

PATHOPHYSIOLOGICAL ASPECTS OF OLIGOELEMENT SUPPLEMENTATION IN ATHLETES

Marko Lazović^{1,3}, Jelena Milenković², Novica Bojanić³, Zoran Bojanić²

¹Department of Cardiology, Clinical Center, Niš, Serbia

²University of Niš, Faculty of Medicine, Institute of Pathophysiology, Niš, Serbia

³University of Niš, Faculty of Medicine, Niš, Serbia

Contact: Jelena Radović

Blvd dr Zoran Djindjić 81, 18000 Niš, Serbia

E-mail: jelenaradovic982@gmail.com

The precondition for achieving top athletic results is full health and psychophysical readiness. Essential oligoelements are necessary for normal biochemical and physiological processes, utilization of energy and building of tissues, as well as for optimal functioning of the muscles and their harmonious relationship with other systems. Trace elements play an important role in energy metabolism during strenuous physical activity, and in the conditions of increased oxygen demand, free radical production, activity of scavenger enzymes, and anti-oxidant protection.

Athletes may have iron deficiency due to decreased dietary intake, blood loss or increased needs due to physical activity, however, supplementation is not justified in terms of improving sports performance, and may even be harmful. Copper has particular importance in biological processes of energy metabolism, iron homeostasis and antioxidant protection. Additional amounts of copper of 0.5-3.0 mg per day are recommended to athletes, although high doses do not have ergogenic properties. Moreover, athletes have a greater need for zinc. Additional amounts of zinc supplements are recommended, 15-50 mg per day. The deficiency of manganese occurs most frequently in malnourished people, while the need for selenium in well-trained athletes increase depending on the energy consumption.

Sport activity, especially when it comes to long-term extreme efforts, increases the need for micronutrient substances. Athletes need to ensure a balanced diet and oligo-element supplementation to meet their needs, increased in relation to the recommended daily intake.

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