

Trunk and Gluteus-Medius Muscles' Fatigability during Occupational Standing in Clinical Instructors with Low Back Pain

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Abstract : Background: Occupational standing is associated with low back pain (LBP) development. Yet, trunk and gluteus-medius muscles' fatigability has not been extensively studied during occupational standing. This study examined and correlated the rectus abdominus (RA), erector-spinae (ES), external oblique (EO), and gluteus-medius (GM) muscles' fatigability on both sides while standing in a confined area for 30 min. Methods: Median frequency EMG data were collected from 15 female clinical instructors with chronic LBP (group A) and 15 asymptomatic controls (group B) (mean age 29.53 ± 2.4 vs. 29.07 ± 2.4 years, weight 63.6 ± 7 vs. 60 ± 7.8 kg, and height 162.73 ± 4 vs. 162.8 ± 6 cm respectively) using a spectrum analysis program. Data were collected in the first and last 5min of the standing task. Results: Using Mixed three-way ANOVA, group A showed significantly ($p < 0.05$) lower frequencies for the right and left ES, and right GM in the last 5 min and significantly higher frequencies for the left RA in the first and last 5min than group B. In addition, the left ES and right EO, ES and GM in group B showed significantly higher frequencies and the left ES in group A showed significantly lower frequencies in the last 5min compared with the first. Moreover, the right RA showed significantly higher frequencies than the left in the last 5min in group B. Finally, there were significant ($p < 0.05$) correlations among the median frequencies of the tested four muscles on the same side and between both sides in both groups. Discussion/Conclusions: Clinical instructors with LBP are more liable to have higher trunk and gluteus-medius muscle fatigue than asymptomatic individuals. Thus, endurance training for these muscles should be included in the rehabilitation of such patients.

Keywords : EMG, fatigability, gluteus-medius, LBP, standing, trunk

Conference Title : ICBM 2014 : International Conference on Biomechanics

Conference Location : Madrid, Spain

Conference Dates : March 27-28, 2014