

WG 4 (Physiological Health)

Addressing Hyponatremia Risk in Soldiers Under Heat Stress

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Background:

Exercise-associated hyponatremia (EAH) is a life-threatening medical emergency caused by excessive fluid intake exceeding fluid loss, inadequate sodium intake, and inappropriate ADH secretion. In the military, awareness of EAH is limited, as intense physical exertion-especially under environmental heat stress is more commonly associated with dehydration and exertional heat illness.

Purpose:

To highlight the danger of EAH among soldiers during military training in the era of climatic change.

Methods:

A retrospective follow-up was conducted on three young soldiers (ages 20–21), early in their service (<1 year), who collapsed with neurological symptoms after a field march. A week after collapse, a physician and dietitian interviewed them to document their medical history, including food and water intake.

Results:

The cases occurred during field marches (50 km, 15 km, and 19 km) under moderate to severe heat stress amid a heat wave in late July 2023. Soldiers were advised to "drink a lot," but food intake was limited, leading to low sodium consumption. Fluid and salt intake are summarized in the following table:

	distance (hrs.)	Fluid intake (L/24hrs.)	Na intake (mg/24hrs)	p[Na+] (mEq/L)
Case #1	14	25	3530	113
Case #2	5	14	2460	117
Case #3	5	12	760	124

At the time of collapse, all three soldiers experienced headaches, dizziness, vomiting, and tonic-clonic seizures. Though initially suspected of exertional heat illness, their rectal temperatures were below 38°C. They were hospitalized for 2–5 days.

Conclusions:

The high awareness of possible dehydration and heat stroke while exercising in the heat has encouraged excessive fluid intake (water), which can lead to EAH. Improved educational measures should be implemented to increase awareness of EAH, emphasizing the importance of adequate carbohydrates, salt, and fluid intake before and during prolonged physical activities. This is particularly crucial in the context of climate change and global warming.

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From Training to the Battlefield: Operationalizing Combat Nutrition Strategies in the IDF

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Soldiers operating in combat environments are exposed to intense physical, cognitive, and environmental stressors that challenge their endurance, resilience, and overall performance. Proper nutrition is essential for maintaining operational readiness, preventing performance decline, and reducing health risks such as dehydration, hyponatremia, and hypoglycemia.

This presentation will provide a structured approach to combat nutrition, detailing its implementation from training to battlefield operations, with key insights from the Iron Swords War. The discussion will cover essential nutritional strategies for both short-term, high-intensity missions (1–3 days) and extended operations. Emphasis will be placed on the role of strategic nutrient intake in sustaining physical and cognitive performance.

The lecture will also examine the operational nutrition protocol currently integrated into IDF combat units, focusing on its practical application, including pre-mission fueling, sustained energy intake during operations, and recovery nutrition post-mission. A core theme of this session is the "Train as You Fight" principle, underscoring the importance of nutritional preparedness during training to enhance soldiers' adaptability in real combat scenarios.

Case studies from the Iron Swords War will highlight real-world challenges, such as inadequate food planning during prolonged marches, and demonstrate the necessity of structured dietary protocols. By bridging research-based insights with operational demands, this presentation aims to advance combat nutrition strategies that enhance soldier health, endurance, and performance in complex battlefield conditions.