



## Sudden Cardiac Arrest in Young Population Public Awareness and Preventions.

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### ABSTRACT

In the world of heart health there is a surprising and often overlooked concern sudden cardiac arrest in young and healthy. In this review paper we are trying to unravel the mysteries behind SCA, why it happens and what can we do to protect ourselves and others.

### INTRODUCTION:-

Sudden cardiac arrest (SCA) is a life threatening medical emergency characterized by the abrupt loss of cardiac function, leading to an instantaneous cessation of blood flow. Unlike a heart attack, which is caused by a blockage in the blood vessels supplying the heart muscles

SCA is typically caused by an electrical malfunction in the heart that disrupts its normal rhythm. The process leading to SCA often involves an abnormal heart rhythm called *ventricular fibrillation*, where the Heart's lower chamber quiver instead of pumping blood effectively. This chaotic rhythm prevents the heart from delivering oxygenated blood to the body and brain, leading to loss of consciousness and if not treated promptly, death. SCA can affect individuals across a broad spectrum of ages including healthy and young. SCA in healthy young individuals can occur without prior warnings, signs or symptoms. In some cases, there might be subtle indicators like

**Shortness of breathe.**

**Chest pain**

**Fainting** but these may not have been recognised as life threatening issues. SCA is thought to be a leading cause of death in young athletes, but it also affects young people not involved in organised sports. it can happen during exercise or at rest or even during sleep. in some cases young people can die from SCA days or weeks later from brain damage that happened during the SCA.

### RISK FOR SUDDEN CARDIAC ARREST(SCA)

**AMONG YOUNGESTERS:- HIGH BLOOD PRESSURE:-** In a study in the journal of the **American collage of cardiology**, researchers found that young adults with raised blood pressure levels were at higher risk for late life coronary heart disease and heart failure. **OBESITY:-**obesity is a risk factor for various health issues, including heart disease, high blood pressure and diabetes. when it come to SCA obesity can contribute indirectly by increasing the strain on the heart. it can lead to conditions like coronary artery disease, which in turn can raise the risk of SCA due to increased work load and stress on the heart.

**DIABETIES:-**Diabetes can increase the risk of SCA due to its impact on the cardiovascular

system. people with diabetes often have an increased likelihood of developing Heart disease, High blood pressure and High cholesterol levels, all of which can contribute the risk of SCA.

Additional diabetes can lead to damage in the nerves and blood vessels, affecting the Heart's electrical system and increasing the chances of abnormal heart rhythms, which can result in SCA.

**HIGH CHOLESTEROL:-**According to research in the journal of the American collage of cardiology, young adults are prime target for heart attack if they have high cholesterol.

**COVID 19:-** in a study from 2022 involving 150,000 covid 19 patients. it was found that even a year after getting the virus, there remained a

significant risk of developing Heart issues like irregular heart beats and inflammation. this suggests that Covid 19 might have longer term effects on the heart, even after recovering from the initial infection.

**DRUG OR ALCOHOL CONSUMPTION:-** Drug or alcohol consumption can heighten the risk of SCA. Both during abuse and heavy alcohol consumption can harm the heart and blood vessels, increasing the chances of conditions like High blood pressure, Heart Disease, and irregular heart beat, which can contribute to SCA.

**SMOKING:-** Smoking significantly increase the risk of SCA. the chemicals in tobacco smoke can damage the heart and blood vessels, leading to conditions like coronary artery disease, High blood pressure and abnormal heart rhythm. These issues increase the chances of SCA.

**KIDNEY DISEASE:-**Chronic kidney disease is among the strongest risk factors for SCA in Hispanic and latino people, a new study suggests. For the study, researchers examined medical records for two groups Hispanic and Latino adults -295 people who experienced SCA, and a control group of 590 individuals without this history. Roughly half the cardiac arrest patients and chronic kidney disease, and 20 percent had advanced cases requiring dialysis. (According to study results published in the journal of the American heart Association).

**MENTAL HEALTH:-** young adults with stress depression, anxiety or overall poor mental health report more heart attacks, strokes, and risk factors for cardiovascular diseases than their peers without mental health issues. According to 2023 research published in the journal of American Heart Associations.

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### **CAUSES OF SCA IN YOUNG:- HYPERTROPHIC CARDIOMYOPATHY:-**

Hypertrophic cardiomyopathy (HCM) is the most common cause of SCA in young people. hypertrophic cardiomyopathy is when the heart muscle thickens in lower chambers, called ventricles making it more challenging for the heart to pump blood.

#### **PRIMARY ARRHYTHMIAS:-**

Primary arrhythmias, abnormal heart rhythms from the Heart's electrical conduction system.

These disturbances can affect the Heart's ability to pump blood effectively, unlike secondary arrhythmias, which results from external factors like heart disease.

#### **CORONARY ABNORMALITIES:-**

Defects in the way of coronary arteries connect to the heart can lead to decreased blood supply to heart muscle during exercise and cause cardiac arrest. young people with coronary abnormalities usually are born with them, but may not notice any symptoms until they are older.

#### **MYOCARDITIS:-**

Inflammation of the heart muscle, can lead to SCA. the inflammation weaken's the heart

Muscles, disrupts its electrical signals and may cause life threatening arrhythmias. Sometimes SCA can be caused by undiagnosed genetic conditions that affect the Heart's electrical impulses, These include:-

**LONG QT SYNDROME:-** A Heart rhythm condition that can cause fast and chaotic heart rhythm.

#### **WOLFF PARKINSON WHITE SYNDROME:-**

An extra electrical pathway in the heart creates a diversion that can make it pump very fast.

#### **ARRYTHMOGENIC RIGHT VENTRICULAR**

**DYSPLASIA:-** With the inherited condition some of the Heart's muscle tissue gets replaced with scar tissue.

**MARFAN SYNDROME:-**Marfan syndrome is a genetic disorder that affects the connective tissue including Aorta. Individuals with Marfan syndrome, there is a higher likelihood of developing Aortic root dilation. if left untreated, these cardiovascular.

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### **PUBLIC AWARENESS OF SCA:-**

Public awareness in SCA refers to the extent of knowledge and understanding among the general population regarding SCA, it's symptoms, risk factors and the importance of immediate action to improve survival rates **it involves:-**

**EDUCATION CAMPAIGNS:-** public health campagins, often run by health organizations, aim to educate communities about the signs and symptoms of SCA, emphasizing the importance of quick action.

**CPR TRANING PROGRAMS:-**organizations conduct CPR TRANING sessions for the public empowering individuals to respond effectively in emergency situations, thereby increasing the chances of survival for SCA victims.

**AED ACCESSIBILITY:-** Efforts to place Defibrillators in public spots increase awareness,

these devices are user friendly and greatly raise survival odds if used properly.

**MEDIA OUTREACH:**-News, social media, and documentaries play a vital role in informing people about the risks associated with **SCA** and emphasize the urgency for immediate action. These mediums effectively communicate the importance of recognizing **SCA** signs and prompt action to improve the chances of survival .

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### **COLLABORATION AND ADVOCACY:-**

Collaboration between health care professionals, advocacy groups, government agencies and community organisations plays a pivotal role in spreading awareness organizing events and creating policies aimed at increasing public knowledge about **SCA**.

**POLICY IMPLEMENTATION:**-certain regions have mandated CPR training in schools, colleges and workplaces, while also passing laws that require the installation of **AED'S** in public spaces, furthering public awareness. All the efforts collectively raise public understanding about **SCA** symptoms and the critical need for quick action to improve survival rates.

### **PREVENTIONS OF SCA:-**

preventions of sudden cardiac Arrest involves a range of strategies aimed at reducing the risk factors and underlying conditions that lead to an abrupt loss of heart function. Some preventions are:-

**LIFE STYLE CHANGE:**-Encouraging regular physical activity, a balanced diet rich in fruits, vegetables and whole grains and avoidance of smoking and excessive alcohol intake. These life style modifications play a pivotal role in maintaining heart healthy by reducing the risk of cardiovascular diseases, a major precursor to **SCA**.

**MEDICAL INTERVENTION:**-Identifying and managing underlying heart conditions is crucial. this includes managing high blood pressure, diabetes and high cholesterol levels as well as addressing structural heart issues and arrhythmias. Early detection through routine medical check-ups and appropriate treatment significantly reduces the risk of **SCA**.

**USE OF DEFIBRILLATORS:**-Widespread availability of **AED'S** in public places, workplaces and community centers can dramatically increase survival rates when immediate intervention is necessary. **CPR TRAINING:**- Teaching cardiopulmonary resuscitation (CPR) to the public to intervene before professional help arrives .

**SCREENING PROGRAMS:**-implementing screening programs aimed at identifying risk factors and underlying heart conditions in seemingly Healthy individuals is pivotal. This involves routine check-ups **Electrocardiograms (ECG'S)**, and other diagnostic tests to detect abnormalities early on, enabling timely intervention and risk reduction.

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### **CONCLUSION:-**

Sudden cardiac arrest (**SCA**) in young, healthy people is a surprising worry in heart health. To uncover why it happens, we must look into hidden heart problems and genes. To protect ourselves and others, it's crucial to raise awareness, encourage regular

check-ups, ensure CPR TRAINING and defibrillator availability. By doing so, we aim to detect problems early and be prepared to save lives during emergencies .

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