

Association of Cognitive Function and Water Polo Exposure with Sports Injuries in Youth Water Polo Players

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Abstract

Water polo is highly demanding contact team sport combining physical contact with high cognitive demands, exposing athletes to sports-related injuries. This study investigated associations between cognitive performance, cumulative water polo exposure and injury history in youth water polo players. Total of 161 participants (103 males, 58 females; mean age 15.76 ± 1.53 years) participated in this study. Sports-related injury history was assessed using an online questionnaire. Cognitive performance was evaluated with the computerized Stroop test. Sport exposure time was extracted from the official Croatian Water Polo Federation database. Overall sports-related, head and orofacial injuries were reported by 93 (57.8%), 65 (40.4%), and 51 (33.8%) players, respectively. Players with head injury history had lower Stroop OffTime ($55.90 \text{ s} \pm 6.46 \text{ s}$ vs $58.56 \pm 8.72 \text{ s}$, $P=0.028$) and OffTime+OnTime ($118.63 \pm 16.10 \text{ s}$ vs $125.10 \pm 22.11 \text{ s}$, $P=0.033$) in unadjusted comparisons, while these differences were attenuated after adjustment. Each additional year of water polo participation was associated with 34% higher odds of head injury (aOR=1.34, 95% CI 1.08–1.65; $P=0.007$). Cumulative water polo exposure, particularly longer participation, appears more strongly associated with head injury history than the cognitive measures assessed. Prospective longitudinal studies are needed to clarify these relationships.

Keywords

Water polo, cognitive functions, sports injuries, head injuries, orofacial injuries.

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