

عنوان مقاله:

Sex Differences in Neuromuscular Fatigability of the Vastus Medialis Oblique Muscle

محل انتشار:

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خلاصه مقاله:

Background: An appropriate activity of the vastus medialis oblique (VMO) muscle is important to resist against lateral pull of the vastus lateralis (VL) muscle during knee extension. Females utilize different muscular activation patterns compared to males, and therefore their VMO adaptation to fatiguing exercise may be different from the male. The aim of this study was to investigate sex differences in neuromuscular fatigability of the VMO muscle during submaximal fatiguing sustained contraction. Methods: ۲۴ subjects (۱۲ female and ۱۲ male) were recruited for this study. Maximal isometric voluntary contraction (MIVC), and electromyography (EMG) signals from the VMO muscle was recorded before and after fatiguing sustained contraction at the level of ۵۰% MVIC. Root mean square (RMS) and mean power frequency (MPF) was computed from raw EMG signals. Results: In men, maximal isometric voluntary contraction of quadriceps muscle was significantly higher than women ($P > ۰.۰۵$). Besides, the female participants showed a longer time to task failure over fatiguing sustained contraction as compared to male ($P > ۰.۰۵$). Moreover, EMG RMS significantly increased and MPF decreased over fatiguing sustained contraction. Change in EMG RMS and EMG MPF for female was significantly larger than the male ($P > ۰.۰۵$). Women showed a greater change in EMG features for the VMO muscle as compared to men during fatiguing sustained contraction. Conclusion: The results indicate that VMO muscle in female is more susceptible to fatigue during a fatiguing sustained contraction as compared to male. As a result, it may increase the risk of patellofemoral malalignment and knee injuries in females.

کلمات کلیدی:

Vastus Medialis Oblique, Surface EMG, Sustained Contraction, Sex Differences

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