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## PROTECTING FROM HEAT ILLNESS/INJURY

Very hot temperatures seem to be a frequent topic in the news and as people discuss the weather. Everyone who feels these temperatures can readily identify them and, when they are in the extremes, needs to take precautions when out in the weather. Stay hydrated, wear light colored, natural or wicking fabrics, use hats, sunscreen and umbrellas; seek out shade. Avoid being outside during the hottest part of the day; consider water or inside activities until the temperature has cooled from its hottest hours. There are times, for those areas that are not acclimated to the heat, or for those with heat-sensitive illnesses, the very young or the elderly are encouraged not to venture out at all. Do not leave any person or animal, perhaps not even some plants, confined in a space or out in the heat when they cannot protect themselves or seek cool shelter.

These are excellent tips and no doubt save lives. There are, however, some individuals that cannot always follow this advice. Many of these are our First Responders: firefighters, state and local police, federal law enforcement and other federal response agencies, EMS, and public health response officials, etc. (the Military is another group but won't be discussed here). What makes these groups different? Many people work outdoors or in the heat. Not as many people are working in PPE (personal protective equipment), in hostile work environments, and/or during heavy or extended labor.

### Some examples include of equipment:

1. Firefighting Bunker (Turnout) Gear and SCBA apparatus
2. Police & EMS Tactical Gear
3. Public Health and EMS response biohazard PPE (gowns, masks, gloves, face protection, PAPRs)

### Some examples of hostile environments:

1. Fires of all types: buildings and other structures, wildland/brush, shipboard, vehicles especially tractor-trailers or any with special engines, etc.
2. Police actions requiring tactical gear, even if only vests and gloves
3. EMS wearing Flak vests or biohazard gear while working on patients outside or in unventilated spaces.
4. Special Response Teams of various types during a working event: Bomb Squad, Confined Space, Large Crowd Response, Urban Search and Rescue, etc.
5. Weather is hotter or more humid than normal for that area so there is less acclimation.

### Heavy or extended labor:

1. Working a multiple alarm fire or in extreme conditions like contained in an airtight area, working within a largely metal structure, not enough personnel for proper work rotation, etc.
2. Long standby assignments requiring full tactical gear, providing large crowd or unruly crowd control, riots, etc.
3. Prolonged assignments that go multiple hours, shifts or days.
4. Working a cardiac arrest, prolonged extrication from buildings or vehicles, mass casualty incidents, etc.

There are also individual reasons that may cause to have an atypical response to a heated or prolonged event. Some of the causes that may decrease a body's ability to perform normally include recent illness with not enough time to recuperate or return to a normal state or acute or chronic illness, particularly those involved with fever, GI symptoms, and cardiac, respiratory, genitourinary, or endocrine systems. Also affecting the body's ability to function normally is prescribed medications, which are too numerous to name here but can impact vital sign; the ability to sweat, or that which affects circulating volume or the kidneys;



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blood donations; post-partying that includes alcohol or other substance use, including stimulants, depressants, opiates, synthetic illicit drugs like K2, Molly, GHB, etc., and anabolic steroids or other “performance or physique enhancing drugs such as diuretics, insulin, fat burners, etc.; anything which increases body temperature, pulse or BP.

Careful attention, early and frequent rehab are necessary for anyone that may be in these groups. Ideally, body temperatures can be taken and protocol followed, when unexpected anomalies are found or expected changes in vital signs do not return to within expected parameters rapidly. There may also be altered mental status (AMS), chest pain or difficulty breathing, an inability to sit or stand up, significant nausea, vomiting, cyanosis, an abnormal CO or EtCO<sub>2</sub> reading, blood loss, or any other sign or symptom identified by Medical Control or on scene Rehab Units, all requiring rapid assessment, treatment, and transport.

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