

A narrative review of exercise-associated muscle cramps: Factors that contribute to neuromuscular fatigue and management implications

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ABSTRACT

- Although exercise-associated muscle cramps (EAMC) are highly prevalent among athletic populations, the etiology and most effective management strategies are still unclear. The aims of this narrative review are 3-fold: (1) briefly summarize the evidence regarding EAMC etiology; (2) describe the risk factors and possible physiological mechanisms associated with neuromuscular fatigue and EAMC; and (3) report the current evidence regarding prevention of, and treatment for, EAMC.

- Based on the findings of several large prospective and experimental investigations, the available evidence indicates that EAMC is multifactorial in nature and stems from an imbalance between excitatory drive from muscle spindles and inhibitory drive from Golgi tendon organs to the alpha motor neurons rather than dehydration or electrolyte deficits. This imbalance is believed to stem from neuromuscular overload and fatigue. In concert with these findings, the most successful treatment for an acute bout of EAMC is stretching, whereas auspicious methods of prevention include efforts that delay exercise-induced fatigue.

The 2 main theories behind EAMC

- The dehydration and electrolyte imbalance theory
- The altered neuromuscular control theory

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