Absolute and relative reliability of isokinetic and isometric trunk strength testing using the IsoMed-2000 dynamometer

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The present study aimed to assess the between day reliability of isokinetic and isometric peak torque (PT) during trunk measurement on an isokinetic device (IsoMed 2000).; Test-retest-protocol on five separate days.; Fifteen healthy sport students (8 female and 7 male) aged 21 to 26.; PT was assessed in isometric back extension and flexion as well as right and left rotation. Isokinetic strength was captured at a speed of 60ř/s and 150ř/s for all tasks.; For none of the assessed parameters a meaningful variation in PT during test days was observed. Relative reliability (ICCă=ă0.85-0.96) was excellent for all tasks. Estimates of absolute reliability as Coefficient of Variation (CoV) and Standard Error of Measurement (SEM in Nm/kg lean body mass) remained stable for isometric (6.9%ă<ăCoV <9.4%; 0.15ă<ăSEMă<ă0.23) and isokinetic mode (60ř/s: 3.7%ă<ăCoV <8.6%; 0.08ă<ăSEMă<ă0.24; 150ř/s: 6.9%ă<ăCoV <12.4%; 0.10ă<ăSEMă<ă0.31). In contrast, reliability between familiarization day and day 1 was lower (6.6%ă<ăCoV <26.2%; 0.10ă<ăSEMă<ă0.65).; Trunk strength measurement in flexion and extension or trunk rotation in either isometric or isokinetic condition is highly reliable. Therefore, it seems possible to elucidate changes which are smaller than 10% due to intervention programs when a preceding familiarization condition was applied.

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