Abstract

Background: Data obtained on an isokinetic dynamometer are useful to characterize muscle status and have been reported in muscle imbalance studies in different types of sport. However, few studies have assessed elite handball players to establish reference values. Objective: The purpose of this study was to compare, for the dominant (D) and non-dominant (ND) side, the isokinetic profile of shoulder rotator muscle strength between male handball players (H) and asymptomatic non-athletes (NA).

Method: Isokinetic concentric and eccentric strength tests for D upper limbs were performed by the H group (n=20) and the NA group (n=12). Internal and external rotator muscle peak torque in concentric action was assessed at 60°/s and 300°/s and in eccentric action at 300°/s. We also calculated conventional balance (the ratio of external rotator peak torque to internal rotator peak torque in concentric action) and functional balance (the ratio of external rotator peak torque in eccentric action to internal rotator peak torque in concentric action).

Results: In the H group, dominant limbs were stronger in concentric action for external rotation at 60 and 300°/s. The conventional balance ratio for the D side was significantly lower at 60 and 300°/s for H compared to NA. The functional ratio for the D side was significantly lower at 300°/s for H compared to NA.

Conclusions: Compared to asymptomatic non-athletes, handball players presented significant muscular imbalance resulting from daily sports practice, a known risk factor for shoulder injuries.

Keywords

Physical therapy, muscle strength, isokinetic dynamometer, shoulder joint, athletic injuries, handball.