

# COMMUNITY RISK REDUCTION



## **CCFR is staying hydrated, wants public to do the same**

**BY CAPT. CRYSTAL MILLER**, Medical Training Officer

Clarendon County Fire Rescue is a combination of Fire and EMS-men and women-who love what they do serving the citizens of Clarendon County. With just one year under our belt, we are surely a driving force of greatness in Emergency Services.

We are a stronger team now after merging in June of 2020. Both sides of emergency services bring so much to the table when it comes to doing the job of taking care of not only the citizens of Clarendon County but also each other.

It's summertime, and rolling out together means some hot days out there on calls. To make sure all team members stay hydrated, it comes down to educating and encouraging each other to drink plenty of fluids.

Clarendon County Fire Rescue provides all members with means of hydration; we keep water on hand in various places. Our units have water coolers with ice-cold water and Gatorade. We have Officers within the department that can set up a rehab area on any call if needed.

Medic teams can monitor team-mates, ensuring no one gets overheated or unable to perform tasks without risk. Medical teams can pair up with the Incident Command to set up a rehab area using tents, chairs, cooling towels, team member assessment, including vital signs. This area is used to make sure all members are safe and performing duties without danger. We have come together in the last year and have created a very strong department. Each member contributes something to the team and the residents of Clarendon County daily.

Please make sure you stay hydrated during the hot days of summer.

### **Signs of dehydration**

- increased thirst
- dry mouth
- fatigue
- impaired mental focus
- low urine output
- inability to produce tears or sweat
- sunken eyes
- dry skin

How much water should you drink daily? Your weight = ounces of water per day

## **WE ARE UNITED TO SERVE!**

Simply showing up for work brings a warm welcome, a "good morning" smile, and maybe even a quick conversation and a quick cup of coffee. The staff has merged into one big family: United to Serve. Morning routines get started and crewmembers are working together to prepare themselves, their apparatus, and equipment. Fire crews and medical crews are sharing responsibilities and knowledge. Many have already become crossed trained in both Fire Suppression and Emergency Patient Care, and it shows in the field. On scene, these crews work together and accomplish amazing things under a crazy number of stressors.

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Regardless of the type of call, the team comes together, and each brings their unique training and experience to the scene to accomplish the best outcome for the incident. Fire teams are giving medical support on medical scenes, and medical is providing support to fire teams.

Medic Units roll out along with Fire Units and arrive on scene to assist with scene size up, scene safety, patient care, accountability, exterior fire support, and rehab areas for team members. Medical crews have even taken the role as "hose draggers."

Fire Units roll with medical Units to aid where needed, everything from scene size-up, scene safety, assisting with equipment, patient packaging/loading. They have even been known to take the role as an "ambulance driver," or whatever it takes!

It is all about getting the job done together as one and making sure everyone goes home safe.

## The Dangers of Heat and Humidity

It has been said that "It's not the heat, it's the humidity" here in the south that will get you! Well, it is both.

The brain houses our internal thermostat, known as the hypothalamus. The perfect body temp 98.6, in the perfect world, but our environment is ever-changing. The hypothalamus measures heat or temperature of blood flow. When our bodies are overheated, the hypothalamus can talk to both the nervous system and the integumentary system (skin). By the body talking with the nervous system, vessels are dilated near the surface of the skin. The Human bodies dissipate heat by varying the rate and depth of blood circulation. Dilating those blood vessels allow blood to flow through those enlarged vessels, allowing heat to radiate from the blood into the air, cooling the blood down. By talking with the integumentary system, sweat is produced; when sweat evaporates from the skin surface, the body is cooled as body heat is dissipated. The skin handles about 90 percent of the body's heat dissipating function.

Sweating, by itself, does nothing to cool the body unless the water is removed by evaporation--and high relative humidity retards evaporation. The evaporation process works this way: the heat energy required to evaporate the sweat is extracted from the body, cooling it. Under conditions of high temperature (above 90 degrees) and high relative humidity, the body is doing everything it can to maintain 98.6 degrees inside. The heart pumps a torrent of blood through dilated circulatory vessels; the sweat glands pour liquid-including essential electrolytes, like sodium and chloride, onto the skin's surface.

Heat disorders generally have to do with a reduction or collapse of the body's ability to shed heat by circulatory changes and sweating or a chemical (salt) imbalance caused by too much sweating known as dehydration. When heat gain exceeds the level, the body can remove, or when the body cannot compensate for fluids and salt lost through sweating, the temperature of the body's inner core begins to rise, and heat-related illness may develop.

### They are:

- Heat Exhaustion
- Dehydration
- Heat Stroke

*(See attached study aids)*

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## Interesting Facts:

- Men are more susceptible to heat illness because men sweat more than women; they become more quickly dehydrated.
- In a typical year, approximately 175 Americans die from extreme heat. Young children, the elderly, and those sick or overweight are more likely to become victims.

## Prevention Tips:

- Wear loose-fitting, light-colored, moisture-wicking "tech" fabrics.
- Exercise or do projects in the early morning or evening.
- Have a plan to take breaks or cool down, have such things with you as water and cooling towels. *Maybe even have a plan to cool off afterward in a POOL!*
- Always remember to STAY WELL-Hydrated.
- Keep in mind to try and avoid caffeine and alcohol because they dehydrate the body.

## "South Carolina HEAT in the Fire Service"

How does Clarendon County Fire Rescue prepare for the HOT summer days in South Carolina? We start by educating staff on the importance of hydration while on duty and maintaining normal body fluid balance in their everyday life. Maintaining normal body fluid balance is critical to high-performance activity, especially in the Fire Service.

There is a strong imperative to encourage proper hydration within the Fire Service daily. Firefighters need to be ready at a moment's notice. Firefighters also need tools to help them maintain their personal hydration status on a day-to-day basis, so they are well prepared to respond to emergency calls.

Firefighting requires strenuous work in hot environments while wearing heavy and restrictive clothing and carrying heavy equipment. The average 200-pound firefighter assigned to interior operations at a typical structure fire could easily lose two percent of his BM within 30 to 60 minutes, depending on work intensity and environmental conditions.

The combination of the hot environment and the protective gear insulating the firefighter can produce dangerous conditions of hyperthermia and dehydration.

Properly hydrated, well-conditioned firefighters are therefore much better able to contend with heat stress than their unconditioned and/or dehydrated counterparts. Put that into context with a crew, which is only as strong as its weakest member. Suppose one firefighter does not hydrate himself properly before arriving on the fireground. In that case, he is not only putting his own life in danger, but the lives of his/her crewmembers as well, because performance level could be significantly reduced. For these reasons, dehydration must be addressed before the firefight begins.

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## How to Hydrate

To stop dehydration before it starts, prior to the alarm for a service call, you must limit the use of stimulants, such as caffeine, avoid carbonated beverages, maintain physical fitness, and stay adequately hydrated throughout a shift. Drink plenty of water at regular intervals and aim to replace fluids at the same rate that they are lost. At a minimum, consume 64 oz. of water a day. Increase that amount when exercising on duty and after you have completed your workout to avoid being dehydrated at the scene.

In the Fire Service, we have guidelines to make sure they manage how much time they spend exposed to high heat and a rehab protocol to re-hydrate and recover from the heat stress.

## Firefighter Rehab

In the Fire Service, there are regulations and protocols set up to protect firefighters from heat stress.

These procedures can vary, but the goals of firefighter rehab, based on NFPA (National Fire Protection Association) standard 1584, are:

- Relief from the temperature and conditions of the fire
- A chance to rest and recover.
- Active (using fans, water, ice packs) or passive cooling (depending on the severity of the conditions and outside temperatures) to normalize body temps.
- Re-hydrating and electrolyte replacement (turnouts and fires cause you to lose fluid and electrolytes very quickly)
- Medical monitoring (a procedure to check vital signs and make sure personnel are good to go back to work)

Within the department, when working at a fire, once you undergo 15-30 minutes of structural firefighting, you must go to the firefighter rehab area. This procedure is put in place to protect firefighters from overheating. It allows a chance to cool off, rest, and get some water so that you can go back to work without getting yourself or someone else hurt.



# Beat the Heat

Each year, heat is the cause of death for hundreds of people. The elderly, those with chronic illnesses, and children under 5 are most at risk for heat-related illness.

## 3 Stages of Heat-Related Illness



**Heat cramps** are painful muscle spasms often occurring in the legs or abdomen.



**Heat exhaustion** is caused by the loss of large amounts of fluid through sweating. Symptoms include: cool and clammy skin, headache, nausea, and possibly a feeling of weakness or dizziness.



**Heat stroke** comes from prolonged heat exhaustion and is life threatening. Signs are red, hot, dry skin, and confusion or loss of consciousness.

## Treat the Heat

- Get out of the heat - move to a shady spot if you can't get inside
- Apply cool, wet towels
- Drink cool water
- Call 9-1-1 immediately if heat stroke is suspected

## Prevent Heat-Related Illness



Drink plenty of water - avoid caffeine, alcohol, and sugary drinks



Wear lightweight, light colored clothing



Avoid strenuous activities



Limit sun exposure



Never leave children or pets in a parked car



In 2018, South Carolina led the nation in child hot car deaths

**FIRE SAFE**  
**South Carolina**



A COMMUNITY RISK REDUCTION PROGRAM

# Heat Exhaustion vs. Heat Stroke

## What's the difference?

Learn the signs and symptoms of heat exhaustion and stroke and be prepared for the warmer months. Have fun and stay safe this summer!



### HEAT EXHAUSTION

- Fatigue
- Headache
- Intense thirst
- Muscle weakness and cramps
- Excessive sweating, cold, clammy skin
- Slow or weak heartbeat
- Confusion, anxiety, and/or dizziness

### WHAT TO DO?

- Find a cooler area, preferably with air conditioning or a fan.
- Drink water, if able.
- Place cold compresses on the back of the neck, on the wrists, and behind the knees, or take a cool shower.



### HEAT STROKE

- Fatigue
- Headache
- Confusion or fainting
- Shortness of breath
- Decreased sweating, warm, flush, dry skin
- Rapid heart rate
- Decreased urination

### WHAT TO DO?

- Call 911 immediately** and help cool the person by removing any hats, shoes, or sweaters.
- Place cold compresses behind the neck, on the wrists, and behind the knees.