붙임 3. 초록 예시

PTK 구연발표 ( ) / 포스터발표 (O)

Comparison of Lower Extremity Kinematics and EMG Activity Between Subjects With and Without Gluteus Medius Weakness During Single Leg Wall-Squat

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Squat exercises are commonly used to strength hip muscles. Various types of squat exercises exist, including the single leg wall-squat exercise. The purpose of this study was to compare healthy subjects and subjects with gluteus medius (Gmed) weakness during single leg wall-squat exercise with regard to the lower extremity kinematics (hip adduction and knee valgus angle), and the muscle activity of Gmed, gluteus maximus (Gmax), tensor fasciae latae (TFL), and the Gmed/TFL, GMAX/TFL, GMED/GMAX ratios. We recruited fourteen healthy subjects and fourteen subjects with Gmed weakness to participate in this study. Gmed manual muscle testing was performed to distinguish between the healthy group and Gmed weakness group. Gmed muscle strength was graded 0, 1, 2, 3, 4 or 5/5, then grouped as either 'healthy group' (4 or 5/5) or 'Gmed weakness group' (3/5 or less). Surface electromyography was used to measure the muscle activity of the Gmed, Gmax, and TFL of the dominant side (the side used when kicking a ball) and two-dimensional motion analysis was used to identify the hip adduction and knee valgus angle while the subjects performed the single leg wall-squat exercise, with 60° knee flexion. Independent t-test was used to compare the hip adduction and knee valgus angle, the muscle activity (Gmed, Gmax, and TFL), and the Gmed/TFL, Gmax/TFL, Gmed/Gmax ratios between the healthy and Gmed weakness group. No significant differences were seen in the hip adduction and knee valgus angle between the healthy and Gmed weakness group ($p>.05$). Likewise, no significant differences were seen in the muscle activity of Gmed, Gmax, TFL and the activity ratio of Gmed/TFL, Gmax/TFL, Gmed/Gmax between the healthy and Gmed weakness group ($p>.05$). Based on these results, the Gmed weakness group has similar kinematics and electromyographic characteristics as the healthy group in the single leg wall-squat exercise. These findings indicate that the single leg wall-squat exercise may be recommended to improve the weak Gmed.

Key Words: Electromyography; Gluteus medius weakness; Kinematics; Single leg squat.