

## **Abstract**

**Title:** Endurance and strength-speed determinants of kickboxing performance

**Objectives:** The aim of the work is based on current scientific knowledge to define some of the conditioning determinants influencing sports performance in kickboxing and thus determine the profile of the elite kickboxer.

**Methods:** A systematic literature search was conducted using the Google Scholar, ScienceDirect, Web of Science and ResearchGate databases. The work included studies and literature in the field of general sports training and martial arts, especially kickboxing, which evaluated the somatic and conditioning factors of sports performance.

### **Results:**

A total of 37 studies dealing with the above-mentioned issues in kickboxing or similar combat sports were used. Based on the literature search, somatic factors, endurance, force and speed factors were defined and described. The average amount of body fat of kickboxers was found (8.1–12.4 %), as well as the fact that kickboxers have predominantly mesomorphic features of the somatotype.  $VO_{2max}$  of elite kickboxers is in the range of 47.65–62.7  $ml \cdot kg^{-1} \cdot min^{-1}$  and anaerobic capacity in the range of 6.1–10  $W \cdot kg^{-1}$  for lower limbs and 3.6–6.1  $W \cdot kg^{-1}$  for upper limbs. The hand grip force of the dominant hand is 51.4–55.6 kg and of the non-dominant hand 48.7–54.7 kg. The height of the jump reaches 29.8–44.8 cm and the distance of the medicine ball throw is 4.1–4.6 m. The speed of the kickboxing techniques in kickboxing was not determined. The visual response was 188.22–217.1 ms and the acoustic response was 159.62–185.7 ms. The lack, heterogeneity, insufficient number of test subjects and significant methodological limitations of the available studies do not allow to accurately determine the ideal profile of the elite kickboxer, but only to describe the current level of elite kickboxers. The work emphasizes the need for further research that would create standards for kickboxing.

**Keywords:** sport performance, martial arts, somatic factors, conditioning factors