

Preferential Vastus Medialis Oblique Activation Achieved by Isokinetic Cycling at High Angular Velocity

Kim HJ, Kwon JY, Kim JS, Kim MW, Bang HJ, Lee WI, Ko YJ.

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OBJECTIVE: Neuromuscular imbalance of vastus medialis obliquus and vastus lateralis muscles is one of the major causes of patellofemoral pain syndrome. This study was designed to evaluate the effect of the angular velocity on the electromyographic activities of vastus medialis obliquus and vastus lateralis during isokinetic cycling.**METHOD:** Fifteen healthy women (23.6+/-2.7 years) without any knee problem performed two sets of isokinetic bicycling using Motomed (RECK, Germany) at three different revolutions per minutes (30 RPM, 45 RPM, 60 RPM). Integrated electromyographic (iEMG) activities of vastus medialis obliquus and vastus lateralis were measured during cycling.**RESULTS:** iEMG activities of vastus medialis obliquus increased as angular velocity increased ($p<0.05$). The vastus medialis obliquus : vastus lateralis iEMG ratio at 60 RPM was significantly greater than the ratio at 30 RPM ($p<0.05$).**CONCLUSION:** Preferential vastus medialis obliquus activation was achieved by isokinetic cycling at high angular velocity. This suggests the meaningful therapeutic protocol for the patients with patellofemoral pain syndrome in altering neuromuscular imbalance between vastus medialis obliquus and vastus lateralis.

Affiliation:

Department of Rehabilitation Medicine, College of Medicine, The Catholic University of Korea. jeongyi@gmail.com

Department of Physical Medicine & Rehabilitation, University of Chungbuk College of Medicine, Korea.