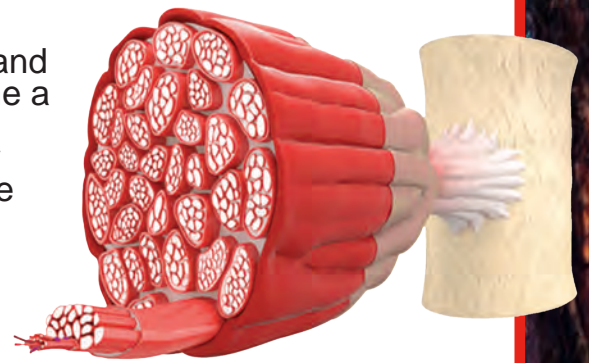


# RHABDO & THE WILDLAND FIREFIGHTER

## What is Rhabdomyolysis?

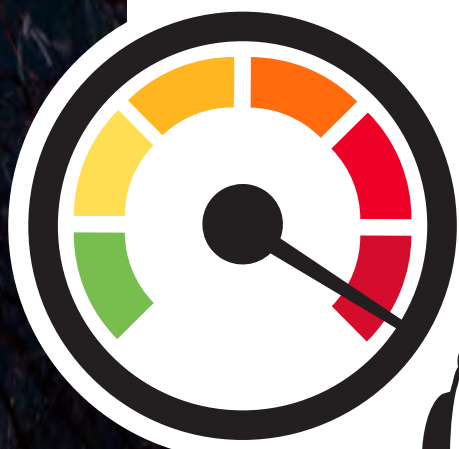
Rhabdomyolysis ("rhabdo") is the **breakdown of damaged muscle** which results in the release of muscle cell contents into the blood<sup>1,2</sup>. The proteins and electrolytes released can cause organ damage<sup>1,3</sup>. Rhabdo can occur anytime a muscle is damaged or killed. In the workplace, risk factors can include heat exposure, physical exertion or overuse, and direct trauma (e.g., crush injury from a fall)<sup>3</sup>. A definitive measure of rhabdo (as measured in a doctor's office or hospital) is an elevated level of the muscle protein creatine kinase (CK)<sup>1</sup>.

**Rhabdo may be misdiagnosed as heat stress or dehydration as the presenting signs and symptoms can be similar.**



## AWARENESS OF HIGH-RISK ACTIVITIES

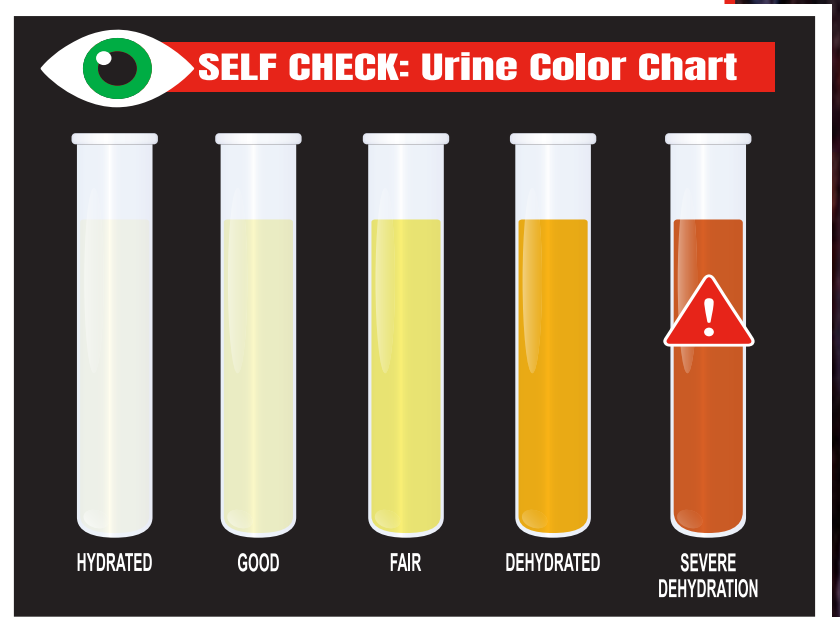
- Arduous wildfire suppression requires extreme fluid intake to remain hydrated<sup>4</sup>
- High levels of exertion, such as carrying heavy loads over rugged, steep terrain
- Exposure to heat from fire, the environment, and generated by physical effort
- Rigorous training and physical fitness tests
  - 6 out of 7 cases of rhabdo in 2016 occurred during the first two days of pre-season training<sup>5</sup>



## SIGNS & SYMPTOMS OF RHABDO

It is possible to have rhabdo and *show no symptoms*.  
**If you do begin to experience these symptoms, seek medical care immediately!**

- Muscle pain, aches, or weakness that are more severe than expected
- Muscle or limb swelling/stiffness; decreased range of motion
- Dark, reddish urine (tea- or cola-colored), decreased amount of urine
- Full body fatigue, feeling weak or tired, unable to complete job tasks or finish a workout routine
- Fever, rapid heart rate, nausea or vomiting; confusion/lack of consciousness



**Dehydration doesn't *cause* rhabdo, but it can make it *worse*. Dehydration impairs the body's ability to get rid of the muscle proteins and electrolytes that are released into the body when the muscle is damaged<sup>1</sup>.**

## WHAT CAN I DO TO PREVENT RHABDO?

- **Be aware** that the elements of wildland fire response and critical training involving exertion and/or heat exposure could increase your risk for rhabdo
- Become acclimated to your physical activity level and the heat before working for long periods of time
- Learn the signs and symptoms of heat-related illnesses and take steps to prevent getting overheated
- **Stay hydrated.** Monitor and encourage adequate fluid intake and rest breaks
- Drink caffeine-free and low-sugar products. Avoid alcohol and dietary supplements such as creatine
- Modify work/rest periods to give the body a chance to get rid of excess heat, use cooling stations if available

**It's not possible to totally eliminate the risk of "rhabdo", but there are ways to lower your risk.**



## POTENTIAL LONG-TERM EFFECTS FROM RHABDO

- Kidney damage/failure
- Dangerous heart rhythms
- Seizures
- Permanent disability
- Death

IF YOU START EXPERIENCING ANY RHABDO SYMPTOMS, STOP YOUR CURRENT ACTIVITY RIGHT AWAY, COOL DOWN, START AGGRESSIVE HYDRATION, AND GO TO A HEALTHCARE PROVIDER TO GET CHECKED FOR RHABDO. **IMMEDIATELY!**

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