

The National Institute for Occupational Safety and Health (NIOSH)



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Firefighter Trainee Dies From Hyperthermia After Live-Fire Training—Oklahoma



Death in the Line of Duty...A summary of a NIOSH fire fighter fatality investigation

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Executive Summary

On May 31, 2008, a 28-year-old male volunteer firefighter trainee ("Trainee A") participated in live-fire training at the State's Fire Service Training Professional Skills Center (PSC). The weather was hot and humid with a heat index of 97° Fahrenheit (F). While wearing full bunker gear with self-contained breathing apparatus (SCBA), Trainee A completed the following rotations over 10 hours with periods of rest and rehabilitation of varying duration between rotations: interior burn building fire suppression, hidden wall fire, fire extinguisher, pallet/dumpster fire, and car fire. The Trainee was reportedly "hot and sweaty." Upon completion of the training, the Trainee entered the apparatus building to change clothes. A short time later, an instructor found the Trainee unresponsive in the restroom. 9-1-1 was called as instructors began cardiopulmonary resuscitation (CPR). An ambulance provided advanced life support as the Trainee was transported to the hospital's Emergency Department (ED). Resuscitation efforts continued in the ED, but these efforts were unsuccessful and the Trainee was pronounced dead. The Trainee's core body temperature was not measured during rehab or in the ED, but, based on the clinical scenario, the death certificate and autopsy completed by the Medical Examiner listed "hyperthermia" as the cause of death, with "hypertensive atherosclerotic cardiovascular disease" and "obesity" as other significant medical conditions. The findings of the NIOSH investigation support this conclusion.

NIOSH investigators offer the following recommendations to the State facility and the Trainee's fire department to prevent similar incidents and to address general safety and health issues.

Key Recommendations

- Conduct live-fire training exercises consistent with National Fire Protection Association(NFPA) 1403, Standard on Live-fire Training Evolutions
- Formulate and institute a heat stress program, incorporating elements before, during, and after all training courses
- Institute a rehabilitation (rehab) program consistent with NFPA 1584, Standard on the Rehabilitation Process for Members During Emergency Operations and Training Exercises
- Provide medical evaluations to fire fighters and a medical oversight program consistent with NFPA 1582, Standard on Comprehensive Occupational Medical Program for Fire Departments
- Phase in a comprehensive wellness and fitness program for fire fighters consistent with the IAFF/IAFC Wellness Fitness Initiative and NFPA 1583, Standard on Health-Related Fitness Programs for Fire Department Members
- Perform an annual physical performance (physical ability) evaluation as listed in NFPA 1500,Standard on Fire Department Occupational Safety and Health Program
- Provide fire fighters with medical clearance examinations to evaluate their ability to wear a SCBA
Ensure standard treatment guidelines are followed for firefighters who may have a heat-related illness

[Read the full report](#)  [PDF – 3 MB]

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