The Interrelation Between Psychomotor and Cognitive Abilities in Aerobic Gymnastics

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Abstract:

The performance of athletes, especially in high-intensity sports such as aerobic gymnastics, depends on their physical abilities and mental strength. The present study explored the connections between characteristics of nervous system and cognitive skills of aerobic gymnasts to understand how these parameters affect their focus and performance. Twenty-four female aerobic gymnasts participated in tapping test using "NS-Psychotest" to evaluate strength, efficiency and endurance of gymnasts' nervous system (E.P. Ilyin's method, 1972). Mental and coping-skills were assessed using the Russian version of the ACSI-28 and the OMSAT questionaries. Aerobic gymnasts mainly had medium-weak and weak nervous systems. Both groups significantly differed in frequency difference of tapping test ($p < 0.05$). Strong correlations were found between the frequency difference and OMSAT/ACSI-28 subscales ($p < 0.05$). The decline indicator positively correlated with the OMSAT subscales ($p < 0.01$). Linear regression showed the decline indicator significantly predicts scores of "Refocusing" subscale ($p < 0.05$). Gymnasts with stronger nervous system demonstrated better attention focus, goal-setting and confidence, which is crucial in challenging situations in aerobic gymnastics These results underscore the crucial role of the nervous system in cognitive abilities and its significant influence on athletic performance and resilience.

Keywords:

Tapping test, psychomotor abilities, cognitive skills, performance in sport.