

Sudden cardiac arrest during exercise: the warning signs NHCS lists, and the CPR steps that buy time

Description

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Sudden cardiac arrest can strike fit, healthy people in the middle of a game or a run, usually with no warning at all. Doctors at the National Heart Centre Singapore (NHCS) say such deaths may be explained by an underlying heart problem, sometimes one nobody knew about, made worse by vigorous exertion, and that the key to survival is early defibrillation.



Participants practise chest compressions on manikins at a Singapore Heart Foundation CPR+AED session. Photo: Singapore Heart Foundation

An estimated 1,000 Singaporeans die from sudden cardiac death each year, around half of them under 60, SingHealthâ??s HealthXchange reports. The Singapore Heart Foundation (SHF) estimates that

3,000 cardiac arrests happen outside hospital each year, with 70 to 80 per cent taking place at home or in public places.

Not the same as a heart attack

Clinical Associate Professor Aaron Wong, who heads cardiology at NHCS, says the two are different. A heart attack is caused by a blocked artery that starves part of the heart muscle of blood, and it usually brings chest pain and breathlessness. Sudden cardiac arrest is an electrical failure. The heart falls into a fast, chaotic rhythm called ventricular fibrillation, beating 400 to 500 times a minute without pumping blood, and the person loses consciousness within seconds.

In young athletes, NHCS doctors list four usual culprits: a heart muscle disorder such as abnormal thickening, an electrical rhythm problem, an infection that has weakened the heart muscle, and an abnormality of the coronary arteries present from birth.

Warning signs worth stopping for

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Most people have no symptoms beforehand. For those who do, NHCS lists weakness and fatigue, sweating, fainting and dizziness, palpitations or a racing or irregular heartbeat, chest pain in the centre or on the left, shortness of breath, vomiting, and tightness of the jaw on exertion or after meals.

Clin Assoc Prof Ching Chi Keong of NHCS advises anyone with these symptoms to see a doctor, especially people with a personal or family history of diabetes, high cholesterol, high blood pressure or heart disease. Screening can help: NHCS doctors note that an echocardiogram can pick up heart muscle disease, and a 12-lead ECG can find electrical disorders.



Hands-on practice with a CPR manikin, from the Singapore Heart Foundationâ??s CPR+AED course page. Photo: Singapore Heart Foundation

With the Singapore Marathon on 4 to 6 December, HealthXchangeâ??s advice for runners coming back from flu or a viral infection is worth repeating: ease back to your old pace gradually, because after days

off the heart may not be ready for a full session even if you feel fine. NHCS suggests checking with a doctor before starting exercise if you are over 40 and have been inactive, or have known coronary artery disease.

If someone collapses

For every minute that nothing is done, SHF says, the chance of survival drops by 10 per cent. SHFâ??s steps start with checking for danger and a response, then getting someone to call 995 and someone else to fetch an automated external defibrillator (AED). The SCDF myResponder app can call 995 with your location and show the nearest AEDs.

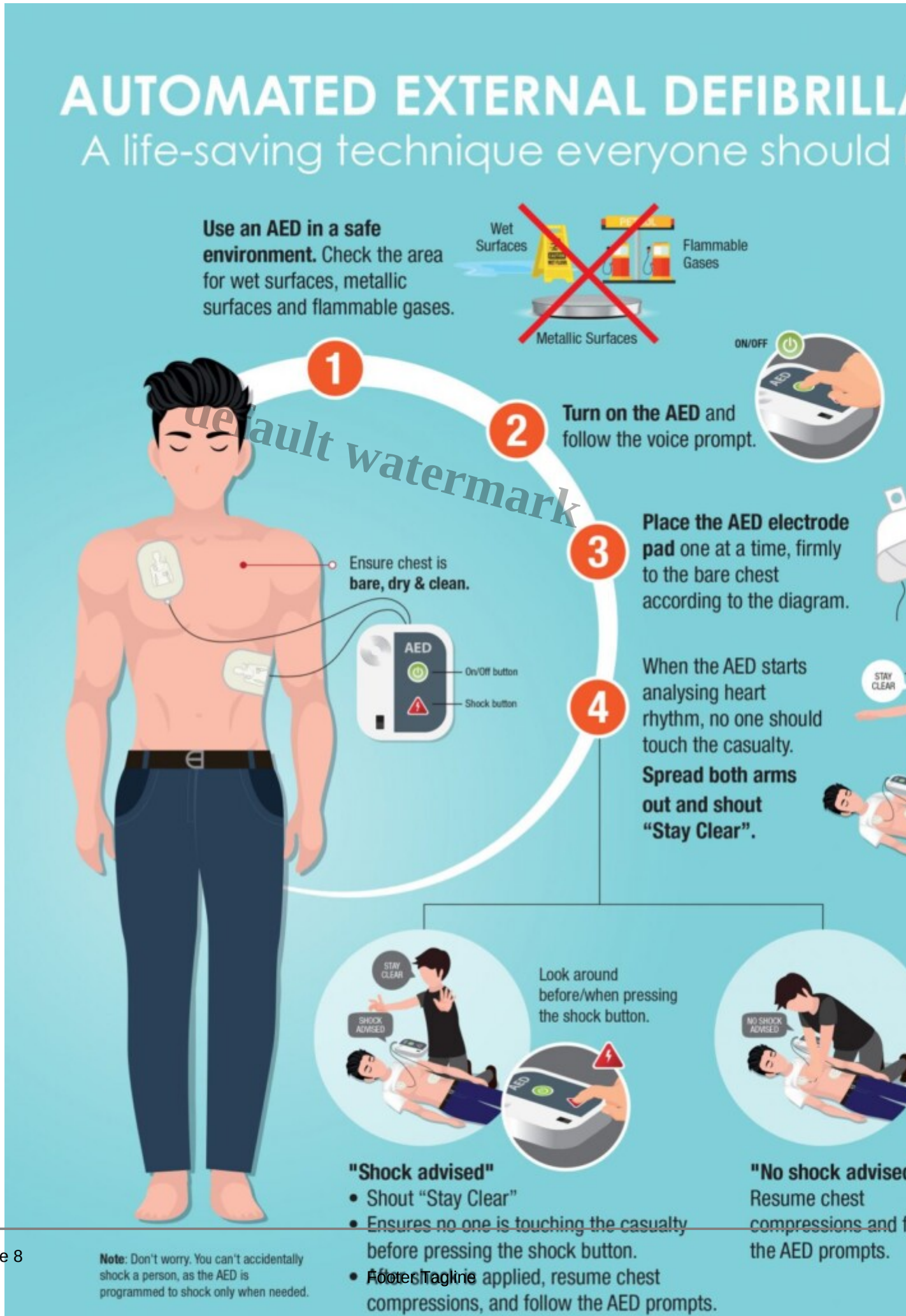
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CARDIOPULMONARY RESUSCITAT
A life-saving technique everyone should k
Interlace fingers and lift them off the chest wall.
2
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Ribs
Liver
Kneel down with knees slightly apart.
1
3
STEPS
The chest should fully recoil (come all the way up) after each compression.
7
4
Compression
Release
6
5
Use body weight to achieve a compression depth of 4-6cm, with a rate of 100-120 compressions per minute.
Straighten both elbows and lock them in position.

The Singapore Heart Foundationâ??s step-by-step chest compression poster, with a 4 to 6cm depth and 100 to 120 compressions a minute. Illustration: Singapore Heart Foundation

If the person is not breathing, is breathing abnormally, or you are unsure, start chest compressions on the lower half of the breastbone, pressing 4 to 6cm deep at 100 to 120 a minute and letting the chest come fully back up each time. When the AED arrives, switch it on, follow the voice prompts, and keep compressing until it is ready to analyse. Stop only while the AED analyses, or when the person wakes up or breathes normally, or paramedics take over.

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AUTOMATED EXTERNAL DEFIBRILLA
A life-saving technique everyone should
Use an AED in a safe environment. Check the area for wet surfaces, metallic surfaces and flammable gases.
Wet Surfaces
Flammable Gases
Metallic Surfaces
1
2
Turn on the AED and follow the voice prompt.
ON/OFF
default watermark
3
Place the AED electrode pad one at a time, firmly to the bare chest according to the diagram.
Ensure chest is bare, dry & clean.
AED
On/Off button
Shock button
4
When the AED starts analysing heart rhythm, no one should touch the casualty.
Spread both arms out and shout "Stay Clear".
STAY CLEAR
Look around before/when pressing the shock button.
SHOCK ADVISED
NO SHOCK ADVISED
"Shock advised"
• Shout "Stay Clear"
• Ensures no one is touching the casualty before pressing the shock button.
• After shock is applied, resume chest compressions, and follow the AED prompts.
"No shock advise
Resume chest compressions and
the AED prompts.
Note: Don't worry. You can't accidentally shock a person, as the AED is programmed to shock only when needed.

How to use an AED: one pad below the right collarbone, the other below the left nipple, and no one touching the casualty during analysis. Illustration: Singapore Heart Foundation

Where to learn CPR and AED

SHF runs a certified CPR+AED course at the SLF Building, 510 Thomson Road. It costs S$65.40 including GST for new participants and S$49.05 for repeat participants, with online theory first and a 2.5-hour practical on Tuesday and Thursday mornings or Tuesday afternoons. You need at least 80 per cent on the theory and full marks on the practical, and the certificate lasts two years. Participants must be able to kneel on the floor.

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