



Army Reserve Sgt. Daniel Naes sprints to the finish line during the Twelve Mile Ruck March event at Fort McCoy, Wisconsin, on Sept. 8, 2023. Despite the physical demands of events like ruck marches, the Army does not yet require automated external defibrillators on-site, leaving Soldiers at risk during high-exertion activities. (U.S. Army Reserve Photo by Staff Sgt. David Barrette)

A Call for Action to Prevent Sudden Cardiac Death

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In September 2022, a U.S. Army Soldier died of sudden cardiac arrest (SCA) during a 2-mile run while taking the Army Combat Fitness Test (ACFT). CPR was initiated, but an automated external defibrillator (AED) wasn't ready on-site.

In January 2023, a Buffalo Bills football player experienced SCA during a game, and immediate access to an AED on the sidelines saved his life (The American Heart Association, 2024). The NFL was ready to meet the three-minute "drop-to-shock"

standard for the best chance at success.

A blind spot across the Army threatens Soldier health, safety, and readiness: The Army doesn't recommend AEDs on-site at the ACFT or other vigorous fitness events. However, with increased knowledge, leadership, and emergency action planning, the Army can ensure AEDs will be "on the sidelines."

This article highlights the danger of exercise-related SCA and calls upon NCOs, the backbone of the Army, to ensure AEDs are at the ready to maximize Soldier survivability.

Exercise and SCA

SCA is the leading cause of death in exercising athletes and occurs once every three days in the U.S., with an incidence ranging from 1 in 9,000 in some populations to 1 in 50,000 athletes per year (Wasfy et al., 2016), (Thompson et al., 2021). The numbers are similar in the U.S. military, with an incidence of sudden cardiac death occurring in about 1 to 3 service members per 100,000 each year (Smallman et al., 2016).

Studies show that the most common cause of sudden death in service members is cardiac abnormalities, and 86% of these events occur during exercise (Eckart et al., 2004). In general, cardiac conditions cause 75% of deaths in sports (Thompson et al., 2021).

Although exercise is health-promoting and an occupational requirement for the military profession, vigorous exercise — particularly when timed or scored — increases the risk of SCA for a small number of individuals who harbor latent cardiac conditions (Thompson et al., 2020). Because screening programs are not perfect at identifying all athletes at risk of sudden cardiac death, prompt access to AEDs is critical for survival (Harmon & Drezner, 2007), (Drezner et al., 2016).



Early defibrillation using an automated external defibrillator (AED), combined with effective CPR, significantly increases the chance of survival in cardiac emergencies. (U.S. Army National Guard photo by Staff Sgt. Erica Jaros)

brain stops abruptly, so without timely access to CPR and defibrillation, brain damage occurs after four to six minutes. After 10 minutes, it is too late, and most attempts fail (The American Heart Association, 2020).

On average, EMS units take seven to eight minutes to arrive at the scene from when 911 is called — well past the three-minute drop-to-shock timeline (The American Heart Association, 2000). In general, the out-of-hospital survival rate for SCA is less than 5% due to limited AED access. Survival increases by 50% or more if a bystander provides CPR and defibrillation occurs within three minutes of collapse (Thompson et al., 2021), (Thompson et al., 2020), (Berdowski et al., 2011), (Ibrahim, 2007).

Studies show that when AEDs are easily accessible to bystanders on-site, the time to first shock improves, and survival rates triple and can be as high as 89% (Siebert & Drezner, 2018), (Berdowski et al., 2011), (Capucci et al., 2002).

An athletic venue where strenuous physical exertion or competition is occurring must have an AED on-site to enhance

survivability for athletes who may experience SCA (Thompson et al., 2021), (The American Heart Association, 2020), (The American Heart Association, 2000).

CPR and Early Defibrillation Works

The American Heart Association (AHA) indicates that bystander CPR with uninterrupted chest compressions, early defibrillation with an AED, and access to Emergency Medical Services (EMS) can result in greater survival rates (The American Heart Association, 2020). Having AED access within three minutes of SCA is the lifesaving bridge for collapsed athletes (Siebert & Drezner, 2018).

The AHA recommends a drop-to-shock timeline of three minutes, with one minute for a bystander to recognize an emergency for a collapsed athlete and another minute once the AED arrives (to turn it on, apply the pads, and allow the AED to analyze the heart rhythm, and charge up for a shock). When a person goes into SCA, the chance of survival drops by 10% for every minute that passes without defibrillation (The American Heart Association, 2000).

During cardiac arrest, the heart most often experiences a fatal arrhythmia that only an AED's electrical shock can restore. In SCA, blood flow to the

20 Years of Advocacy for Early Defibrillation

For more than 20 years, professional organizations and legislation have published guidelines and statements advocating for placing AEDs in public locations where people gather, including schools and athletic venues. The evidence is clear that time-to-defibrillation is the most important determinant of survival from SCA (Siebert & Drezner, 2018), (Rothmier & Drezner, 2009).

Public access defibrillation, which puts AEDs in the hands of trained laypersons, is the single greatest advancement in the treatment of cardiac arrest since CPR was developed (The American Heart Association, 2000). The American Medical Society for Sports Medicine (AMSSM) suggests access to on-site AEDs is the key to SCA survival.

The American College of Sports Medicine (ACSM) and the AHA issued a Joint Position Statement in 2002 advocating for placing AEDs in fitness centers. The National Athletic Trainers Association (NATA) released an official statement in 2004 encouraging athletic trainers in every setting to have access to an AED.



A group of 10th Mountain Division (Light Infantry) Soldiers perform cardiopulmonary resuscitation during a CPR and first aid certification course. First responders must be all-inclusive to maximize survivability. Prompt recognition of a collapsed and unresponsive athlete, early chest compressions, immediate access to an AED within three minutes, and EMS response are all pivotal links in the chain of survival. (Photo by Mike Strasser, Fort Drum Garrison Public Affairs)

In 2004, the AHA recommended that schools unable to achieve an EMS call-to-shock interval of fewer than three minutes should have an AED program. An Inter-Association Task Force provided consensus recommendations for emergency planning for SCA in high school and college athletic programs, strongly recommending access to AEDs and a target goal of less than three minutes from collapse to first shock.

More than 90% of NCAA Division 1 university programs place AEDs at select athletic venues for immediate response. The NCAA also recommends that anyone associated with athletics receive CPR and AED training.

The ACSM published a call to action in 2021 recommending increasing the availability and effectiveness of early CPR plus defibrillation, so that the time from collapse to the first AED shock is less than three minutes.

The evidence is clear: Because of the catastrophic nature of an SCA, survivability improves with an AED on-site (Rothmier & Drezner, 2009).

Every Soldier is a First Responder

In civilian athletic settings, first responders are coaches, athletic trainers, other athletes, officials, venue staff, emergency medical personnel, or bystanders

(Rothmier & Drezner, 2009). This range of possibilities illustrates the importance of an emergency action plan that includes first aid, CPR, and AED training for all personnel involved in competitions, skills instruction, and conditioning (Link & Estes, 2012).

In Army culture, every Soldier is a Combat Life Saver (CLS) or first responder. NCOs are responsible for teaching annual unit CLS training, which is essential for combat-focused organizations. Everyone must be able to act at the point of injury to save lives.

All Soldiers must be able to use the individual first aid kit (IFAK), apply a tourniquet, recognize signs of a heat injury, and get Soldiers to an ice bath. The same way NCOs teach their Soldiers to save lives in combat, they must know and recognize SCA in collapsed individuals, understand how to operate an AED, and empower every Soldier to do the same.

When it comes to exercise-related SCA, seconds and minutes matter. Applying an AED within three minutes could mean the difference between life and death.

Military AED Programs: The Army is Behind

Some notable dates reveal AED guideline adoption by military branches:

- In 2019, the U.S. Navy published a policy for

deploying AEDs via a risk-based strategy to increase the long-term survival rate for persons experiencing SCA (Department of the Navy, 2019).

- In 2021, the Navy Physical Readiness Program Guide and Physical Fitness Assessment (PFA) checklist outlined the required equipment for the test, including an on-site AED (Navy Physical Readiness Program, 2021).
- In 2022, the U.S. Air Force also published a policy requiring an AED within 100 yards of a physical fitness test (Department of the Air Force, 2022).
- In 2023, the 101st Airborne Division (Air Assault) improved safety and readiness by publishing a local AED initiative for combat units to have their AEDs accessible at the ACFT, 12-mile road marches, and four-mile x 36-minute timed runs (101st Airborne Division (Air Assault), 2023).

By contrast, the Army has largely fallen behind. No universal or standardized policy requires AEDs on-site at the ACFT or other timed or scored events (where exercise-associated SCA is most likely to occur).

In 2020, TRADOC published a policy mandating having AEDs on-site at the ACFT, long road marches, and confidence courses during basic training (Department of the Army, 2020) — after a series of trainee fatalities revealed a need for cadre training in CPR and AEDs.

The High Cost of Having No AED Program

Fortunately, Army combat units already have AEDs in their medical equipment sets. For example, a Brigade Combat Team, the Army's primary combat unit, has 14 AEDs, two per Battalion.

In general, AEDs cost about \$2,000 each. They can be a shared resource, strategically placed within a three-minute radius to ensure rapid response times for timed and scored events such as the ACFT.

When saving a Soldier's life, the cost of not having an AED program is great. In addition to all the tangible and intangible costs associated with a Soldier's death, early defibrillation with an AED may prevent costs associated with prolonged hospitalization, intensive care, rehabilitation, and lifelong disability.

The ethical and moral cost of not having a universal Soldier AED program cannot be measured. They are our greatest resource, and we must set conditions for safety and steward trust as leaders train and prepare their Soldiers to deploy anytime and anywhere to defend our nation's freedom.

Conclusion: Readiness and Our Most Valuable Resource

SCA remains the leading cause of death in exercising athletes, and its risk in the military is inescapable because of the daily physical training requirement for combat



Despite the physical demands of events like ruck marches, the Army does not yet require automated external defibrillators on-site, leaving Soldiers at risk during high-exertion activities. Ensuring AED availability could be the difference between life and death in cases of sudden cardiac arrest. (U.S. Army Reserve photo by Sgt. 1st Class Crystal Harlow)

readiness. Exercise-related SCA is commonly fatal, but a comprehensive emergency action plan, CLS training, and on-site AEDs can improve the chance of survival.

First responders must be all-inclusive to maximize survivability. Prompt recognition of a collapsed and unresponsive athlete, early chest compressions, immediate access to an AED within three minutes, and EMS response are all pivotal links in the chain of survival.

Building a culture of first responders in the Army and having an AED on the sidelines for the ACFT and other competitive events will improve emergency preparedness, foster safety, and reduce sudden cardiac death in our most valuable resource: our people. ■

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