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**ABSTRACT BOOK**

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**IZVODI SAOPŠTENJA**



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## **THE IMPLICATIONS OF SOMATOTYPES ON ATHLETES' HEALTH AND SPORT PERFORMANCE**

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**Introduction.** Different somatotypes (ectomorph, mesomorph, and endomorph) have been widely used in sport science and health research. Each somatotype is associated with distinct physiological characteristics that influence athletic performance, injury susceptibility, and health outcomes, crucial for optimizing training, nutrition, and healthcare in athletes. The aim was to examine the relationship between somatotypes and health in athletes, focusing on metabolic efficiency, musculoskeletal health, injury risk, and sport adaptation.

**Material and Method.** A comprehensive literature review was conducted using peer reviewed sources from databases such as Pubmed, Scopus, and Web of Science. Studies examining the associations between somatotypes and various health parameters in athletes were included. Key themes as cardiovascular fitness, bone density, recovery rates, and predisposition to injury were analyzed.

**Results.** The evidence suggests that mesomorphic athletes (higher muscle mass), exhibit superior strength and power, but are prone to joint and ligament injuries. Ectomorphic athletes, (lower fat and muscle mass), demonstrate advantages in endurance sports but may have a higher risk of stress fractures and energy deficiencies. Endomorphic athletes (higher fat to muscle ratio) face challenges related to metabolic health, weight management and joint stress, particularly in weight bearing sports. The review highlights sport specific adaptations and strategies to mitigate health risks associated with each somatotype.

**Conclusion.** Somatotyping provides valuable insights into individualized health risks and performance in athletes. By integrating somatotype-based assessments into training, nutrition, and medical interventions, sport professionals can enhance performance and minimize injury risks. Future research should explore genetic and environmental interactions influencing somatotype traits and their longterm impact on athletic health.

**Keywords:** Somatotypes, Athletes, Health Risks, Sport Performance