



Training on the Rapid Removal of an Unresponsive Firefighter from Turnout Gear and Self-Contained Breathing Apparatus

RECOMMENDATIONS

The National Institute for Occupational Safety and Health (NIOSH) recommends fire departments and fire training facilities ensure all firefighters, fire officers, and fire instructors:

- ❑ Are aware of the common causes of a firefighter becoming unresponsive while wearing turnout gear and self-contained breathing apparatus (SCBA)
- ❑ Know why the rapid removal of an unresponsive firefighter from turnout gear and SCBA is important
- ❑ Receive training on when and how to rapidly remove turnout gear and SCBA and routinely practice the rapid removal methods
- ❑ Understand other recommendations such as appointment of a safety officer, inclusion of emergency medical services (EMS), and adherence to certification requirements for Basic Life Support for Healthcare Providers



Firefighters training on how to perform the *Firefighter Down CPR* technique using three rescuers. Photo courtesy of Oil City Fire Department.

FIRE FIGHTER FATALITY INVESTIGATION AND PREVENTION PROGRAM INVESTIGATION

On March 3, 2021, a 21-year-old firefighter recruit suffered a medical emergency which led to their heart stopping, or sudden cardiac arrest, during SCBA Confidence training. The firefighter was maneuvering through a tunnel prop wearing personal protective equipment (PPE), which had the SCBA facepiece covered to simulate visual disruption. Upon identifying cardiac arrest, rescuers rapidly removed the firefighter's PPE using a modified *Firefighter Down CPR* technique. This rapid removal of PPE allowed for early cardiopulmonary resuscitation (CPR) intervention until they placed the automated external defibrillator (AED) electrodes and completed cardiac analysis. The firefighter was transferred to a Level 1 hospital for advanced specialized care, until succumbing to brain injury from reduced oxygen on March 12, 2021. Prompt removal of PPE allowed for early access for CPR. While the firefighter still succumbed, this cardiac event highlights the importance of removing the downed firefighter from the hazard zone and providing early access for the AED and starting CPR as soon as possible. Details of this event are available in the full [NIOSH report](#).



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QUESTIONS & ANSWERS

What are common causes of a firefighter becoming unresponsive while wearing turnout gear and SCBA?

Unresponsiveness can result from many different medical issues including reduced oxygen supply to the brain (decreased blood flow or inadequate inhaled oxygen), elevated core body temperature (heat stroke), severe dehydration, or neurological problems. Intense exertion and heat exposure while wearing turnout gear and SCBA increase the workload on the heart, thereby increasing a firefighter's chance of experiencing a cardiac medical emergency that can result in unresponsiveness.

Why is the rapid removal of an unresponsive firefighter from turnout gear and SCBA important?

An unresponsive firefighter's PPE can create a delay in performing a primary assessment of their airway, breathing, and circulation. It can also hinder a rescuer's ability to provide immediate emergency medical care such as effective chest compressions or attachment of AED electrodes in the event of sudden cardiac arrest / arrhythmia. Removing PPE in an uncoordinated and panicked manner can consume time and delay emergency medical care. Rescuers need to know how to rapidly remove PPE from an unresponsive firefighter so emergency medical care can start quickly. PPE removal should only begin after rescuers remove the unresponsive firefighter from any hazard zone or immediately dangerous to life or health environment.

What is *Firefighter Down CPR* and what does it consist of?

Firefighter Down CPR is a 10-step rapid removal method that involves multiple rescuers working together to remove an unresponsive firefighter from turnout gear and SCBA in less than 30 seconds. This 10-step process ensures that CPR compressions can be started quickly and AED electrodes can be placed to enable heart rhythm analysis and treatment. Resources such as a training presentation and instructional video can be found on the [Firefighter Down CPR](#) website.

What other rapid removal method should fire departments and fire training facilities consider?

Fire departments and fire training facilities should also consider cutting the turnout gear off of an unresponsive firefighter using manual shears or scissors or battery-powered fabric cutters. This option should be recognized as a potential sharps hazard. If used, it should be routinely practiced with appropriate tools and equipment.

How can fire departments and fire training facilities train on these rapid removal methods?

Fire departments and fire training facilities should practice these rapid removal methods as standalone training and as part of other training scenarios (e.g., structural fire rescue). Training should include appropriate tools and any necessary changes due to their specific equipment and those of mutual aid partners. They should also consider including these methods in their standard operating procedures or guidelines.

What other recommendations should be considered?

Fire departments and fire training facilities should consider appointing a safety officer and including EMS providers at all emergency response and training activities where firefighters are performing strenuous physical work while wearing turnout gear and SCBA. Firefighters should follow basic life support certification requirements from the [American Heart Association](#) or [American Red Cross](#), and receive continued education on warning signs or symptoms of heat illnesses.

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