

State Fire Marshal Training Division

Hydration Policy

Purpose: The Maryland Fire and Rescue Institute, as a partner in the Center for Firefighter Safety Research and Development, completed a research study entitled “Health and Safety Guidelines for Firefighter Training”. One of the important observations of the study was that participants were dehydrated before starting their training day, and it was noted that the student’s hydration status clearly affected their performance in the training evolutions. Therefore the Nebraska State Fire Marshal Training Division will implement this policy to protect students and instructors during all exercises or testing that are physically demanding.

Policy: This policy presents the recommended hydration guidelines for participants prior to, during, and after the completion of strenuous practical training evolutions in order to maintain proper hydration and prevent dehydration. This policy will apply to all training exercises and all certification test sites.

Procedure: The instructor shall encourage the students to follow these hydration guidelines for all strenuous practical evolutions and other situations that may result in dehydration.

While hydration is a personal responsibility, it is the responsibility of the field instructor to monitor participants for the signs and symptoms of dehydration such as muscle weakness, dizziness, disorientation, hypotension, tachycardia and lack of sweating. The presence of these signs and symptoms constitutes a true medical emergency. The instructor should remove any individual exhibiting these signs and symptoms from the training environment and seek emergency medical support immediately.

Additionally, the instructor should be alert to environmental conditions that may exacerbate dehydration and be familiar with any existing local policy regarding outdoor training in extreme weather conditions.

Pre-Hydration

- The goal of prehydrating is to start the training session euhydrated (properly hydrated) and with normal plasma electrolyte levels. Prehydrating should begin at least several hours before the training session to enable fluid absorption and allow urine output to maintain normal levels.

- Prior to the training session, students should slowly drink one ounce of water for every ten pounds of body weight at least four hours before the training session. If the student does not produce urine, or if the urine is dark or highly concentrated, the student should slowly drink an additional one ounce of water for every 20 pounds of body weight about two hours before the training session.
- Do not substitute beverages with alcohol or caffeine for water. Caffeine and alcohol act as diuretics and can exacerbate dehydration.
- Students should not attempt to hyperhydrate prior to a training session as it has been shown to provide no clear physiologic or performance advantage and can increase the risk of hyponatremia, a potentially lethal condition.

Preventing Dehydration

- The goal of drinking during the training session is to prevent excessive dehydration and excessive changes in electrolyte balance. The specific amount and rate of fluid replacement is highly variable depending on individual sweat rate, session intensity and duration, and environmental conditions.
- Ideally, students should create a customized fluid replacement plan based on pre and post training session weight with the goal to prevent loss of more than 2% of baseline body weight during activity.
- In the absence of an individualized fluid replacement plan, students should drink water slowly and continuously during the breaks provided during the training session. Electrolyte replacement beverages may be beneficial in the most extreme training conditions, but the primary goal should be volume replacement, which is best accomplished with water.
- Students should continue fluid replacement even if they do not feel thirsty. By the time thirst is detected, the student is already dehydrated which results in decreased performance and increased health and safety risk.

Rehydration

- The goal of rehydration is to fully replace any fluid and electrolyte deficit.
- Individuals should drink 20 ounces of fluid for every pound of body weight lost during the training session. If the total body weight lost during training is unknown, students should drink slowly and continuously until urine is no longer dark or highly concentrated.
- Consuming beverages and snacks with sodium will help expedite rapid and complete recovery by stimulating thirst and fluid retention.