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Muscle fatigue response of rotator cuff muscles in sitting and standing postures

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Rotator cuff muscle fatigue is a leading cause of rotator cuff muscle pathologies. Rotator cuff muscle fatigue can be monitored by surface electromyography. As scapular orientation can be affected by changes in thoracic spine accounted due to differences in body positions leading to altered rotator cuff muscle activation, there arises a need to analyse fatigue in these positions. The study includes 50 shoulders, with no existing shoulder and spine pathologies. Raw data was recorded using software EMG sensors for rotator cuff muscles during isometric abduction and external rotation maneuvers performed at 30 %MVC at 30o, 45o, and 90o arm elevation in sitting and standing. The raw data was analyzed and the mean power frequency (MPF) was extracted and entered into statistical package for social sciences (SPSS). The Wilcoxon Signed rank test was used to analyse the difference in fatigue between sitting and standing. The MPF of supraspinatus muscle decreased significantly in standing position, during the fatiguing activity performed at 90o of arm elevation ($p > 0.05$). The results suggest that alterations in the body position, affect the muscle activity of the rotator cuff muscles.