Abstract

BACKGROUND: Proximal factors have been proposed to influence the biomechanics of the patellofemoral joint. A delayed or diminished gluteus medius (GM) activation, before the foot contact on the ground during functional activities could lead to excessive femur adduction and internal rotation and be associated with anterior knee pain (AKP). There are few studies on this topic and the results were inconclusive, therefore, it is necessary to investigate the GM preactivation pattern during functional activities. OBJECTIVE: To compare the GM electromyographic (EMG) preactivation pattern during walking, descending stairs and in single leg jump task in women with and without AKP. METHODS: Nine women clinically diagnosed with AKP and ten control subjects with no history of knee injury participated in this study. We evaluated GM EMG linear envelope before the foot contact on the ground during walking and GM onset time and EMG linear envelope during descending stairs as well as in a single leg vertical jump. Mann-Whitney U tests were used to determine the between-group differences in GM EMG preactivation pattern. RESULTS: No between-group differences were observed in GM linear envelope during walking (P=0.41), GM onset time and linear envelope during descending stairs (P=0.17 and P=0.15) and single leg jump (P=0.81 and P=0.33). CONCLUSIONS: Women with AKP did not demonstrated altered GM preactivation pattern during functional weight bearing activities. Our results did not support the hypothesis that poor GM preactivation pattern could be associated with AKP.

Keywords

Anterior knee pain, hip muscle, surface EMG.