

# Difference Between AFIB and VFIB and SVT

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## Key Difference – AFIB vs VFIB vs SVT

Abnormalities in the heart rate are called [arrhythmias](#). The conditions that are going to be discussed in this article are few varieties of arrhythmias whose pathogenesis is triggered by the defects in the conducting system of the heart. Atrial fibrillation (AFIB) is a common arrhythmia whose incidence is high in the elderly population above 75 years of age. Ventricular fibrillation (VFIB) is the very rapid and irregular ventricular activation with no mechanical effect is called. Sustained ventricular tachycardia (SVT) is typically characterized by the presence of an extremely high [pulse rate](#) that is in the 120-220 beats/min range. **In fibrillations, the contractions of the [cardiac muscles](#) are uncoordinated and irregular, and they occur at a rapid pace. But in [tachycardia](#), although the contractions occur at a rapid rate they are well coordinated.** This is the key difference between AFIB and VFIB and SVT.

## What is AFIB?

**Atrial fibrillation** is a common arrhythmia whose incidence is high in the elderly population above 75 years of age. Young adults are more likely to be affected by the paroxysmal form of the disease. P waves are absent in the [ECG](#) and there are irregularly irregular QRS complexes.

## Causes

### Cardiac Causes

- [Hypertension](#)
- [Congestive heart failure](#)
- [Coronary artery diseases](#)
- Valvular heart diseases
- [Cardiomyopathies](#)
- [Myocarditis](#) and [pericarditis](#)

### Non- cardiac Causes

- Thyrotoxicosis
- Phaeochromocytoma
- Acute or chronic pulmonary diseases
- Electrolyte disturbances
- Pulmonary vascular diseases

## Clinical Features

- Palpitations
- [Dyspnea](#)
- Progressive deterioration of the exercise capacity
- Irregular pulse

## Clinical Classification

- First detected atrial fibrillation
- Paroxysmal atrial fibrillation – fibrillation stops within seven days from onset
- Persistent atrial fibrillation – requires cardioversion to stop
- Permanent atrial fibrillation – no spontaneous or induced cardioversion



Figure 01: AFIB

## Management

- Use of antiarrhythmic drugs to control the ventricular rate
- Cardioversion with or without the use of anticoagulants

Two main strategies are available for the long-term management of atrial fibrillation.

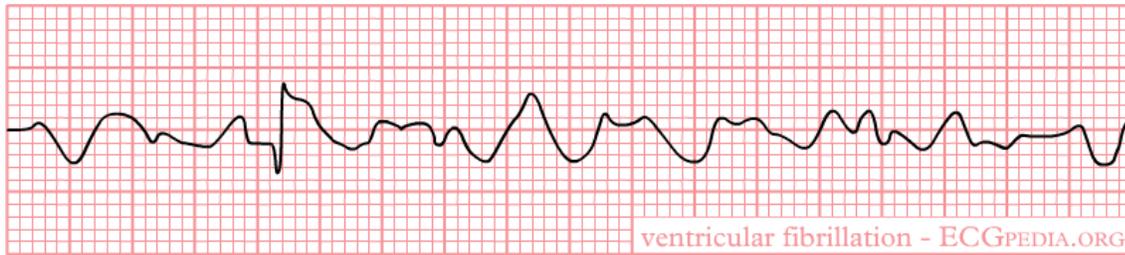
Rate control strategy uses oral anticoagulants along with AV nodal slowing agents to control the rate at which the heart contracts. Antiarrhythmic drugs together with cardioversion and oral anticoagulants are used in the rhythm control strategy.

## What is VFIB?

Very rapid and irregular ventricular activation with no mechanical effect is called **ventricular fibrillation** (VFIB). The patient becomes pulseless and becomes unconscious. The respiration also ceases in some cases.

In the ECG, well-organized complexes are absent and the waves are shapeless. Rapid oscillations can also be observed in this condition. Ventricular fibrillation is usually provoked by ectopic cardiac beats.

If the fibrillation happens within two days from an acute [myocardial infarction](#), prophylactic treatments are not necessary. But if the fibrillation is not associated with any myocardial infarctions the chance of getting recurrent episodes of atrial fibrillation is extremely high. Most of the patients die because of sudden cardiac arrest.



**Figure 02: VFIB**

## **Management**

- Electrical defibrillation
- Basic and advanced cardiac life support
- Transplantation of an implantable cardioverter-defibrillator

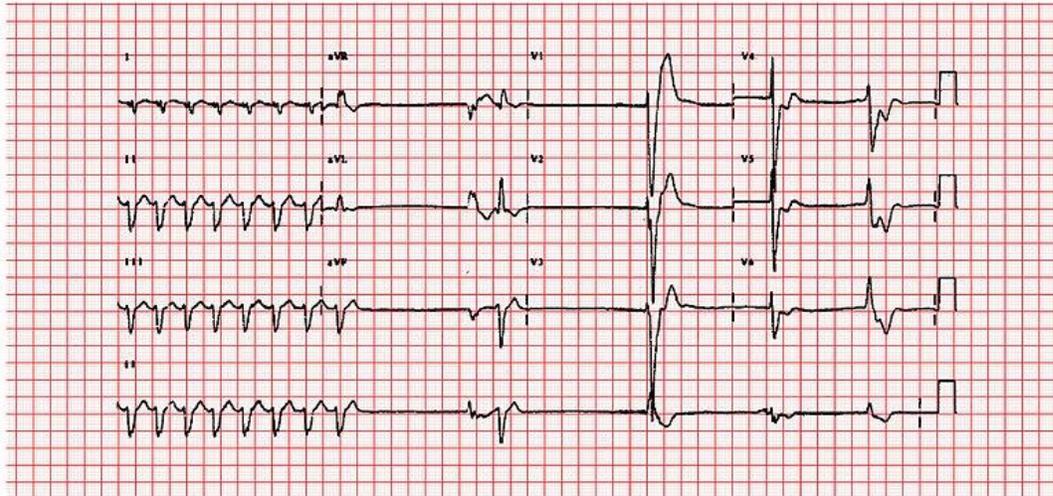
## **What is SVT?**

Sustained ventricular tachycardia (SVT) is typically characterized by the presence of an extremely high pulse rate that is in the 120-220 beats/min range.

## **Clinical Features**

- Dizziness
- Hypotension
- Syncope
- Cardiac arrest
- During the auscultation abnormalities in the heart, sounds such as variable intensity of the first heart sound can be observed.

The ECG shows rapid ventricular rhythm with broad QRS complexes. Sometimes it is also possible to observe P waves.



Courtesy of Michael Rosengarten, BEng, MD, McGill University

ECGPEDIA.ORG

Figure 03: SVT

## Management

Urgent treatment may be required depending on the hemodynamic status of the patient. In conditions such as pulmonary edema and hypotension where the patient is hemodynamically compromised, DC cardioversion is necessary to stabilize the patient. For patients who are hemodynamically stable, the intravenous infusions of class I drugs or amiodarone are usually used. If the medical therapy fails to achieve the desired outcome, DC conversion has to be used to avoid fatal consequences.

## What are the Similarities Between AFIB and VFIB and SVT?

- In all three conditions are characterized by the abnormalities in the heartbeat.
- The defects in the conducting system of the heart are the main reason for these diseases.

## What is the Difference Between AFIB and VFIB and SVT?

| AFIB vs VFIB vs SVT |  |
|---------------------|--|
| AFIB                | Atrial fibrillation (AFIB) is a common arrhythmia whose incidence is high in the elderly population above 75 years of age. |
| VFIB                | Ventricular fibrillation (VFIB) is a very rapid and irregular ventricular activation with no mechanical effect.            |
| SVT                 | Sustained ventricular tachycardia (SVT) is typically characterized by the presence of an                                   |

extremely high pulse rate that is in the 120-220 beats/min range.

### Availability

**AFIB** Contractions of the cardiac muscles are well coordinated and take place at a rapid rate.

**VFIB** Contractions of the cardiac muscles are well coordinated and take place at a rapid rate.

**SVT** Cardiac contractions are fast, irregular and uncoordinated.

### Locations

**AFIB** This occurs in the atria.

**VFIB** This occurs in the ventricles.

**SVT** This occurs in the ventricles.

### Causes

**AFIB** Etiological factors can be categorized into two main categories. Cardiac causes include hypertension, congestive heart failure, coronary artery diseases, valvular heart diseases, cardiomyopathies, myocarditis, and pericarditis. Noncardiac causes include thyrotoxicosis, phaeochromocytoma, acute or chronic pulmonary diseases, electrolyte disturbances and pulmonary vascular diseases

**VFIB** Usually, VFIB is associated with acute myocardial infarctions in the ventricles. Sometimes it can be due to idiopathic causes also.

**SVT** Most of the time SVT is due to idiopathic causes.

### Symptoms and Signs

**AFIB** Palpitations, dyspnea, progressive deterioration of the exercise capacity and irregular pulse are the typical symptoms and signs.

**VFIB** The patient becomes pulseless and becomes unconscious. The respiration also ceases in some cases.

**SVT** Clinical features of SVT are dizziness, hypotension, syncope and cardiac arrest. During the auscultation abnormalities in the heart sounds such as variable intensity of the first heart sound

|             | can be observed.   |
|-------------|--|
| ECG         |  |
| <b>AFIB</b> | P waves are absent in the ECG and there are irregularly irregular QRS complexes.   |
| <b>VFIB</b> | In the ECG, well-organized complexes are absent and the waves are shapeless. Rapid oscillations also can be observed in this condition.  |
| <b>SVT</b>  | The ECG shows rapid ventricular rhythm with broad QRS complexes. Sometimes it is possible to observe P waves also.   |
| Treatment   |  |
| <b>AFIB</b> | Treatment is either through the use of antiarrhythmic drugs to control the ventricular rate or cardioversion with or without the use of anticoagulants.  |
| <b>VFIB</b> | The management includes electrical defibrillation, basic and advanced cardiac life support and transplantation of an implantable cardioverter-defibrillator.   |
| <b>SVT</b>  | In hemodynamically compromised patients DC cardioversion is necessary to stabilize the heart rate. In patients who are hemodynamically stable, the intravenous infusions of class I drugs or amiodarone are usually used. If the medical therapy fails to achieve the desired outcome, DC conversion has to be used to avoid fatal consequences. |

## Summary – AFIB vs VFIB vs SVT

Atrial fibrillation is a common arrhythmia whose incidence is high in the elderly population above 75 years of age. Very rapid and irregular ventricular activation with no mechanical effect is called the ventricular fibrillation. SVT or sustained ventricular tachycardia is typically characterized by the presence of an extremely high pulse rate that is in the 120-220 beats/min range. In tachycardias, the contractions are well coordinated but occur at a rapid pace whereas in fibrillations the contractions are fast, irregular, and uncoordinated. This is the basic difference between AFIB and VFIB and SVT.

### References:

1. Kumar, Parveen J., and Michael L. Clark. Kumar & Clark clinical medicine. Edinburgh: W.B. Saunders, 2009. Print.

### Image Courtesy:

1. "Afib small (CardioNetworks ECGpedia)" By CardioNetworks: Drj – CardioNetworks: Afib\_small.svg ([CC BY-SA 3.0](#)) via [Commons Wikimedia](#)
2. "De-Rhythm ventricular fibrillation (CardioNetworks ECGpedia)" By CardioNetworks: Googletrans – CardioNetworks: De-Rhythm\_ventricular\_fibrillation.png ([CC BY-SA 3.0](#)) via [Commons Wikimedia](#)
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