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Section I – Kinesiology



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# Test-Retest Reliability of Isokinetic Arm Strength Measurements in Competitive Swimmers

*by*

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*Swimming motor patterns lead internal rotators to grow stronger than antagonist muscles, what may increase the risk of injury in swimmers. Injury prevention often involves the improvement of external rotators strength, as well as the external rotation/internal rotation ratio. The current research aimed to evaluate the test-retest reliability of shoulder concentric rotation strength in competitive swimmers using an isokinetic dynamometer. The study enrolled 35 competitive swimmers aged between 13 and 19 years. Concentric movements were performed including internal and external rotations of the shoulder joint following the instructions of the standardized protocol. The angular velocity of the test was defined at 60º/s. Outcome measures were peak torque (Nm) and work (J), measured in both, the dominant and non-dominant arms. The external rotation/internal rotation ratio was also calculated. Reliability was excellent for peak torque and work. For the external rotation/internal rotation ratio, the ICC oscillated between 0.744 and 0.860 for the work ratio of the non-dominant arm and the peak torque ratio of the dominant arm, respectively. In general terms, better reliability was observed for peak torque compared with work, for external rotation compared with internal rotation, and for the dominant arm compared with the non-dominant one.*

**Key words:** *reliability, swimming, injury prevention, sport injuries, peak torque.*