
ORIGINAL RESEARCH
EVIDENCE FOR ISOKINETIC KNEE TORQUE
ASYMMETRIES IN MALE LONG DISTANCE-TRAINED
RUNNERS

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ABSTRACT

Purpose/Background: Strength asymmetries are related to knee injuries and such injuries are frequently observed among runners. The purpose of this study was to examine whether long-distance runners have symmetric performance during knee isokinetic testing at two angular velocities.

Methods: Twenty-three healthy and well-trained male long-distance runners performed open-chain isokinetic trials for assessment of concentric quadriceps and hamstrings contractions at velocities of $60^{\circ}\cdot s^{-1}$ and $240^{\circ}\cdot s^{-1}$. Data were compared between the lower limbs at different velocities.

Results: Peak torque and total work were similar between the limbs. Asymmetry was observed for knee flexor power at $240^{\circ}\cdot s^{-1}$ (237 ± 45 W and 205 ± 53 W, in the preferred and non-preferred limb, respectively). Asymmetry indexes for flexor power were different between the velocities tested (13.1% and 2.21% for $240^{\circ}\cdot s^{-1}$ and $60^{\circ}\cdot s^{-1}$, respectively).

Conclusion: A limb asymmetry was observed among runners for knee flexor power, mainly at higher angular velocities ($240^{\circ}\cdot s^{-1}$). In addition, H/Q ratios were observed to be contraction velocity dependent.

Level of Evidence: 3

Keywords: Concentric isokinetics, dynamometer, flexor to extensor torque ratio, peak torque

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