

# Study finds no link between years of football play and cognitive function in adolescent athletes

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A new study presented today at the 2014 Annual Meeting of the American Academy of Orthopaedic Surgeons (AAOS) found no link between neurocognitive function and years of football play in adolescent athletes.

According to the U.S. Centers for Disease Control (CDC), between 1.6 and 3.8 million sports and recreation-related concussions occur each year in the U.S., most of which go untreated by medical professionals. Concussions and sub-concussive hits (repeated head blows without immediate, visible signs or symptoms of neurological damage) are especially common in high school football. Several recent research studies have found a link between sub-concussive head blows in football and neurocognitive decline in adolescents.

In a new study, researchers retrospectively reviewed data obtained between August 1998 and August 2001 on 1,289 New Orleans [high school football](#) players, including years of participation, age and concussion history, as well as scores on common neuropsychological tests: digit symbol substitutions (DSS), pure reaction time (PRT) and choice reaction time (CRT). The mean player age was 15.9, and the mean play time, 4.4 years. Only 4 percent of the athletes in the study suffered a sport concussion.

Age was positively related to performance on the DSS task, but years of

football remained significantly and positively associated with DSS after controlling for age. There was no association between history of concussion and DSS, despite adding concussion to the model with years of football participation, and no significant association between years of football participation and PRT.

"The correlation between the number of years of football participation and the performance on the digit symbol substitution test does not support the hypothesis that participation in a collision sport negatively affects neurocognitive function," said Gregory W. Stewart, MD, co-director of the Sports Medicine Program and associate professor of orthopaedics at the Tulane School of Medicine, and lead author of the study. "The implication is that the playing of [football](#) is not in and of itself detrimental."

However, the research does "reinforce the need to educate high school and college athletes to better understand the importance of being honest about their (concussion) symptoms so that they can be treated appropriately," said Dr. Stewart, who also is chief of the Division of Physical Medicine and Rehabilitation at Tulane. "Many kids play with symptoms that they don't necessarily equate with a concussion."

Concussion symptoms include balance problems, dizziness, drowsiness, fatigue, difficulty concentrating or communicating, headache, irritability, memory difficulties, nausea, vomiting, nervousness, numbness or tingling, sensitivity to light or noise, sleeping more than usual or having difficulty falling asleep, vision problems, feeling emotional or mentally foggy, according to STOP (Sports Trauma and Overuse Prevention) Sports Injuries, a national education program to prevent overuse and traumatic injuries in kids. The program is a collaborative effort initiated by the American Society of Sports Medicine (ASSOM), in partnership with AAOS and eight other health and child advocacy organizations, to keep kids on the field and out of the

operating room.

Provided by American Academy of Orthopaedic Surgeons

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