

ORIGINAL RESEARCH

PERFORMANCE OF HIGH SCHOOL FOOTBALL PLAYERS ON CLINICAL MEASURES OF DEEP CERVICAL FLEXOR ENDURANCE AND CERVICAL ACTIVE RANGE OF MOTION: IS HISTORY OF CONCUSSION A FACTOR?

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ABSTRACT

Background: More than one million adolescent athletes participated in organized high school sanctioned football during the 2014-15 season. These athletes are at risk for sustaining concussion. Although cervical spine active range of motion (AROM) and deep neck flexor endurance may serve a preventative role in concussion, and widespread clinical use of measurements of these variables, reference values are not available for this population. Cost effective, clinically relevant methods for measuring neck endurance are also well established for adolescent athletes.

Purpose: The purpose of this study was to report reference values for deep cervical flexor endurance and cervical AROM in adolescent football players and examine whether differences in these measures exist in high school football players with and without a history of concussion.

Methods: Concussion history, cervical AROM, and deep neck flexor endurance were measured in 122 high school football players. Reference values were calculated for AROM and endurance measures; association were examined between various descriptive variables and concussion.

Results: No statistically significant differences were found between athletes with a history of concussion and those without. A modest inverse correlation was seen between body mass and AROM in the sagittal and transverse planes.

Conclusion: The results of this study indicate that the participants with larger body mass had less cervical AROM in some directions. While cervical AROM and endurance measurements may not be adequate to identify adolescents with a history of previous concussions among high school football players. However, if a concussion is sustained, these measures can offer a baseline to examine whether cervical AROM is affected as compared to healthy adolescents.

Level of Evidence: 2c

Key Words: Adolescents, craniocervical flexion, concussion, performance measures

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