



**Effect of Pelvic Inclination on Neuromuscular Activation of Selected Muscles
During a Jump Down Task**

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PURPOSE: This investigation determined if the angle of pelvic inclination, viewed in the sagittal plane, affects the neuromuscular activation strategy of selected trunk and lower extremity muscles in asymptomatic, physically active females, during a jump down task.

METHODS: Two groups of physically active females (mean age= 22.22 ± 2.96 yrs., mean ht. = 166.39 ± 6.67 cm., mean wt.= 64.15 ± 13.39 kg.) selected by sagittal view pelvic inclination were evaluated. The neutral pelvic position group (n=10) was defined as those with pelvic inclination from 0-5 degrees (mean = 2.72 ± 1.74 degrees). The anterior inclination position group (n=10) was defined as those with pelvic inclination ≥ 10 degrees (mean = 17.26 ± 2.52 degrees). Subjects were instructed to jump down from a 40 cm. box, leading with the dominant foot and using a two footed landing. EMG amplitude values were reported as mean normalized root means square in percent (%) for each of the six muscles, rectus abdominis, external oblique, erector spinae, gluteus maximus, rectus femoris and biceps femoris. The Electromyographic (EMG) data were analyzed using a two way, (group by muscle) factorial design ANOVA with repeated measures on the last factor.

RESULTS: No statistically significant differences were found for any of the muscle amplitude data.

CONCLUSIONS: This suggests that the position of the pelvis did not play a significant mechanical role in the neuromuscular recruitment of the trunk and lower extremity muscles as measured by EMG. However, clinicians should be cautious of discarding the practice of rehabilitating patients in the neutral pelvic position. Future research should select other variables that may better reflect the stability of the system such as center of force.