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PRESS RELEASE

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**CLEVELAND CLINIC AWARDED GRANT FROM NFL CHARITIES TO STUDY
CONCUSSIONS IN YOUTH SPORTS**

Researchers to Study How the Neck Influences Head Injuries

Wednesday, February 2, 2011 – Cleveland – Researchers in Cleveland Clinic’s Spine Research Laboratory, the Department of Neurosurgery and the Center for Spine Health recently won a \$100,000 award from NFL Charities to study the neck’s role in mitigating or exacerbating blows to the head and its influence on concussions in young athletes.

Most of the current body of research on concussion focuses strictly on head impact. The research underway at Cleveland Clinic and funded by NFL Charities, the charitable foundation of the National Football League (NFL) owners, will study the influence of the neck and spine on football-related concussions, as well as conducting tests to benchmark youth football helmet injury protection. The U.S. Centers for Disease Control and Prevention reports that as many as 3.8 million sport and recreation concussions occur each year. And according to the American Association of Neurological Surgeons, football player head injuries are the second most common reason for ER visits among children ages 14 and younger.

“We’re particularly interested in understanding how rotational head and neck dynamics factor into concussive injury for youth players, who are usually outfitted with scaled-down versions of adult helmets,” said Adam J. Bartsch, PhD, principle investigator on the study and Director of the Spine Research Laboratory at Cleveland Clinic. “This study could have major implications for youth football where disparities in neck muscle strength and head mass compared to adult players may put the youth athlete at increased risk of concussion.”

The study is also expected to yield significant insight into youth helmet design, standardized helmet testing protocols, and the application of on-field head impact data collection. As part of the on-field head impact data collection, Bartsch and his colleagues have recently developed the Cleveland Clinic Intelligent Mouthguard. A prototype, this wireless device uses miniaturized MEMS technology to measure in-game head impact dynamics for contact sports, like football and boxing.



The Intelligent Mouthguard contains sensors to measure linear and rotational head movement. Using Bluetooth technology, the mouthguard data is transmitted to a computer on the sideline or ringside to measure head orientation, position, velocity and acceleration of the impact. The transmitted data is later compared with results of post-game neurological and motor tests as a way to assist athletic trainers and physicians with the rapid diagnosis of injury.

It is anticipated that the Intelligent Mouthguard will supply statistics to assist in the design of safer helmets and equipment in order to decrease the number of traumatic brain injuries in athletes of all ages.

Cleveland Clinic's Spine Research Laboratory is a state-of-the-art facility, housed at Cleveland Clinic's Lutheran Hospital and dedicated to improving quality of life for people with spinal disorders through innovation, translation of promising basic science research to clinical application, and education of aspiring spine researchers and clinicians. For more information on the lab and concussion-related research underway at Cleveland Clinic, visit

About Cleveland Clinic

Cleveland Clinic, located in Cleveland, Ohio, is a not-for-profit multispecialty academic medical center that integrates clinical and hospital care with research and education. It was founded in 1921 by four renowned physicians with a vision of providing outstanding patient care based upon the principles of cooperation, compassion and innovation. *U.S. News & World Report* consistently names Cleveland Clinic as one of the nation's best hospitals in its annual "America's Best Hospitals" survey. About 2,100 full-time salaried physicians and researchers and 11,000 nurses represent 120 medical specialties and subspecialties. In addition to its main campus, Cleveland Clinic operates nine regional hospitals and 15 Family Health Centers in Northeast Ohio, Cleveland Clinic Florida, the Lou Ruvo Center for Brain Health in Las Vegas, Cleveland Clinic Canada, and opening in 2012, Cleveland Clinic Abu Dhabi. In 2009, there were more than 4.6 million visits throughout the Cleveland Clinic health system and 170,000 hospital admissions. Patients came for treatment from every state and from more than 100 countries. Visit us at www.clevelandclinic.org.

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