

# CHARACTERIZATION OF CERVICAL SPINE IMPAIRMENTS IN CHILDREN AND ADOLESCENTS POST-CONCUSSION

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## ABSTRACT

**Background:** Patients with concussion may present with cervical spine impairments, therefore accurate characterization of cervical post-concussion impairments is needed to develop targeted physical therapy interventions.

**Purpose:** To characterize the type, frequency and severity of cervical impairments in children and adolescents referred for physical therapy after concussion.

**Study design:** Retrospective, descriptive study

**Methods:** A retrospective analysis was conducted for 73 consecutive children and adolescents who received cervical physical therapy following a concussion. Data was classified into six broad categories. The frequency and intensity of cervical impairments within and across the categories was reported.

**Results:** Ninety percent of patients demonstrated impairments in at least three out of five assessment categories whereas 55% demonstrated impairments in at least four out five assessment categories. Of the five assessment categories, posture (99%) and myofascial impairment (98%) demonstrated highest impairment frequency followed by joint mobility (86%) and muscle strength (62%). Cervical joint proprioception was the least commonly evaluated assessment category.

**Conclusion:** High prevalence of cervical spine impairments was observed in the subjects included in this study with muscle tension, joint mobility, and muscle strength being most commonly affected. The categories of impairments examined in this cohort were consistent with the recommendations of the most recent clinical practice guidelines for neck pain. This study provides preliminary data to support the framework for a cervical spine evaluation tool in children and adolescents following concussion.

**Level of evidence:** Level 4

**Key words:** Cervicogenic, movement system, traumatic brain injury, youth

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