A Comparison of Postural Control Assessments Following an Acute Bout of Soccer Heading.
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**Context:** In soccer an athlete repetitively heads the ball during daily practice and competitive matches. Previous research has shown that soccer heading does not cause brain injury evaluated by assessing alterations in postural control. However, alterations may not have been found due to a lack of sensitivity of testing measures. Approximate entropy (ApEn) is a statistic that examines the regularity of a time series (e.g., center of pressure) and has been reported to enable detection of postural control alterations up to 3-5 days post mild traumatic brain injury. **Objective:** To examine the effects of soccer heading on postural stability measures. **Design:** A repeated measures randomized control study. **Setting:** University Athletic Training Laboratory and a Virtual Environment and Postural Organization Laboratory. **Participants:** Sixteen (experimental group N = 7, age = 20.57 ± 0.79 yrs, height = 167.71 ± 11.04 cm, body mass = 70.11 ± 13.06 kg; control group N = 9, age = 21.11 ± 1.45 yrs, height = 172.78 ± 10.04 cm, body mass = 74 ± 7.55 kg) soccer players with at least 5 years of soccer heading experience. Institutional Review Board approval and participant written informed consent were obtained prior to data collection. **Intervention:** The independent variables were group (experimental vs. control) and time (pre test, 1 hr post test, 24 hrs post test, 48 hrs post test). Participants were randomly assigned to the control or experimental group. The experimental group performed 10 standing headers of soccer balls projected at 25 mph in 10 minutes. The control group performed simulated headers (i.e., no contact with the ball). Both groups performed a modified sensory organization test (SOT) and postural control measures were obtained using a two-embedded force plate (AMTI, Inc.). Testers were blinded to group assignment. Data were analyzed using separate 2 (group) x 3 (time) analyses of covariance using SPSS 15.0 (p<0.05). Pre-test scores were used as covariates. **Main Outcome Measures:** The main outcome measure was the center of pressure time series. ApEn values (range 0 – 2) were calculated from the time series in the medial-lateral and anterior-posterior directions. **Results:** The analyses of covariance indicated no significant group by time interaction effects (p>0.05) for ApEn data. **Conclusion:** No acute changes in a sensitive postural control measure, i.e. ApEn, occurred in athletes following multiple soccer headers using a ball velocity of 25 mph. Our results agree with previous literature stating that an acute bout of soccer heading does not result in any significant postural control alterations. Future research should include increased ball velocities to simulate collegiate game conditions as well as incorporating more rigorous sensory perturbations during the postural assessment to increase the robustness of the assessment (e.g., altering the visual field using a virtual environment). **Word Count = 448**