



Defense and Veterans Brain Injury Center “Clinical Updates in Brain Injury Science Today [CUBIST]” Podcast

“TBI, Athletic Trainers, and Girls’ High School Soccer and Basketball”

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Host: Don Marion

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Episode 202: TBI, Athletic Trainers, and Girls’ High School Soccer and Basketball

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Marion: Hi. Welcome to Clinical Updates in Brain Injury Science Today, or “CUBIST,” a podcast for health care providers about current research on traumatic brain injury, also known as TBI. This program is produced by the Defense and Veterans Brain Injury Center, otherwise known as DVBIC. I'm your host today, Don Marion. I am a neurosurgeon and senior clinical consultant at DVBIC.

In today’s episode, I’ll be talking with Betsy Myhre. Ms. Myhre is a nurse practitioner in the Clinical Practice and Clinical Recommendations group here at DVBIC. Betsy and I will discuss a study titled: “Injuries in Girls’ Soccer and Basketball: A Comparison of High Schools with and without Athletic Trainers.” This article was recently published in Injury Epidemiology by Pierpoint and colleagues.

Betsy, welcome.

Myhre: Hi, Thank you.

Marion: What are the key findings of this study?

Myhre: Athletic trainers’ coverage of girls’ soccer and basketball programs both reduced overall and recurrent injury rates and, most interesting to me, schools with ATs had an increased identification of athletes with concussions. The schools without ATs had a higher incidence of overall injuries and a significantly higher incidence of recurrent injuries and injuries from noncontact/overuse injuries.

Marion: Quick question, Betsy. I’ve heard the term AT and ATC. Can you explain quickly what the difference is?

Myhre: Sure. ATs or ATCs are athletic trainers or athletic trainer certified.

Marion: I see. Thank you. So, why was this study done?

Myhre: Both the National Athletic Trainer's Association and the American Medical Association endorse the presence of athletic trainers in secondary schools or high schools. Although the assumption is that the skills ATs bring to high school sports will reduce injury incidences and severity, the effect of the presence of ATs on sports injury rates and patterns in the high school setting has not previously been directly measured.

Marion: What were the key elements of the design of the study?

Myhre: Girls' basketball and soccer injuries in high schools with and without an AT were assessed over two academic years: 2006 to 2007 and 2008 to 2009. The authors used two surveillance systems that collected injury information on both sports: the first was from 100 schools across the nation with AT who input injury reports weekly into the High School Reporting Information Online [RIO] system, and the second was data collected as part of the Sports Injury Surveillance System (SISS). The athlete's injury data was collected in the SISS from 36 high schools in Chicago, none of which employed ATs. The injury data was submitted by coaches for input into the SISS by research assistants. The research assistants followed up by interviewing athletes, parents, coaches etc. on injury mechanism, occurrence, and type of medical treatment and other information.

Marion: That's great information, Betsy. I've heard of the RIO system that was developed by Don Comstalk, I think, at the University of Colorado, and it adds a lot of credibility to this study, I think.

Can you explain a little bit about the role of athletic trainers?

Myhre: Would love to. Athletic trainers are licensed health care professionals who collaborate with physicians on injury prevention, clinical evaluations. At the high school level, ATs develop and implement emergency action plans, pre-season conditioning programs, advise the athletic department on the safety of equipment, weather, and field conditions, and provide first response to and triage of acute injuries. Additionally, they provide rehabilitation treatment and determine readiness for return-to-play after injuries. So you can see, they can play a large role in ensuring the safety of athletes at school. Yet only 37 percent of high schools in our country have fulltime athletic trainers.

Marion: Why do you think that schools with ATs had a lower incidence of overall injuries?

Myhre: I believe this is due to the role ATs play in providing conditioning, developing injury prevention programs and also managing back-to-play decisions to avoid recurrent injuries.

Marion: But Betsy, I guess I'm a little confused. You said that schools with ATs actually had a higher incidence of concussions.

Myhre: Yeah, that's a great question. The researchers attribute that to a number of factors. First, the lower incidence of concussions at schools without ATs is likely due to under diagnosing or under reporting concussions at these schools. ATs are usually better skilled than coaches or athletes at identifying the signs and symptoms of concussions, and most likely to insist that athletes with suspected concussion be removed from play until cleared. Also, by virtue of having an AT onsite, studies have shown that athletes are better trained in concussion recognition and may be more comfortable reporting a concussion to an AT.

Marion: That's really interesting, Betsy, and that's, I, I might point out, it's not the first study to show that better recognition is leading to higher numbers of concussion in, in sports medicine without there necessarily actually being a higher actual incidence of concussion. So, so Betsy, what are, what are the limitations of this study?

Myhre: There were a few limitations in this study. The data collection methodologies between the two samples were different. In schools with ATs, for an injury to be reported the athlete had to receive medical treatment from an AT or physician. But for the sample in SISS where injuries were reported by coaches, the injuries reported included all injuries resulting in time loss regardless of whether or not medical attention was sought. Another limitation is that the main focus of the SISS study was on knee injuries. The final limitation is that RIO included reporting on all concussions regardless of time loss, so that could have increased the number of reported concussions. But since there were only three concussions in the RIO sample that were associated with time loss of less than one day, the researchers do not feel that that had a measureable effect on the findings.

Marion: Betsy, I know you have a daughter in high school. I'm curious. What role did whether or not that high school had an athletic trainer play in your decision on which high school to send her to?

Myhre: Thank you, Don. Yes, that was an important decision for us because my daughter is an athlete, so I looked at that when I looked at which high school she was going to attend.

Marion: Great. So, finally, what should providers take from this, Betsy?

Myhre: By far the most important point of this report is that schools with athletic trainers have a lower incidence of injuries reported in girls' basketball and soccer. But there also appears to be better awareness of concussion and early identification of students who have been concussed, and creating an environment where students feel comfortable reporting a potential concussion.

This study informs health care providers about the importance of athletic trainers. During adolescent sports physicals, primary care providers can ask if the school has an athletic trainer and shape their discussion with the athlete and parent based on the type of pre-season conditioning and programs that the school provides. Additionally, the rest of this study may be used by providers who are active in their communities to advocate for school athletic trainers and concussion prevention or awareness programs at the school.

Marion: Betsy, thank you for your insights. Before we conclude this episode, I'd like to welcome back Captain Scott Pyne, DVBIC division chief. Hi, Captain Pyne.

Navy Capt. Scott Pyne: Hey, Don. Great episode. I wanted to jump in here today to remind our listeners that the Department of Defense recognizes March as Brain Injury Awareness Month to increase awareness of traumatic brain injury.

This year is particularly special. On October 1, 2018, the Deputy Secretary of Defense released a memorandum outlining a comprehensive strategy and action plan for warfighter brain health. The memo emphasizes educating our service members and families to recognize the signs and symptoms of TBI. This includes a focus on making it easier for families, loved ones, and friends to seek and receive the information and support they need to respond compassionately and constructively to someone who may have sustained a TBI.

This is a call to action to all of us in the provider community to help our patients and their families. Here at DVBIC, we're planning a robust month of activities including a Facebook Town Hall, stories from health.mil highlighting some of the new provider tools to address the diagnosis and management of acute concussion with the MACE 2 and Concussion Management Tool, in addition to our clinical recommendations on cognitive rehabilitation, a series of dynamic videos from our A Head for the Future initiative, and events around the country hosted by our regional education coordinators. We hope you'll join us on social media and beyond. To learn more, visit dvbic.dcoe.mil.

Don, back to you.

Marion: Thank you, Captain Pyne. That's all we have time for today. We hope you enjoyed this quick literature update.

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"CUBIST" is produced and edited by Dr. Deborah Bailin and was hosted today by me, Don Marion. It is a product of the Defense and Veterans Brain Injury Center, led by division chief Captain Scott Pyne, Medical Corps, United States Navy. Thank you for listening to this episode. Next time, we will discuss current concussion research.

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