

Heart Diseases and Disorders

Millions of people experience irregular heartbeats, called arrhythmias, at some point in their lives.

Most of the time, arrhythmias are harmless and happen in healthy people free of heart disease. However, some abnormal heart rhythms can be serious or even deadly. Having other types of heart disease can also increase the risk of arrhythmias.

Electrical

Arrhythmias that start in the heart's upper chambers, the atria, include:

Atrial Fibrillation (AF or AFib)

More than 2 million people in the United States have atrial fibrillation. In AFib, the heartbeat is irregular and rapid due to disorganized signals from the heart's electrical system. The upper chamber of the heart may beat as often as 300 times a minute, about four times faster than normal. Though AFib isn't life threatening, it can lead to other rhythm problems, feeling tired all the time, and heart failure (with symptoms such as filling up with fluid, swelling in hands, legs and feet, shortness of breath, etc).

People with AFib are five times more likely to have a stroke compared to people without the condition. Doctors often prescribe blood thinners (anticoagulants) to patients with AFib to reduce this higher risk of stroke.

Atrial Flutter (AFL)

Atrial flutter is similar to AFib because it also causes a fast beat in the atrium. However, AFL is caused by a single electrical wave that circulates very rapidly in the atrium, about 300 times a minute, leading to a very fast but steady heartbeat. It can be thought of as an electrical short circuit.

Sick Sinus Syndrome (SSS)

SSS is not a disease, but a group of signs or symptoms in which the heart's natural electrical pacemaker, the sinus node, is not working properly. In SSS, the heart rate can alternate between slow (bradycardia) and fast (tachycardia). Treatment of SSS is usually an artificial pacemaker, along with medication.

Sinus Tachycardia

A harmless faster rhythm, sinus tachycardia, is a normal increase in heart rate that happens with fever, excitement, and exercise. In general, there is no need for treatment, except in rare cases when it is caused by an underlying problem, such as anemia (low blood count) or hyperthyroidism (overactive thyroid gland).

Arrhythmias that originate in the heart's lower chambers, the ventricles include:

Ventricular Tachycardia (VT)

A life-threatening arrhythmia, VT usually occurs along with other serious heart disease, but sometimes happens in people with normal hearts. VT is a serious condition that needs aggressive treatment and follow up.

Treatment options are radiofrequency ablation (burning the area of heart tissue that triggers the abnormal rhythm), and/or medication.

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Too much caffeine, alcohol or stress can cause irregular jumping heartbeats called premature ventricular contractions (PVCs).

People with VT are often protected by a defibrillator (a device that can shock the heart out of the dangerous heartbeat) that is implanted in the body.

Ventricular Fibrillation (VF)

Sudden cardiac death caused by ventricular fibrillation is the cause of half of all cardiac deaths. In VF, the heartbeat is fast and chaotic, causing the lower heart chambers, or ventricles, to spasm. Sometimes, a heart attack (blockage of the heart pipes/arteries) can lead to VF. VF is sudden, happens without warning, and stops the heart from working. The lack of oxygen to the body, especially to the brain, is deadly. Also known as cardiac arrest, sudden cardiac death is caused by an electrical problem. It is not the same as a heart attack (myocardial infarction), which is a circulatory (plumbing) problem caused by clogged blood vessels that cut off the supply of blood to the heart. Though CPR may help, the only truly effective VF treatment is defibrillation, which uses paddles or electrodes to “shock” the heart back to normal rhythm. Without treatment, the person with VF will pass out suddenly and die.

Premature Contractions

Extra, early, or “skipped” beats are the most common cause of irregular heart rhythms. These can start in the upper or lower chambers of the heart and are generally benign.

Long QT Syndrome (LQTS)

Long QT Syndrome is a disorder of the electrical system. It can be inherited, brought on by taking certain medications, or caused by

a combination of both. People with LQTS are at risk for VF, the most dangerous heart rhythm that causes sudden death.

Heart Block

When electrical signals from the upper chambers of the heart (atria) cannot travel to the lower chambers (ventricles), Heart Block happens. The heart then beats too slowly, decreasing the amount of oxygen that gets to the body and brain.

Syncope (Fainting)

Fainting, or feeling as if one might pass out, can be caused by serious heart rhythm disorders and needs to be evaluated carefully. Sometimes the cause is not heart related, as in cases of seizure or low blood sugar, but it can still be dangerous due to the risk of injuries from falling.

Circulatory

Heart Attack (Myocardial Infarction)
When coronary arteries become so clogged that the flow of blood to the heart is reduced or stopped, the lack of oxygen can damage or kill the heart muscle, causing a heart attack. Knowing the symptoms of a heart attack and getting immediate treatment can limit or prevent heart muscle damage.

Stroke

Although not true heart disorders, strokes (brain attacks) are related due to blockage or reduced blood flow to the brain. While some strokes occur when a blood vessel bursts, most happen due to clogged or blocked vessels to the brain, in the same way clogged vessels in the heart can cause a heart attack. All strokes pose serious health threats.

Structural

Heart Failure

When the heart muscle is too weak to effectively pump blood through the body, heart failure sets in. Early diagnosis and treatment can stop or slow the worsening of heart failure.

Heart Valve Problems

Heart valve problems can be inherited or develop on their own, affecting the heart’s ability to pump blood from chamber to chamber. Medication and surgery are treatment options.

Disease Categories

ELECTRICAL: Abnormal heart rhythms (arrhythmias) are caused by problems with the electrical system that regulates the steady heartbeat. The heart rate may be too slow or too fast; it may stay steady or become chaotic (irregular and disorganized). Some arrhythmias are very dangerous and cause sudden cardiac death, while others may be bothersome but not life threatening.

CIRCULATORY: High blood pressure and coronary artery disease (blockages in the pipes of the heart) are the main circulatory disorders. The results, such as stroke or heart attack, can be devastating. Fortunately, there are many treatment options.

STRUCTURAL: Heart muscle disease (cardiomyopathy) or valvular disease are structural abnormalities that can be present from birth (congenital) or acquired.