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The Effects of Mental Fatigue on Performance in High-Level Athletes: A Systematic Review

Topic: Specific Target Groups (Children, Women, Elderly, Athletes, Musicians, Refugees, Ethnic Groups, Workers, and Others)

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BACKGROUND

This systematic review was performed to examine the available literature to determine the effects of mental fatigue on performance in high level athletes and what can be done to limit its effects. Mental fatigue is characterized as the psychobiological feeling of tiredness and lack of energy induced by prolonged periods of demanding cognitive tasks. In recent years there has been increasing interest in factors of the cognitive aspects of performance and edge on the competition. Mental fatigue is something all athletes endure, whether it is from increased academic pressure or stressors of daily life, and they should understand its effects on performance and approaches to limit its impact.

METHODS

The search of the literature was conducted from August 2024 through September 2024. The databases used during this search included MEDLINE, CINAHL complete, and PubMed. Search terms in the databases included: mental fatigue, cognitive fatigue, sport performance, physical performance, athletes, professional athletes, elite athletes, time, and endurance. Inclusion criteria included articles published within the last 10 years, were peer reviewed, and consisted of randomized control trials. After thorough review of the mentioned databases, there were 11 articles that were chosen. Two articles were found via hand search. These articles were outside the 10 year inclusion criteria however were included due to their foundational nature on the topic.

RESULTS

The results of the choice articles indicated that pre-induced mental fatigue before activity has a direct impact on athletes across multiple sports. Sports involved in the studies included basketball, swimming, cycling, orienteering, soccer, and triathletes and required a mentally fatiguing task longer than 30 minutes to see the negative impacts on their performance. Pre-induced mental fatigue was simulated by tasks like the Stroop Test, smartphone usage, and academic challenges. Mental fatigue had little physiological effects, such as HR and VO2 max, on the athletes, but influenced the cognitive aspect of competition. Pre-induced mental fatigue led to athletes having a higher rate of perceived exertion (RPE), decreased timed trials (TT) in races, decreased reaction time (RT) and decreased sport specific performance like shooting percentage or passing performance.

CONCLUSION

Methods to improve mental fatigue include limiting smartphone usage 30 minutes before an event, practicing meditation, brain endurance training, limiting practice during stressful times, and increasing the athletes motivation. Future studies should evaluate more practical indicators of mental fatigue like lack of sleep and specific types of social media content.

Statement of Disclosures

None

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