

# Kentucky ATC Newsletter

**UK**HealthCare

**Sports-related Concussion  
- Michelle Mattingly, PhD**

**Orthopaedic Surgery  
& Sports Medicine**

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Sports injuries are the second leading cause of concussion in the United States (Zillmer & Spiers, 2001), leading to over 300,000 cases of mild traumatic brain injury each year (Thurman & Guerrero, 1999). Though sports-related head injury has been documented since the time of the ancient Olympic games, the depth and breadth of concussion's neurocognitive effects on the human brain have only recently received attention. Symptoms of concussion may range from obvious signs, such as loss of consciousness and headache, to less immediately noted indicators such as slowed processing speed, impaired attention, and academic difficulty. Sports-related concussions secondary to diffuse rotational and linear forces acting on the brain may result in the shearing of axons and other biochemical changes that typically occur in the subcortical and frontotemporal regions (Zillmer & Spiers, 2001). Furthermore, metabolic changes in the brain may persist even after the apparent resolution of symptoms. These metabolic changes may be exacerbated if the athlete sustains another concussion after returning to play too soon, and can lead to a potentially deadly condition called second-impact syndrome. In addition, an athlete who suffers multiple concussions during their sport's career may be at increased risk for degenerative brain diseases. Therefore, all reasonable steps should be taken to detect, assess, treat, and prevent concussion. In fact, the Second International Conference on Concussion in Sport has declared "quick and thorough" evaluation of concussion the standard of care in the field.

Assessment of an athlete's mental status immediately following injury (i.e., sideline evaluation) should focus on finding more subtle symptoms of concussion, as most athletes show no obvious signs of mild traumatic brain injury and some symptoms may only develop later. Headache, dizziness, confusion, and blurred vision are the most commonly reported symptoms; however, it is important to note that one study found that only 47% of athletes reported *any* symptoms to other people (McCrea et al., 2004), and another found that one-third of athletes denying symptoms during the game developed symptoms three hours later (Guskiewicz et al., 2003). The Standardized Assessment of Concussion (SAC) is a commonly used, brief, portable, and objective measure of mental status developed by McCrea and colleagues (1997). This tool assesses those cognitive functions most sensitive to dysfunction in mild traumatic brain injury.

Sideline evaluation should be followed up by formal neuropsychological testing as soon as possible after the injury. Computerized assessment of concussive symptoms has increased in popularity over the past several years secondary to its ease and efficiency of administration to a large number of athletes, improved accuracy in measurement of timed tasks, and reduced need for more advanced training required by paper-and-pencil tests. Computerized assessment evaluates cognitive domains of memory, reaction time, working memory, and processing speed. It is useful for identifying neurocognitive deficits, tracking process toward recovery, and assisting in return-to-play decisions (Schatz & Zillmer, 2003).

## Sports-related Concussion cont...

Given the variety of symptoms players may suffer, the potential for re-injury if returned to play too soon, tendency of athletes to under-report and under-recognize concussive symptoms, and the notorious and insistent "I can play, coach!" attitude, sports-related concussion presents the athletic trainers, coaches, and physicians with a number of difficult decisions about treatment and return-to-play. Therefore, the need to educate the athlete, coach and parents about concussive symptoms, and the accurate identification, assessment, management and follow-up post-concussion are critical. The best form of prevention for serious injury is proper management of concussion.

*Dr. Michelle Mattingly is a Neuropsychologist and Director of the Sports Concussion Program in the Department of Neurology at the University of Kentucky Medical Center. She offers a comprehensive sports concussion program capable of providing pre-season baseline assessment, post-concussion assessment and assistance in return-to-play decisions with athletes in youth sports, high school, college and professional levels. Information about this program can be obtained by calling 859-323-0229.*

## Free Communications at the NATA Convention, Please Attend and Support Your Fellow Kentucky ATC's

### Meet our Sports Medicine Team

#### Our Physicians:

Darren Johnson, MD  
Scott Mair, MD  
Robert Hosey, MD  
Kyle Parish, MD

#### Our Athletic Trainers:

Sheri McNew, ATC  
Rob Ullery, ATC  
Tim Pike, ATC  
David Jacobs, ATC  
Jenni Williams, ATC  
Greg Jackson, ATC  
Carly Manghelli, ATC  
David Brajuha, ATC  
Kara Frey, ATC

(859) 323-5533

[www.mc.uky.edu/orthopaedics](http://www.mc.uky.edu/orthopaedics)

### POSTER PRESENTATION

#### **Thursday, June 15<sup>th</sup>, 2:30-3:30pm**

*Acute Shoulder Deformity In A 14 Year Old Football Player*  
Carly Manghelli, ATC

### ORAL PRESENTATIONS

#### **Friday, June 16<sup>th</sup>, 9:45-11:15am**

Room B401  
Dustin Briggs, ATC and Lori Bolgla, ATC

#### **Friday, June 16<sup>th</sup>, 11:30am – 12:30pm**

Room B401  
Brady Tripp, ATC and Eric Yochem, ATC

#### **Saturday, June 17<sup>th</sup>, 8:15 – 11:45am**

Room B403  
Patricia McGinn, ATC

#### **Sunday, June 18<sup>th</sup>, 8:15 – 9:15am**

Room B401  
Greg Jackson, ATC

#### **Sunday, June 18<sup>th</sup>, 10:45am – 12:45pm**

Room B402  
Jenifer LaFalce, ATC

#### **Sunday, June 18<sup>th</sup>, 10:15 – 11:15am**

Room B402  
Rob Ullery, ATC

#### **Sunday, June 18<sup>th</sup>, 11:30am – 12:45pm**

Room B402  
Rebecca McClelland, ATC and  
Jennifer Sebert, ATC

## Glenoid Neck Fracture in a Male Collegiate Football Player: A Case Report

### -Anthony Hill, ATC

**Background:** A 20-year old sophomore wide receiver (height= 193.04cm, mass= 83.91kg) without prior injury to involved extremity was hit on the superior aspect of his right shoulder while attempting to block a teammate. He complained of immediate pain and inability to move the extremity in a full range of motion. Upon initial examination, he was able to actively internally and externally rotate his shoulder ten degrees in each direction. He did not feel his shoulder dislocate at any time. No special tests were performed due to the athlete's pain with any type range of motion. He was point tender over the lateral and posterior surfaces of his shoulder. Vascular and/or neurological symptoms were within normal limits. Due to pain and dysfunction, the athlete was placed in a sling for support. No radiographic images were requested by the team physician based on the history given by the athlete. The following day the athlete complained of similar symptoms and inability to actively move the extremity through a range of motion. It was then decided radiographic images were necessary to rule out any fracture(s).

**Differential Diagnosis:** Anterior/posterior glenohumeral subluxation, anterior/posterior glenohumeral dislocation, glenoid labral tear, scapular spine fracture, rotator cuff tear.

**Treatment:** X-rays and CT scan revealed a glenoid neck fracture which was displaced approximately 2 centimeters (cm) from the articular cartilage on the glenoid. Based on the results of x-rays, surgical intervention was necessary at this time. Surgical intervention required extensile posterior approach to reduce and perform the internal fixation. The fracture was reduced using 2 fixation plates and 9 screws. The athlete was immobilized with a sling for 3 weeks. Prior to removal of sling, the athlete was able to activate his deltoid and actively elevate about 60 degrees of abduction and flexion. Rehabilitation consisted of light passive and active elevation in the scapular plane. When full active range of motion was achieved, the athlete was cleared to begin Thera-Band™ strengthening activities. These exercises included scapular strengthening, because the athlete had a moderate amount of scapular dyskinesia and winging with normal posture. A functional rehabilitation program which included position-specific exercises was progressed as tolerated. At 12 weeks post-surgery the athlete was cleared to mainstream back into the strength and conditioning program.

**Uniqueness:** This case is unique for several reasons. The amount of displacement (2 cm) was unique to an athletic setting. The surgical intervention was consistent to damage from a motor vehicle accident. The occurrence rate (only 1%) at which this injury happens is extremely rare to skeletal injuries (Cain & Hamilton, 1992). The superior blow to the padded extremity, which caused the posteroinferior displacement, is another rare mechanism. Many football players are hit to the superior surface of their shoulders, but it is rare to completely fracture the glenoid neck. Lastly, recovery of full motion achieved without aggressive mobilizations and exercises was a surprise to the medical staff. All range of motion exercises were completed, passively and actively. There was no need for joint mobilizations and advanced scapular stretching and strengthening exercises. No complications during rehabilitation occurred that prohibited rehabilitation progressions.

**Conclusions:** The ability to internally and externally rotate the humerus may not be a good indicator of glenoid fracture if the displacement does not involve the joint directly. Initial examinations need to accurately determine any neurological and vascular conditions. Even being affected by a traumatic and rare injury, the athlete successfully returned to activity without any moderate complications throughout rehabilitation.

### MARK YOUR CALENDARS

8<sup>th</sup> Annual University of Kentucky Sports Medicine Symposium

May 12-13, 2006  
Embassy Suites  
Lexington, KY

### REGISTER

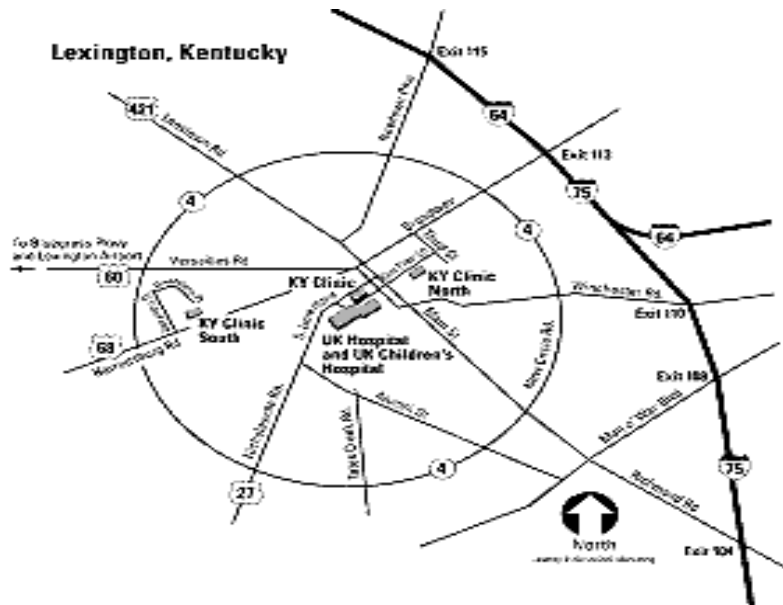
Online:  
[www.ukyce.com](http://www.ukyce.com)  
(credit cards only)

Call:  
(859) 257-5320 ext.  
80321



## UK Sports Medicine Walk-In Clinic

- With our sports injury walk-in clinic, no appointment is necessary.
- Walk-in at 7:30 - 8am.
- We're located within Kentucky Clinic, with adjacent parking available.
- Staffed by sports medicine fellowship-trained physicians.
- Physical therapy and rehabilitation services are available.
- We're proud to be the team physicians for all UK Athletics.
- Call (859) 257-4577 for more information.



## Meet Dr. Robert G. Hosey, M.D.



**ROBERT G. HOSEY, M.D.**, is an Associate Professor of Family Medicine and Orthopaedics and Director of the Primary Care Sports Medicine Fellowship program at the University of Kentucky. Dr. Hosey received his medical degree from the SUNY Health Science Center—Syracuse, NY. He completed his residency at the Medical University of South Carolina, Charleston, SC, and completed a sports medicine fellowship at the University of California Los Angeles. He serves as team physician for the University of Kentucky Athletic teams and the Lexington Horsemen Arena Football team.

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