2.4 References for Extracts in Mandatory Sections.

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Committee Statement

Committee Statement: These changes are editorial in nature in order to reflect a document title change and a change in the edition date of that document.
Response Message:
6.1.4*
Members shall undergo rehabilitation following the use of a second 30-minute or 45-minute self-contained breathing apparatus (SCBA) cylinder, a single 60-minute SCBA cylinder, or 40 minutes of intense work without SCBA. A supervisor shall be permitted to adjust the time frames depending upon work or environmental conditions.

6.1.4.1
A supervisor shall be permitted to adjust the time frames depending upon work or environmental conditions.

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Committee Statement

Committee Statement: The committee has made this change for clarity and consistency with 6.2.2.2.

Response Message:
Public Comment No. 1-NFPA 1584-2013 [Section No. 6.1.4]
6.2.4.1*
Members shall avoid overhydration, which can lead to hyponatremia.

Submitter Information Verification

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Submittal Date: Tue Mar 11 15:57:40 EDT 2014

Committee Statement

Committee Statement: The committee has added the new section of text based on the submitted public comment.
Response Message:
Public Comment No. 2-NFPA 1584-2013 [Section No. 6.2.4]
A.6.2.4

During emergency incidents and training exercises, the goal should be to match the volume of fluid intake with the volume of sweat output. Humans can easily exceed a sweat rate of 64 oz (2 L) per hour in hot and humid conditions. *(See Sawka and Pandolf, “Effects of Body Water Loss on Physiological Function and Exercise Performance.”)* It is important to remember that fire-fighting gear interferes with heat dissipation and traps moisture next to the skin; hence, as soon as fire fighters don their gear the skin experiences a hot and humid environment and sweating begins. Furthermore, sweating continues even after a fire fighter stops working and enters rehabilitation.

Nausea and loss of thirst can be early signs of dehydration and heat stress. Therefore, all members should demonstrate the ability to consume some fluids. If members cannot demonstrate the ability to take in some fluid, they should be medically evaluated.

It is important to consider all of this fluid loss through sweat when trying to match sweat loss with fluid intake. Fire fighters can easily lose 32 oz (1 L) of water in less than 20 minutes of strenuous fire-fighting activity. *(See Smith and Petruzello, “Selected Physiological and Psychological Responses to Live-Fire Drills in Different Configurations of Firefighting Gear.”)*

Dehydration has several detrimental effects on the body, including the following:

1. Impairs Impairment of the body’s ability to maintain core temperature
2. Decreases Decreased strength
3. Shortens Shortened endurance time
4. Decreases Decreased blood volume, which increases cardiovascular strain

A 15 percent reduction in plasma volume and a 40 percent reduction in stroke volume have been reported following less than 20 minutes of strenuous fire-fighting activity. *(See Smith et al., “Effects of Strenuous Live-Fire Firefighting Drills on Hematological, Blood Chemistry, and Psychological Measures”; and Smith, Petruzello, and Manning, “The Effect of Strenuous Live-Fire Drills on Cardiovascular and Psychological Responses of Recruit Firefighters.”)*

The gastric emptying capacity of an exhausted, warm, and dehydrated fire fighter is likely about 32 oz (1 L) per hour. Forcing large amounts of fluids in a period of as little as 20 minutes during rehabilitation could overwhelm the stomach's ability to handle such fluid and result in nausea and vomiting due to too great a volume of fluid being forced upon the upper GI system.

Overhydration (drinking too much, too fast) during operations can cause gastric discomfort or gastric distention, which can cause vomiting. During high intensity, long-duration activity (longer than 1 hour), the following precautions are recommended:

- Ingest 30 g/hr to 60 g/hr of carbohydrate.
- Drink 8 oz (¼ L) of sports drink containing approximately 15 g of carbohydrate.
- Consume other readily available carbohydrate sources, such as fruit and meal replacement bars.
In rare instances, overhydration can lead to serious health problems. Drinking too much water can lead to a condition known as hyponatremia (sometimes called water intoxication).

Members who are fighting wildland fires should carry fluids and foods that can be easily transported and maintained (energy bars, fruit, sports drinks, and water bottles).

A.6.2.4.1
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C.1.2 Other Publications.


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Response Message: