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Comparision of muscle activity of abductor hallucis in subjects with mild hallux valgus during three different foot exercise

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Hallux valgus (HV) is clinical impairment of foot. HV is occurred due to weakness of abductor hallucis muscle. Short foot exercise (SF) and Toe spread out exercise (TSO) are the existing strengthening exercises for abductor hallucis. The purpose of this study was to investigate a more effective exercise than SF and TSO to activate abductor hallucis muscle (AbH). The sixteen subjects with mild hallux valgus were participated. Three exercises were performed in subjects with hallux valgus for SE, TSO, and TSO with pressure biofeedback unit (TSOP). Electromyography (EMG) was used to collect EMG signals from AbH. Any significant difference in EMG activity of AbH among the three conditions (SF vs. TSO vs. TSOP) was assessed using a one-way repeated ANOVA with the Bonferroni post hoc test. As a EMG value of AbH appeared 19.99% (SF), 60.97% (TSO), 89.61% (TSOP)($p<0.01$). TSOP exercise showed the greatest AbH muscle activity among three different exercises. This result uggested that TSOP was the most effective exercise for strengthening the Abductor haullcis.

keyword: Hallux valgus; Pressure biofeedback unit; Short-foot exercise; Toe Spread Out exercise.

Biography

In-cheol Jeon is currently assistant professor in the Department of Physical Therapy at the College of Life & Health Science, Hoseo University. He received the Ph.D. degree from Yonsei University in 2017. He is interested in the mechanism of movement impairment, biomechanics, and development of therapeutic intervention approach through movement analysis and EMG study for movement disorders and musculoskeletal disease.

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