

The effect of different standing and sitting postures on trunk muscle activity in a pain-free population.

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STUDY DESIGN: A normative, single-group study was conducted. **OBJECTIVE:** To determine whether there is a difference in electromyographic activation of specific lumbopelvic muscles with the adoption of common postures in a pain-free population. **SUMMARY OF BACKGROUND DATA:** Clinical observations indicate that adopting passive postures such as sway standing and slump sitting can exacerbate pain in individuals with low back pain. These individuals often present with poor activation of the lumbopelvic stabilizing musculature. At this writing, little empirical evidence exists to document that function of the trunk and lumbopelvic musculature are related to the adoption of standardized standing and sitting postures. **METHODS:** This study included 20 healthy adults, with equal representation of the genders. Surface electromyography was used to measure activity in the superficial lumbar multifidus, internal oblique, rectus abdominis, external oblique, and thoracic erector spinae muscles for four standardized standing and sitting postures. **RESULTS:** The internal oblique, superficial lumbar multifidus, and thoracic erector spinae muscles showed a significant decrease in activity during sway standing ($P = 0.027$, $P = 0.002$, and $P = 0.003$, respectively) and slump sitting ($P = 0.007$, $P = 0.012$, and $P = 0.003$, respectively), as compared with erect postures. Rectus abdominis activity increased significantly in sway standing, as compared with erect standing ($P = 0.005$). **CONCLUSIONS:** The findings show that the lumbopelvic stabilizing musculature is active in maintaining optimally aligned, erect postures, and that these muscles are less active during the adoption of passive postures. The results of this study lend credence to the practice of postural retraining when facilitation of the lumbopelvic stabilizing musculature is indicated in the management of specific spinal pain conditions.