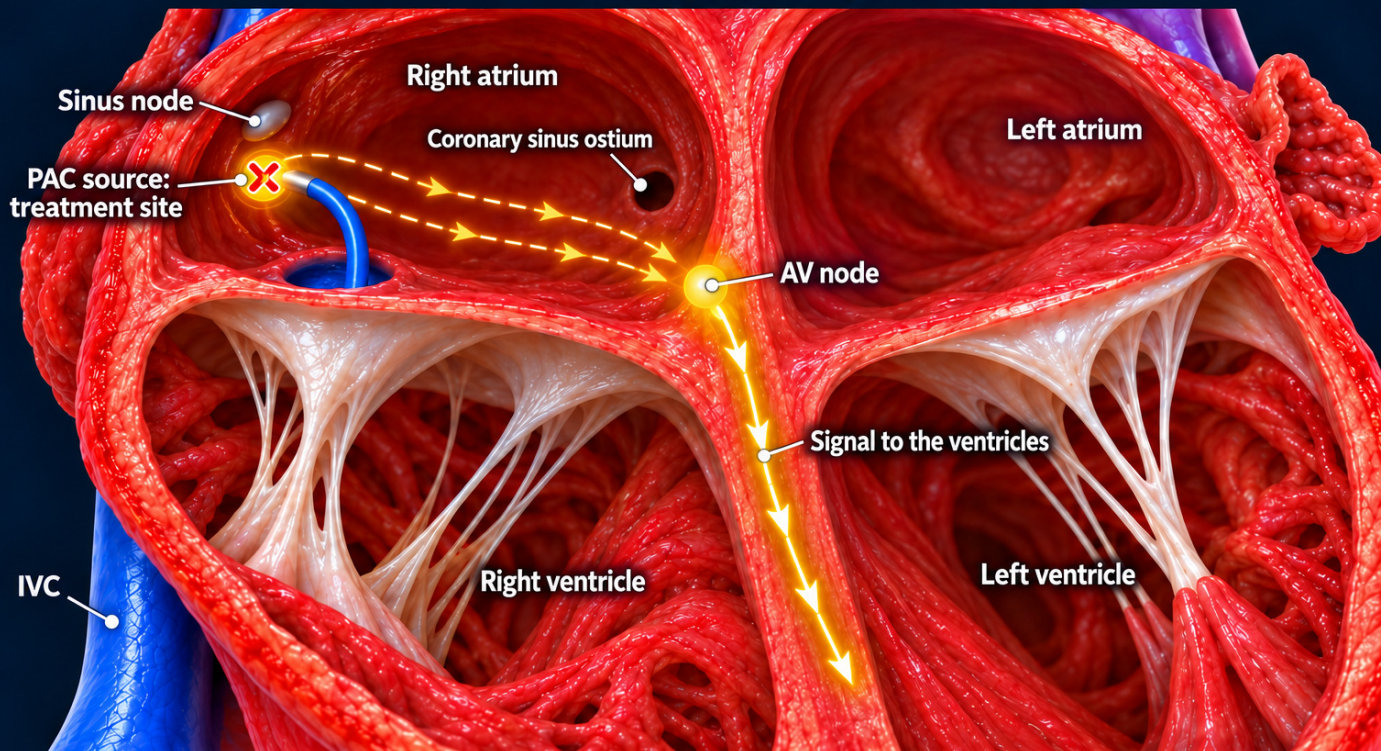
The right ventricular outflow tract (RVOT) is the part of the right ventricle that leads toward the pulmonary valve. The catheter comes through a vein and the inferior vena cava (IVC), enters the right atrium from below, and passes through the tricuspid valve into the right ventricle to reach the PVC source.

Ablation for PACs

Most PACs do not require ablation. However, an EP may consider it in selected patients with frequent, troublesome PACs that persist despite other treatment.

The approach depends on where the PACs begin. If they trigger another rhythm, such as AFib, that rhythm may also need its own treatment plan.

PAC ablation: treating the early-beat source



Ablation targets the small area causing premature atrial beats.

This example shows treatment of a PAC source in the right atrium. The catheter enters through the IVC and curves toward the small area producing the early beats. PACs may start in other locations, which can require a different approach.

How effective is ablation?

Success depends on the location of the source, whether there are multiple sources, and whether enough premature beats occur during the procedure to map them.

Some locations are more difficult to reach or are close to important structures. Your EP will discuss expected benefits and risks, including bleeding, injury to the heart or nearby structures, and possible damage to normal electrical conduction.

Ablation can provide lasting relief, but premature beats can return or arise from a different location.

Choosing your treatment

Your symptoms matter - even if your heart's pumping function is normal. Likewise, frequent PVCs may need attention even when you barely feel them.

Together, you and your care team can choose observation, medication, or ablation based on your symptoms, rhythm recordings, heart function, and preferences.

Preparing for your ablation?

Learn about procedure day, recovery, and caring for your groin puncture sites at home.

[What to expect on my procedure date](#)

Premature beats (PACs & PVCs)

Section 5 of 6: Living with PACs and PVCs

Understand premature beats, recognize symptoms, and explore treatment options.

SECTION 5

Living with PACs and PVCs

Most people with occasional premature beats and an otherwise healthy heart can continue their usual activities. The goal is to understand your rhythm, manage bothersome symptoms, and monitor your heart when needed.

Healthy habits that may help

- Get adequate sleep.
- Stay appropriately hydrated, following any fluid restrictions your care team has given you.
- Reduce excessive caffeine and alcohol, especially if you notice a connection with symptoms.
- Avoid tobacco and recreational stimulants.
- Discuss medications, supplements, and decongestants with your clinician.
- Find manageable ways to reduce stress.

Not everyone has a clear trigger. Premature beats can occur even when you follow healthy habits.

Can I exercise?

Regular physical activity is generally encouraged when your heart evaluation is reassuring. Ask your clinician whether any restrictions apply to you.

Tell your care team if exercise brings on new or worsening palpitations. Stop exercising and seek medical attention if you develop chest discomfort, significant shortness of breath, or dizziness.

Track symptoms without counting every beat

A brief symptom log can help. Record when symptoms occur, how long they last, what you were doing, and any associated symptoms.

If your watch captures an EKG during an episode, save it to share with your clinician. You do not need to check your pulse continuously or count every early beat.

Follow your treatment plan

Take medications as prescribed and report side effects. Discuss any changes with your care team before adjusting or stopping treatment.

If you have frequent PVCs, your clinician may recommend repeat monitoring or an echocardiogram - even if you feel well - to check the number of early beats and your heart's pumping function.

The takeaway: Occasional premature beats are common. Your symptoms, rhythm recordings, and heart function help determine how much follow-up you need.

Premature beats (PACs & PVCs)

Section 6 of 6: Your next steps

Understand premature beats, recognize symptoms, and explore treatment options.

SECTION 6

Your Follow-Up and Next Visit

Your next visit should help answer three questions: What type of premature beats do you have, how often are they happening, and do they need treatment?

What should I bring?

- An updated medication and supplement list.
- A brief description or log of your symptoms.
- Any saved watch EKG recordings.
- Previous EKG, heart monitor, or echocardiogram results if they were performed outside our office.
- Questions about how symptoms affect your sleep, exercise, work, or daily activities.

Questions to ask your care team

- Do I have PACs, PVCs, or both?
- What percentage of my heartbeats are premature beats?
- Is my heart's pumping function normal?
- Do my recorded symptoms match the premature beats?
- Is observation enough, or would medication or ablation help?
- Should I see an electrophysiologist?

- When should we repeat a monitor or echocardiogram?

When is an EP consultation helpful?

An electrophysiologist - a cardiologist who specializes in the heart's electrical system - can help when symptoms remain troublesome, medications are ineffective or cause side effects, or frequent PVCs raise concern about weakening the heart.

An EP can also explain whether ablation is appropriate and which approach might be used for your particular source.

Follow-up after treatment

Your care team may repeat a heart monitor to see whether treatment reduced the premature beats.

If PVCs affected your heart's pumping function, a follow-up echocardiogram can help assess recovery. Feeling better is encouraging, but rhythm recordings and heart imaging provide additional information.

The timing of follow-up depends on your symptoms, test results, and treatment plan.

When should I contact the office sooner?

Contact your care team if palpitations become more frequent or persistent, interfere with daily life, or are accompanied by new fatigue or reduced exercise tolerance. Also report medication side effects.

When should I seek emergency care?

Call 911 for chest pain or pressure, severe shortness of breath, fainting, or severe dizziness that makes you feel you may pass out. Do not drive yourself.

Do not assume new or severe symptoms are simply your usual PACs or PVCs.

Ready to discuss your symptoms?

[Make an appointment](#)

Together, we can choose a plan that addresses your symptoms and protects your heart's health.

Preparing for your ablation?

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Sources & further reading

[NHLBI: How the heart beats](#)

[MedlinePlus: Cardiac conduction system](#)

[AHA: PACs and PVCs](#)

[ESC guideline: Ventricular arrhythmias and PVCs](#)

[Research: Ablation for selected patients with frequent PACs](#)

[AHA: Palpitations and when to seek care](#)

Updated October 2026. Educational information; your own care plan may differ. Heart illustrations and EKG examples are simplified for teaching.