

Analysis of Trapezius Muscle Activity using Electromyography (Emg) and Craniovertebral Angle During Anterior Loading in Individuals with Acute Neck Pain - An Observational Study

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Abstract

Introduction: mechanism of anterior load carriage involves examining how the human body reacts and moves when bearing loads positioned in front. this mode of load carrying is prevalent in everyday scenarios like transporting backpacks.

Methods: this is a case control study in which participants would be screened for eligibility criteria. case group (individuals with acute neck pain) and control group (healthy individuals) would be given a task to carry a barbell of 3kg at three different levels (knuckle height, elbow height, shoulder height) followed by which the electromyographic activity of upper trapezius and craniovertebral angle will be analyzed simultaneously. photographic method would be used for analyzing the craniovertebral angle and the angle is measured using kinovea software.

Results: the statistical analysis revealed that there is a significant change in the emg activity of upper trapezius and cva angle in both the groups (p value < 0.01). although, there is greater muscle activation and deviation in cva noted in case group. hence, anterior load carriage leads to significant changes in craniovertebral angles, suggesting alterations in head and neck posture.

Conclusion: this study provides valuable insights into the biomechanical implications of anterior loading in individuals with acute neck pain. these findings underscore the importance of ergonomic interventions and rehabilitation strategies aimed at minimizing discomfort and preventing exacerbation of neck pain in daily activities involving anterior load carriage.