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## Isokinetic muscle strength and short term cycling power of road cyclists.

*Indrek Rannama, Boriss Bazanov, Karin Baskin, Kaarel Zilmer, Meeli Roosalu, Kristjan Port*

### Abstract

The ability to produce maximal short term power plays important role in success and tactical economy in competitive road cycling. There are no current studies relating the isokinetic strength parameters of lower limb muscles to sprinting power in high level competitive cyclists. The purpose of this study was to characterise lower body muscles strength among high level cyclists and examine the relationship between isokinetic muscle strength and cycling sprinting power. Power

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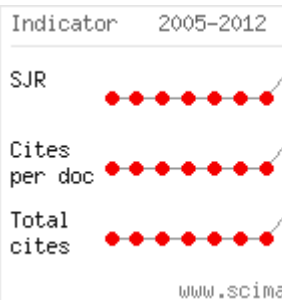
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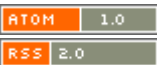
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output of 17 high level road cyclists (age  $20.5 \pm 3.8$  yrs., mass  $180.8 \pm 5.7$  cm, height  $74.3 \pm 7.0$  kg) was measured with the help of isokinetic test on a Cyclus2 Ergometer. Also isokinetic strength of ankle plantar flexors, ankle dorsal flexors, knee and hip extensors and flexors were measured with Humac NORM isokinetic dynamometer in angular speeds 60, 180 and 240°/s. The hip extensors were the strongest muscle group in all measured velocities, followed by knee extensors and hip flexors, the weakest muscle group was ankle dorsi flexors. Hip extensors torque at 180°/s was strongly correlated ( $r=0.9$  between absolute values and  $r=0.74$  between relative to body weight values) with short term cycling power while other muscle group demonstrated weaker relationship. Relative strength of hip flexors and ankle dorsi flexors did not show meaningful relationship with sprinting power after correction with riders body weight. In conclusion, the strongest muscle group in road cyclists are hip extensors, sprinting power has strongest correlation with hip extensors strength at angular speed of 180°/s, relationship between sprinting power and strength of hip flexors was statistically insignificant.

Key words: CADENCE; CYCLUS-2 ERGOMETER; PEAK TORQUE; ISOKINETIC DYNAMOMETRY

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