



American  
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### **Researchers Find Evidence That Brain Changes Can Result From Participation in One Year of Contact Sports**

**SAN FRANCISCO** (April 8, 2014) — The impact of mild traumatic brain injury (mTBI), TBI, concussion and other head injuries associated with contact sports is a critical area of research within the field of neurosurgery. Today during the 82<sup>nd</sup> Annual Scientific Meeting of the American Association of Neurological Surgeons (AANS), researchers led by Alexander K. Powers, MD, presented the results of a study to determine the cumulative effects of head impacts as they relate to changes in the brain absent of concussion.

For the study *Abnormal white matter integrity related to head impact exposure in a season of high school varsity football*, the study looked at 45 players from a local high school football team during the 2012 season, none of whom experienced clinical concussion. Players were instrumented with the Head Impact Telemetry System (HITS). Each player received a pre- and post-season MRI scans, and total impacts and risk weighted cumulative exposure (RWE) were computed from the helmet sensor for each player.

The study researchers concluded that based on the findings, a single season of football play can produce MRI measurable brain changes that have been previously association with mTBI — adding to the increasing amounts of literature demonstrating that a season of participation in a contact sport can show changes in the brain in the absence of concussion or clinical findings.

Study co-authors are Elizabeth Davenport, MS; Jillian Urban, MS; Christopher Whitlow, MD, PhD; Mark Espeland, PhD; Joseph Maldjian, MD; Youngkyoo Jung, PhD; and Joel Stitzel, PhD.

*Disclosure: The author reported no conflicts for disclosure.*

**Media Representatives:** The 2014 AANS Annual Meeting Press Kit includes releases on highlighted scientific research, AANS officer and award winners, National Neurosurgery Awareness Week, and other relevant information about this year's program. Those releases also will be posted under the Media area on the 2014 AANS Annual Scientific Meeting website ([http://www.aans.org/Annual Meeting/2014/Main/Media.aspx](http://www.aans.org/Annual%20Meeting/2014/Main/Media.aspx)). If you would have interest in a topic related to neurosurgery or would like to interview a neurosurgeon — either onsite or via telephone — during this year's event, please contact John Iwanski, AANS Director of Integrated Marketing and Website Communications, via the onsite press room at 415.978.3603 or e-mail him at [jai@aans.org](mailto:jai@aans.org).

**About the 2014 AANS Annual Scientific Meeting:** Attended by neurosurgeons, neurosurgical residents, medical students, neuroscience nurses, clinical specialists, physician assistants, allied health professionals and other medical professionals, the AANS Annual Scientific Meeting is the largest gathering of neurosurgeons in the nation, with an emphasis on the field's latest research and technological advances. A record-breaking 1,321 scientific abstracts were presented for review at the 2014 AANS Annual Scientific Meeting, and the scientific presentations given at this year's event represent cutting-edge examples of the incredible developments taking place within the field of neurosurgery. Additional information about the AANS Annual Scientific Meeting and the Meeting Program can be found at [http://www.aans.org/Annual Meeting/2014/Main/Home.aspx](http://www.aans.org/Annual%20Meeting/2014/Main/Home.aspx).

*Founded in 1931 as the Harvey Cushing Society, the American Association of Neurological Surgeons (AANS) is a scientific and educational association with nearly 8,600 members worldwide. The AANS is dedicated to advancing the specialty of neurological surgery in order to provide the highest quality of neurosurgical care to the public. All active members of the AANS are certified by the American Board of Neurological Surgery, the Royal College of Physicians*

*and Surgeons (Neurosurgery) of Canada or the Mexican Council of Neurological Surgery, AC. Neurological surgery is the medical specialty concerned with the prevention, diagnosis, treatment and rehabilitation of disorders that affect the entire nervous system including the spinal column, spinal cord, brain and peripheral nerves. For more information, visit [www.AANS.org](http://www.AANS.org).*

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