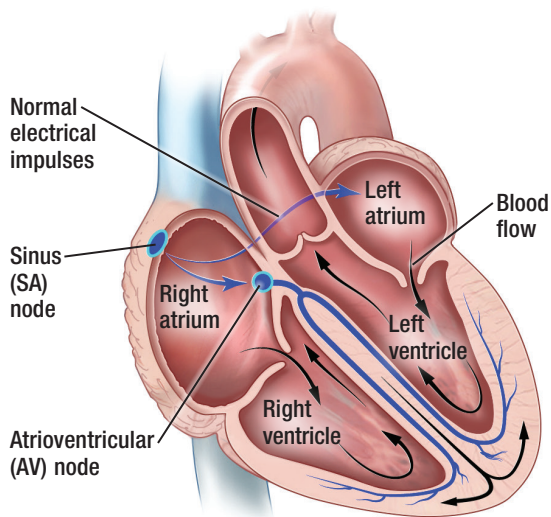
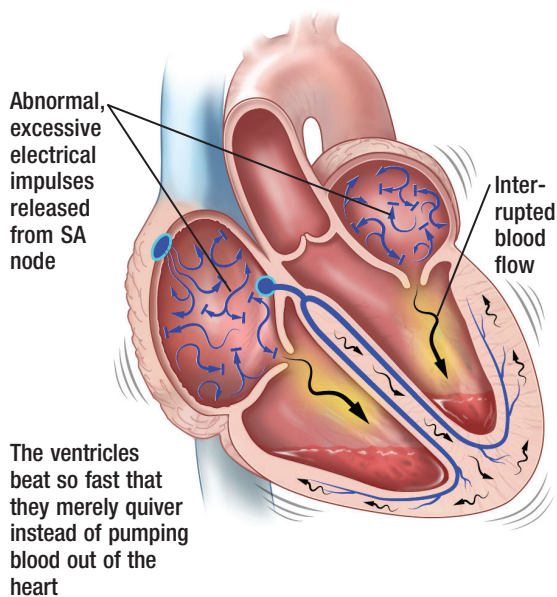
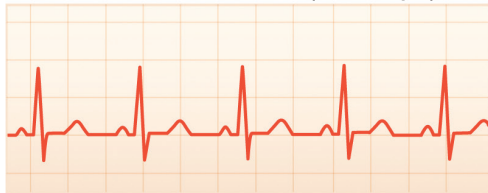


# Arrhythmia



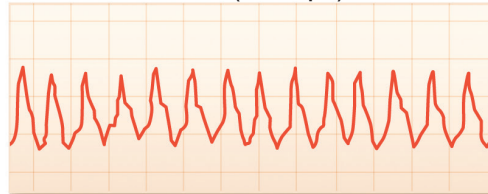
**Normal**  
ECG shows a normal heartbeat (60-100 bpm)



**Atrial Fibrillation**  
ECG shows atrial fibrillation—note the irregular, erratic heartbeat



**Ventricular Tachycardia**  
ECG shows ventricular tachycardia—note the fast heartbeat (>100 bpm)

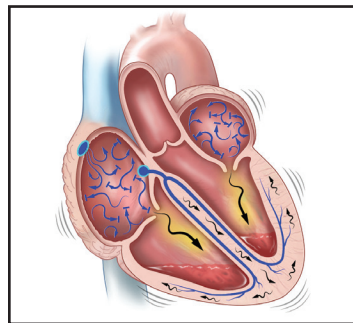


## Irregular Heartbeat

All organs and tissues depend on proper heart function to deliver oxygen-rich blood to the rest of the body. Arrhythmia, a condition in which the electrical system of the heart is compromised, is one reason that the heart may not perform this vital function. In arrhythmia, the heart beats too fast, too slowly, or randomly. Arrhythmias may be life-threatening, such as in cases of ventricular tachycardia or ventricular fibrillation. Chest pain, dizziness, sweating, and blacking out are symptoms of these life-threatening arrhythmias, and they require immediate medical attention.

## Although It Can Occur in Healthy People, Another Disease Is Often the Cause

To better understand arrhythmia, it is important to know how the heart works. The heart is made up of four chambers: two atria (upper chambers) and two ventricles (lower chambers). A group of nerves, called the *sinus (SA) node*, is located at the top of the right atrium. The SA node is responsible for starting a heartbeat—it is the body's natural pacemaker. During a heartbeat, an electrical signal spreads through the top of the heart, causing the atria to contract. The signal then spreads through the bottom of the heart, and the ventricles contract. For the heart to beat correctly, the flow of electricity through the heart must occur in this exact order. Under normal conditions, the human heart beats 50 to 100 times per minute. When the heart beats faster than normal, or more than 100 beats per minute (bpm), this condition is called *tachycardia*. When the heart beats less than 50 bpm, this condition is called *bradycardia*. Typically, the heart beats with about the same amount of time between each contraction (regular rhythm). When heartbeats occur with more or less time between contractions, the rhythm is considered irregular.



*The SA node, a group of nerves in the heart's right atrium, is responsible for starting a heartbeat, like a pacemaker.*

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### Causes of Arrhythmia

Arrhythmia is common, affecting more than 4 million people in the United States. Arrhythmia can also occur in a healthy heart, but other conditions or diseases often are responsible. Common heart-related causes are hardening (narrowing) of the arteries, high blood pressure, errors in the electrical structure (“wiring”) of the heart, damaged heart muscle after a heart attack, and recovery after heart surgery. Non-heart-related causes are underactive or overactive thyroid, unbalanced sodium and potassium levels, stress, certain medications, diabetes, sleep apnea (trouble breathing during sleep), and genetics. Smoking, drug use, and alcohol may also lead to arrhythmia. The risk of developing arrhythmia increases with age.

### Treatment

Treatment goals for arrhythmia are to restore a normal heart rate and rhythm and to prevent heart attacks and stroke. A cardiologist may prescribe medications that control the rate and rhythm of the heart. Beta-blockers (metoprolol, propranolol) and calcium channel blockers (diltiazem) are classes of drugs used to keep the heart rate between 60 and 100 bpm. Sodium channel blockers (propafenone, flecainide) and potassium channel blockers (dofetilide, sotalol AF) are classes used to correct the rhythm of the heart. A surgical procedure (called *ablation*) that uses radiofrequency to destroy a small number of heart cells may be performed to prevent cells from triggering random heartbeats. In severe cases, a pacemaker or implantable cardioverter defibrillator may be used to monitor the heart's electrical system and provide an automatic correction when arrhythmia occurs.

### Atrial Fibrillation Is Most Common

By far, the most common type of arrhythmia is atrial fibrillation (AF), in which the atria of the heart contract irregularly. The biggest risk associated with AF is stroke. If AF lasts long enough, the blood may begin to form a clot in the atrium. This clot can move out of the heart and into the brain. As a result, doctors prescribe blood thinners for people with AF. Blood thinners (anticoagulants) prevent the clot from forming and lower the risk of stroke. The most common anticoagulants on the market are Coumadin (warfarin), Pradaxa (dabigatran), Xarelto (rivaroxaban), Eliquis (apixaban), and Savaysa (edoxaban).

Your local pharmacist is here to help. If you, a friend, or a family member has questions about medications used for arrhythmia, ask a trusted pharmacist or other healthcare provider.