Preparing Nurse Practitioners to Diagnose, Treat, and Educate about Sports Related Concussion: Textbooks Are Not Enough

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Abstract
Sports related concussions are a major public health concern for children, parents, coaches, and health care providers. In 2006, the CDC estimated that 1.6-3.8 million sports and recreational concussions occur each year (Langlois, Rutland-Brown, & Wald, 2006). Emergency department visits for kids with sports related concussion increased 92% from 2002-2011 according to a study conducted at Cincinnati Children's Hospital (Hanson, Pomerantz, & Gittleman, 2013). In the past 10 years, medical evaluations for sports related head injuries increased by 62% (Hanson, Pomerantz, & Gittleman, 2013). Effective management of sports related concussions in the pediatric population requires timely and accurate diagnosis and management. However, most textbooks used to educate nurse practitioners offer only a small section on concussions and many do not acknowledge sports related concussion injuries specifically. Some texts continue to recommend management based on concussion “grade” which is no longer appropriate and do not specifically address cognitive rest and return to learn. One explanation for this gap could be that research related to sports related concussions is in its infancy, and many of the current recommendations for diagnosis and treatment are based on limited evidence and expert consensus opinion. Textbooks are less likely to publish recommendations that do not have a strong evidence base. One study concluded that although health providers routinely care for these patients, they may not have adequate education or training to diagnose and manage them (Zonfrillo, Master, Grady, Winston, Callahan, Arbogast, 2012). Nurse practitioners see these patients and are often required by law to be “experts” in order to clear them to go back to school and sport. Therefore, closing the gap in education by augmenting the text and providing up to date recommendations and guidelines for diagnosis and management is integral.

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Comments
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Preparing Nurse Practitioners to Diagnose, Treat, and Educate about Sports Related Concussion: Textbooks Are Not Enough

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Background:
- Between 2001-2005 approximately 38 million children and adolescents participated in an organized sport. (1)
- Centers for Disease Control (CDC) estimate between 1.6-3.8 million sports related traumatic brain injuries occur in the United States every year. (2)
- Between 2001-2009 the estimated number of sport related concussion visits to emergency departments increased 62% from 153,375 to 248,418. (3)
- Youth are more vulnerable to the effects of concussion.
- Early diagnosis and intervention is essential for positive outcomes including prevention of further injury, long term effects, and even death.
- There are approximately 105,000 nurse practitioners in the United States and >60% are family nurse practitioners, pediatric nurse practitioners, or acute care nurse practitioners who could see children and adolescents with sport related concussion.
- Studies suggest that nurse practitioners feel unprepared to diagnose and manage sport related concussion. (4,5)
- Nearly every U.S. state now has some form of a student-athlete concussion law in place.
- All states require the licensed medical provider (MD, NP, PA, AT) have training in the evaluation and management of concussion and head injury.
- Many states do not include the nurse practitioner as a provider who is able to evaluate and manage concussions.

Problem:
Nurse practitioners have the expertise and unique skill sets to care for children with sport related concussion, but they do not have specific sports medicine training. In order to appropriately evaluate and manage sport related concussion in children and adolescents, current nurse practitioner curriculums must be augmented with information and training specially related to sports related concussion. State legislation also requires this specialized training.

Sport Related Concussion Curriculum

Learning Objectives:
All at the end of a concussion education program the nurse practitioner student should be able to:
1. Describe the pathophysiology of sport related concussions
2. Explain the short term and long term consequences of sport related concussions.
3. Describe the common signs and symptoms of sport related concussions
4. Assess for signs and symptoms of a sport related concussion in affective, cognitive, somatic and sleep domains
5. Create a management plan based on assessment findings and current recommendations
6. Recognize when referral is necessary for management
7. Apply best practices for return to learn and return to play

Overview
- Definition of a concussion
- Potential short term and long term consequences
- Epidemiology
- Integral role of collaborative care

Pathophysiology
- Functional vs. structural injury
- Metabolic cascade

Evaluation
- History including mechanism of injury and PMH
- SCAT 2 as a tool for evaluation
- Domains of symptoms
  - Cognitive
  - Somatic
  - Affective
  - Sleep
- Physical Exam
  - Focal neurologic exam
  - Balance
  - Cognitive assessment
  - ImPACT testing

Management
- When to refer for imaging or to emergency department
- Cognitive rest
- Physical rest
- Medication options for headache and sleep
- Risk factors for prolonged recovery
- When to refer to a specialist

Return to Learn
- When is a student ready to go back to school?

Return to Play
- When is a student ready to go back to his/her sport?

“It is paramount that we work to raise the bar of sports concussion training within each profession so that everybody who is asked to care for a concussed athlete is doing so with a better foundation of knowledge and expertise”

(Jeff Kutcher, MD)

Examples of Current Textbook Coverage of Sport Related Concussion:

Resources for Concussion Training and Information:

- www.aan.com/concussion
  - Evidence Based Guideline for Evaluation and Management of Concussion
- www.impact.com
  - Offers many free webinars on concussion related topics
- www.sportslegacy.org/education/medical
  - Arrange to have an SLI presenter come to you for training

Heads Up for Clinicians: www.cdc.gov/headsup/providers/training/index.html
- Free
- Accepted training program for many states that require training
- CE credits offered
- Examines current research on what may be happening to the brain after a concussion
- Explains why young people are at increased risk
- Explains acute concussion assessment and individualized management of athletes; diagnosing and managing concussions in the office or in the emergency department
- Describes the 5-Step Return to Play progression and return to learn recommendations to help athletes safely return to school and play
- Discusses methods for prevention to help keep athletes safe