
ORIGINAL RESEARCH

BIOMECHANICAL DIFFERENCES IN BRAZILIAN JIU-JITSU ATHLETES: THE ROLE OF COMBAT STYLE

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ABSTRACT

Background: Brazilian Jiu-Jitsu (BJJ) athletes can be divided into two combat styles: pass fighters (PFs) and guard fighters (GFs). Flexibility of the posterior chain muscles is highly necessary in these athletes, especially in GFs. On the other hand, isometric strength of the trunk extensors is required in PFs. Handgrip strength is important in holding the kimono of the opponent, and symmetrical lower-limb strength is important for the prevention of injuries due to the overload caused by training.

Purpose: The aim of this study was to compare the biomechanical profiles of BJJ athletes with different combat styles using the following outcome measures: flexibility, trunk extensor isometric endurance, postural balance, handgrip isometric endurance and lower-limb muscle strength.

Methods: A cross-sectional study was conducted using 19 GFs and 19 PFs. The sit-and-reach test was used to evaluate the flexibility of the posterior chain muscles. The Biodex Balance System® was used to evaluate balance. A handgrip dynamometer and a dorsal dynamometer were used to evaluate handgrip and trunk extensor endurance, respectively. Quadriceps and hamstring strength were evaluated with an isokinetic dynamometer at 60°/s.

Results: No differences were observed between groups in terms of flexibility, balance, handgrip isometric endurance or quadriceps and hamstring strength; however, PFs (81.33) showed more isometric trunk extension endurance than GFs (68.85) ($p = 0.02$). Both groups had low values for hamstring/quadriceps ratio.

Conclusion: No significant biomechanical differences were observed between PFs and GFs.

Keywords: Jiu-Jitsu, martial arts, muscle strength, postural balance

Level of Evidence: 2b

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