

Bilateral Isokinetic Torque Differences in Trained Swimmers.

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Purpose: To investigate bilateral torque differences in trained swimmers during isokinetic knee extension exercise. **Methods:** 25 NCAA Division II swimmers (14 ♀, 11 ♂), (aged 20.3 ± 1.5 years; height 172.2 ± 13.1 cm; mass 70.3 ± 14.1 kg; % body fat 15.5 ± 6.7) performed 15 maximal voluntary, bilateral knee extensions on an isokinetic dynamometer. The selection of testing velocities was based on underwater filming of the kick cycle. Testing velocities were set at $400 \text{ deg}\cdot\text{s}^{-1}$ and $450 \text{ deg}\cdot\text{s}^{-1}$. **Results:** A total of 9 subjects failed to attain target isokinetic velocities. Therefore, data from only 16 subjects (9 ♂, 7 ♀) were included in the analysis. Two-way ANOVA revealed no significant torque differences ($p \geq 0.05$) between right and left limbs within both velocities –

Torque	400 deg•s-1		450 deg•s-1	
	Right Knee	Left Knee	Right Knee	Left Knee
Mn ± SD	23.1 ± 14.3	22.8 ± 13.0	19.3 ± 15.2	19.4 ± 15.1

Conclusions: testing. However, these findings provide further empirical evidence to support the notion that long term swimming There were no significant differences ($p < 0.05$) between the right and left limbs in underwater angular velocities or isokinetic torques. This finding is in accordance with previous work on master's level swimmers. The ambidextrous nature of swimming training should result in uniform bilateral strength development. The inability of subjects (36%) to attain either one of the target velocities is indicative of the limitations of isokinetic training results in uniform strength development in the lower extremities.