

SUBJECT: CONCUSSION, RETURN-TO-PLAY AND RETURN-TO-LEARN

SUBMITTED BY: Bureau of State Government Affairs

REFERRED TO: Committee on Professional Affairs

1 WHEREAS, head injuries resulting from contact sports can have serious negative short-and-
2 long term effects; and

3 WHEREAS, all fifty states have passed some form of concussion legislation, but states vary
4 widely in the precise degree of detail and rigor of their respective requirements; and

5 WHEREAS, physicians are the only health care providers who possess the complete medical
6 knowledge and training necessary to recognize and diagnose a concussion, but
7 coordination across all levels of the physician-led team is imperative for timely
8 evaluation and intervention, and appropriate follow-up care; and

9 WHEREAS, there is a need for greater consistency among the terminology used by health care
10 organizations, and for the creation of a standardized approach to concussion, Return-
11 to-Play and Return-to-Learn utilizing current evidence and ensuring that health care
12 providers with adequate concussion training are appropriately involved in patient care;
13 now, therefore be it

14 RESOLVED, that the AOA adopts the **CURRENT** attached policy paper as its position on
15 concussion, return-to-play and return-to-learn; and, be it further

16 RESOLVED, that upon approval, this policy shall replace current AOA policy H-419-A/11.

Explanatory Statement:

BSGA offers this policy as a comprehensive, evidence-based approach to concussion and return-to-play/return-to-learn protocols. This paper was submitted to all affiliate organizations for review and comment and feedback was incorporated into the final version of the paper. This policy replaces H419-A/11 SPORTS AND PREVENTION OF TRAUMATIC BRAIN INJURY.

FISCAL IMPACT: \$

ACTION TAKEN APPROVED as AMENDED

DATE July 23, 2016



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Youth Concussion and Return-To-Play White Paper

Since 2009, every state has passed some form of legislation to address concussion safety in youth athletics. Most states' laws address the following five common areas:

1. Parent and student education,
2. Parent and student signature requirements,
3. Coach training, removal and return-to-play [RTP],
4. Return-to-learn [RTL] and
5. Clearing provider types

State laws vary, however, in the precise degree of detail and rigor of their respective requirements. The American Osteopathic Association (AOA) is committed to helping states work to address this public health risk by providing evidence-based guidance on concussion as a part of the spectrum of traumatic brain injuries (TBIs), as well as RTP and RTL protocols for youth athletes. We support policies that are backed by current scientific evidence, with appropriate clarification regarding the definitions of terms and protocols. The AOA believes that allopathic and osteopathic physicians (MDs and DOs) possess the complete medical knowledge and training needed to recognize and diagnose the subtle, varying and evolving symptoms of concussion, but that coordination across all levels of the physician-led team is imperative for timely evaluation and intervention, and appropriate follow-up care. In order to ensure the appropriate level of care, team physicians should possess up-to-date documentation of knowledge, skills and experience in this area of medicine. The goal of this paper is to encourage greater consistency among the terminology used by health care organizations, and to [utilize current evidence to](#) help states create a standardized approach to concussion, RTP and RTL.

Background

In recent years, a consensus has emerged among the scientific community that head injuries resulting from contact sports, including football, soccer, boxing, ice hockey and others, can have devastating long-term effects.¹ Among the consequences of repeated head injuries are headache, dizziness, difficulty concentrating or completing tasks, and in some cases, increased risk of depression and suicide.² Children and teenagers are especially susceptible to concussion-related injuries, because their brains lack the coating and insulation of adult brains and their heads are relatively heavy, and necks weak, compared to adults.³ Thus, children are at risk of sustaining more serious brain injuries than adults when exposed to the same amount of force. According to the CDC, the number of TBI-related emergency department visits among youth doubled from 2002 to 2010, from approximately 500 to

¹ McCrory, Paul, Meeuwisse, Willem H., Aubry, Mark, et al. "Consensus Statement on Concussion in Sport: the 4th International Conference on Concussion in Sport held in Zurich, November 2012." *British Journal of Sports Medicine*, 2013;47:250-258.. Available at: <http://bjsm.bmj.com/content/47/5/250.full>

² No author. "Long-term Effects of Brain Injuries." *Weill Cornell*, no date. Accessed on Feb. 3, 2016. Available at: <http://weillcornellconclusion.org/about-concussions/long-term-effects-brain-injuries>.

³ No author. "Parents Vigilance Can Head Off Kids' Concussion Risk." *USA Today*, Sept. 29, 2012. Available at: <http://www.usatoday.com/story/news/nation/2012/09/29/concussion-kids-cantu/1581173/>.

1,000 per 100,000 people.⁴ Further, female athletes appear to be more susceptible to sustaining concussions than males.⁵

To address this issue, all states have now implemented some form of concussion and RTP legislation. The National Center for Injury Prevention and Control (NCIPC) conducted a case study on two states that were early implementers of these laws, Washington and Massachusetts, to evaluate differences in their laws and approaches to addressing youth sports-related injuries.⁶

Washington became the first state to implement a concussion law with the passage of the “[Zackery Lystedt Law](#)” in May 2009.⁷ This law mandates that youths suspected of having sustained a head injury or concussion should be removed from competition, and returned to play *only* after an evaluation and written medical clearance from a “licensed health care provider* trained in the evaluation and management of concussion.”⁸ The law requires individual school districts to develop information to educate youth athletes, their parents and coaches about the nature and risk of concussions, but it does not provide any specific requirements for the content of those guidelines. The law does not require any coach training, and students are not required to complete concussion history forms.

Massachusetts’ [law](#), by contrast, requires stakeholder groups including parents, coaches, trainers, school athletic directors and school-employed physicians and nurses to participate in an athletic head injury safety training program developed by the Department of Public Health.⁹ It directs the Department to utilize materials from the Centers for Disease Control and Prevention to create the program, which shall include (1) current training in recognizing the symptoms of concussions and (2) providing students who participate in athletic activities a summary of the medical protocol for recognizing concussion symptoms, a protocol for post-concussion participation in athletics, and the short- and long-term consequences of concussions. It requires schools to implement an RTP protocol containing 17 specific items including procedures for medical review of all concussion history forms and plans for gradual RTP following injury. It also mandates that schools establish their own RTP protocol implementation teams. The law requires students to provide information about their concussion and head injury history at the start of each sports season on a form that must be signed by the student and his or her parent or guardian and forwarded to his or her coach(es). A student who becomes unconscious or is suspected of having suffered a concussion must be removed from practice or competition and not returned to the practice or competition during which the concussion or suspected concussion occurred. The student may only return to subsequent athletic activities with the written clearance of a physician, neuropsychologist, certified athletic trainer or other “appropriately trained or licensed health care professional as determined by the Department of Public Health.”

⁴ No author. “Rates of TBI-related Emergency Department Visits by Age Group — United States, 2001–2010.” *Centers for Disease Control and Prevention*, no date. Accessed on June 20, 2016. Available at: http://www.cdc.gov/traumaticbraininjury/data/rates_ed_byage.html.

⁵ Franks, R. Robert. “Why are Concussions Worse in Females?” *Philly.com*, Apr. 12, 2013. <http://www.philly.com/philly/blogs/sportsdoc/Why-are-concussions-worse-in-females.html>.

⁶ No author. “Implementing RTP: Learning from the Experiences of Early Implementers.” *National Center for Injury Prevention and Control*, no date. Accessed on June 20, 2016. Available at: http://www.cdc.gov/headsup/pdfs/policy/rtp_implementation-a.pdf.

⁷ No author. “Youth Sports—Concussion and Head Injury Guidelines.” Revised Code of Washington 28A.600.190 (2009). Available at: <http://apps.leg.wa.gov/rcw/default.aspx?cite=28A.600.190>.

⁸ *Id.*

⁹ No author. “Interscholastic Athletic Head Injury Safety Training Program.” Massachusetts General Laws 111 §222 (2010). Available at: <https://malegislature.gov/Laws/GeneralLaws/PartI/TitleXVI/Chapter111/Section222>.

* Licensed Health Care Provider is undefined by the law, and may be a volunteer.

Numerous state laws in addition to Massachusetts' include athletic trainers and nurses among the “clearing provider types” who may allow a youth to return to athletic activity following a concussion. Forty-nine states (with the exception of California) license and regulate athletic trainers, and all require that certified athletic trainers work within their state practice act under the direction of a physician. All forty-nine states recognize certification by the National Athletic Trainers' Association, which will soon increase the minimum education required for certification from a bachelor's degree to a master's degree from an accredited professional athletic training education program.¹⁰ Graduates must then pass a comprehensive examination, and meet ongoing continuing education requirements. Education programs include [training](#) in the identification of signs, symptoms, interventions and RTP criteria for brain injury including concussion, but continuing education requirements vary widely (some [states](#) require concussion management as a part of these continuing education requirements, while [others](#) do not).

While all states license and regulate nurses, nursing education varies more widely and concussion education is not mandatory. The National Association of School Nurses (NASN) recommends a four-year bachelor's degree and registered nurse (RN) certification as the minimum standard for a school nurse.¹¹ The NASN has issued a position statement on the importance of the school nurse on the concussion management team; however, the [RN examination](#) does not include concussion among the list of topics and not all states [require continuing education](#) for nurses. As athletic trainers and school nurses are frequently on the front lines of youth concussion evaluation and management, more robust state education and training requirements are needed to ensure that these health care professionals receive up-to-date training in this area, particularly when these providers are listed among the state's “clearing provider types.”

Washington and Massachusetts' laws illustrate the wide variation in approaches that states have taken to attempt to address concussion among student athletes, and while all 50 states now possess similar laws, these laws differ significantly in their provisions. Several physician specialty organizations have examined this issue, and published position statements which include evidence-based guidance for states.

The American Osteopathic Academy of Sports Medicine (AOASM), as a contributing author on the paper *Concussion and the Team Physician: A Consensus Statement (TPCC)*, advocated for on-field and sideline protocols such as neurological assessments and a plan for post-injury follow-up, as well as post-game-day evaluation and treatment.¹² AOASM, via the *TPCC*, urged guidelines that encourage individualized RTP decisions not based on a rigid timeline, with the physician ultimately bearing responsibility for making the decision. The paper also advocates that treating physicians should understand the complications of concussion, including that cumulative concussions may increase subsequent risk for concussion, and other neurological and physical symptoms. Physicians should also understand

¹⁰ No author. “After 2.5 Years of Diligent Analysis, Leaders of the Key Athletic Training Organizations Have Decided to Change the AT Degree Level to a Master's.” *AT Strategic Alliance*, May 20, 2015. Available at: <http://atstrategicalliance.org/statements/strategic-alliance-degree-statement>.

¹¹ No author. “Education, Licensure, and Certification of School Nurses: Position Statement.” National Association of School Nurses, Jan. 2012. Available at: <https://www.nasn.org/PolicyAdvocacy/PositionPapersandReports/NASNPositionStatementsFullView/tabid/462/smId/824/ArticleID/26/Default.aspx>.

¹² No author. “Concussion (Mild Traumatic Brain Injury) and the Team Physician: A Consensus Statement.” *American Osteopathic Academy of Sports Medicine*, no date. Accessed on June 20, 2016. Available at: <http://www.aoasm.org/default/assets/File/ConcussionandtheTeamPhysician.pdf>.

prevention principles, including helmet use and the utility of educating athletes, parents and coaches about concussion risks in advance.

The American Academy of Neurology (AAN) recommends that youth athletes, families and coaches receive counseling about risk factors for concussion by a licensed health care professional (LHCP) experienced in the diagnosis and management of sports concussions.¹³ Schools and athletic associations should implement a tool such as the [Sports Concussion Assessment Tool – Version 3](#) (SCAT3) for youth ages 13-18 or [Child SCAT3](#) for ages five-12 which non-physicians can use on the sidelines to ~~compare an athlete's score to baseline to assist in evaluating~~ **EVALUATE** whether he or she has suffered a concussion. Athletes with concussions should be prohibited from returning to play or practice until they are asymptomatic without medication and an LHCP whose scope of practice includes being properly trained in the evaluation and management of concussion has determined that the concussion has resolved. LCHPs should consider any baseline information or neurocognitive testing results available for the athlete in determining whether the concussion has resolved. AAN also provides a summary of evidence-based guidelines for [coaches and athletic trainers, clinicians](#) and [patients and their families](#), as well as a Concussion Quick Check [guide](#) to help evaluate concussion symptoms and determine whether the athlete may need to see a LHCP trained in the evaluation and management of concussion). Use of the self-evaluative Post-Concussion Symptom Scale for ages [12 and under](#), and [13 and over](#), and the [Graded Symptom Scale Checklist](#) by clinicians are also recommended to help health care providers and athletic officials evaluate and monitor concussion symptoms.

The American Academy of Orthopaedic Surgeons (AAOS) recommends that concussed athletes be removed from practice or competition immediately and that there be no same-day RTP, even if the athlete's initial symptoms resolve.¹⁴ This is supported by a 2014 study by Boston Children's Hospital, which found that youth athletes who returned to full cognitive activity after a concussion took two to five times as long to recover as those who initially limited such activity, thus, early detection and intervention are key to improving health outcomes.¹⁵ The athlete should be assessed by a "health care provider" (undefined), with no RTP until he or she is cleared by the provider. Management and treatment of concussions should be individualized, and it is desirable that a physician help develop a standardized baseline assessment tool that incorporates prior concussion history, neurological examination emphasizing cognitive function and balance, and a symptoms checklist. The physician should help coordinate evaluation and treatment of a concussed athlete with a concussion management team that includes certified athletic trainers, school officials and emergency response personnel. He or she should also educate athletes, parents/guardians, coaches and caregivers about the signs and risks of concussion, including the [increased risk of subsequent concussions](#), if an athlete returns to activity before the concussion has completely resolved. AAOS notes that while helmets are improving, there is no concussion-proof helmet.

The American Medical Society for Sports Medicine (AMSSM) recommends that any athlete suspected of having a concussion be removed from the activity and assessed by a "licensed healthcare provider

¹³ No author. "Evaluation and Management of Concussion in Athletes: Recommendations from the AAN." *American Family Physician*, Apr. 1, 2014.. Available at: <http://www.aafp.org/afp/2014/0401/p585.html>.

¹⁴ Boyajian-O'Neill, Lori, Franks, R Robert et al. "Team Physician Consensus Statement: 2013 Update." *Official Journal of the American College of Sports Medicine*, 2013. Available at: http://www.acsm.org/docs/other-documents/team_physician_consensus_statement_2013_update-24.pdf?sfvrsn=0.

¹⁵ Brown NJ, Mannix RC, O'Brien MJ, Gostine D, Collins MW, Meehan WP. "Effect of Cognitive Activity Level on Duration of Post-Concussion Symptoms." *Pediatrics* 2014;133(2):1-6.

trained in the evaluation and management of concussions.”¹⁶ Initial assessment of a concussion should be guided by a symptoms checklist that includes balance tests and cognitive evaluations that should be tracked over several evaluations and compared to baseline results. There should be no same-day RTP for an athlete diagnosed with a concussion, and symptoms should be resolved completely before the athlete receives medical clearance from a licensed health care provider and returns to play. An appropriate RTP progression involves gradually increasing physical activity and the potential for contact. If symptoms appear during the progression, the athlete should stop and restart at the last symptom-free activity level. While recovering from a concussion, students should receive academic accommodations such as reduced workload and extended time for tests. AMSSM believes that greater efforts should be made to educate athletes, parents, coaches and officials to improve concussion recognition, management and prevention, and physicians should be prepared to counsel patients on the health risks from concussions.

The American Academy of Pediatrics (AAP) has issued a [clinical report](#) which contains guidance for returning student athletes to learn after a concussion. The report places normal concussion recovery time for youth at three weeks or less from the time of injury, and states that academic adjustments may be needed during this time, as using a concussed brain to learn may exacerbate concussion symptoms.¹⁷ AAP provides self-assessment [tools](#) for [kindergarten through sixth graders](#), and [seventh graders and up](#), that can be used to track symptom resolution over this period. A multidisciplinary team, ideally led by a physician, is recommended to help ease reentry into school for students suffering from a concussion. Students may be able to tolerate some subjects better than others and school officials should be flexible about reducing student exposure to more difficult classes by allowing for adjustments to class schedules. Physicians should employ the proper language when discussing follow-up care with school officials. A request for “academic adjustments,” means informal changes to the student's environment that do not alter the curriculum or standardized testing for symptomatic students during the normal one to three week period. “Academic accommodations” refers to longer-term needs and may encompass changes to testing, extended time on work and changes to the curriculum. “Academic modifications” means more prolonged and permanent changes to a student's education, requiring an Individualized Education Plan (IEP). The student's pediatrician should establish contact with a point person at the school to make the appropriate requests and stay apprised of the student's recovery, making adjustments as needed. Parents should sign a form that satisfies both the Family Education Rights and Privacy Act (FERPA) permission required by educational agencies and Health Insurance Portability and Accessibility Act (HIPAA) permission for medical personnel to allow for communication among all team members.

As the above position statements demonstrate, there is a need for a stronger, unified voice from the medical community in order to provide state legislatures with the best tools and up-to-date guidance as they work to combat this public health concern. The AOA believes that emphasizing the physician-led, team-based model of care, where licensed health care providers at all levels possess current education and training in concussion management, will ensure that medical professionals with comprehensive knowledge of scientific evidence and advancements are appropriately involved in patient care.

AOA Policy Development

At present, the AOA does not have a policy on concussion, RTP or RTL for youth athletes. Strong evidence of the serious, negative long-term health effects of concussions, however, underscores the

¹⁶ Harmon, Kimberly G., Drezner, Jonathan A., et al. “American Medical Society for Sports Medicine Position Statement: Concussion in Sport.” *British Journal of Sports Medicine*, 2013. Available at: <http://bjsm.bmj.com/content/47/1/15.long>.

¹⁷ Halstead, Mark E., McAvoy, Karen et al. “Returning to Learning Following a Concussion.” *American Academy of Pediatrics*, November 2013; Volume 132, Issue 5. Available at: <http://pediatrics.aappublications.org/content/132/5/948>.

need to create policy in this area to help guide osteopathic advocacy in response to current and proposed state legislation. Unified, evidence-based advocacy from medical groups, including the AOA, will benefit states as they update their concussion and RTP laws, which currently vary widely. The AOA adopts the following policy statements as its official position on concussion, RTP and RTL.

1. **Parent and Student Education.** The AOA believes that educating students, parents and guardians about the nature, symptoms, risks and short- and long-term health effects of concussions and traumatic brain injuries will improve student safety by increasing awareness of concussion warning signs and allowing for early treatment. This has been shown to decrease the risk of subsequent injuries during recovery and improve long-term outcomes. Education should also include clarification of the return-to-play (RTP) and return-to-learn (RTL) processes. The AOA believes that all schools and youth athletic organizations should disseminate evidence-based teaching tools [and information sheets](#) such as those issued by the [Centers for Disease Control \(CDC\)](#), Sports Safety International (SSI), certain state members of the Brain Injury Alliance (BIA) or other nationally recognized health or medical organizations to students, parents and guardians prior to the start of every school year or athletic season.
2. **Parent and Student Signature.** The AOA supports requiring signatures from parents/guardians and students on an information sheet acknowledging that they have received the aforementioned education and been made aware of the risks of concussion inherent in athletic activities, and understand appropriate steps for concussion evaluation and management, prior to every school year or athletic season.
3. **Coach/Official Training.** The AOA encourages states to adopt mandatory annual training for coaches, athletic directors, school nurses and other school and youth sports officials based upon materials published by the [CDC](#), SSI, BIA or other nationally recognized health or medical organizations. Training should emphasize prevention as well as the need for early identification of concussions and improve treatment and management strategies, with an emphasis on prohibiting same-day return-to-play for concussed athletes in all circumstances, and requiring clearance from a physician (as defined elsewhere in AOA policy) prior to allowing a concussed athlete to return to athletic activity.
4. **Removal and Return-to-Play.** The AOA believes that it is vital that youth suspected of having sustained a concussion be removed from practice or competition immediately, and examined by a member of the physician-led team who is a licensed health care provider (LHCP) with documentation reflecting current concussion training, whose scope of practice includes the evaluation and management of concussions. The AOA supports the use of [baseline testing](#) conducted by a trained health care professional prior to the start of each athletic season or school year to assess a youth's balance and cognitive function as well as the presence of any concussion symptoms. At the time of a suspected concussion, results from this baseline testing can be compared to results from post-concussive testing again assessing balance and cognition. The Standardized Assessment of Concussion – Version 3 (SCAT-3) for youth ages 13 to 18 or Pediatric SCAT-3 for ages five to 12 is ~~the preferred~~ **A** method of sideline clinical assessment. If a youth's SCAT3 indicates a possible concussion, or if the provider otherwise suspects a possible concussion, he or she should be evaluated by a physician immediately. There should be no same-day return-to-play for athletes diagnosed with a concussion, and no subsequent return-to-play without written clearance by a physician with documented current concussion training. For students diagnosed with a concussion, examining physicians should work with parents/guardians, coaches, athletic trainers and other stakeholders on ongoing concussion

management and gradual RTP and RTL for the student athlete. The examining physician should also coordinate with a multi-disciplinary team that may include physical therapists, occupational therapists, neuropsychologists, cognitive rehabilitation specialists and certified athletic trainers, among others, as the patient recovers from suffering from a concussion.

5. **Clearing Provider Type.** The AOA believes a LHCP member of the physician-led team who is trained in the evaluation and management of concussions, such as a certified athletic trainer or school nurse, may conduct a sideline assessment. If a youth's sideline assessment indicates a possible concussion, he or she must be evaluated by an allopathic or osteopathic physician with expertise in concussion management, who shall establish a clinical diagnosis. Proof of this expertise may include concussion training in sports medicine fellowship, or documentation of course completion in a recognized concussion course such as one from the CDC or SSI. Physicians possess the most comprehensive education and training of any health care provider, which enables them to recognize the variable and often subtle signs of concussion. The evaluating physician shall create a treatment plan and work with other members of the physician-led team to implement it, and the youth may only return to athletic activity with written clearance from the evaluating physician.
6. **Return-to-Learn.** The AOA recommends that the evaluating physician work with school officials to implement an RTL protocol for students following a concussion. The physician may adjust the protocol with school officials as the patient's symptoms evolve and gradually improve, usually within one to three weeks after the injury. Each concussion is an individualized entity, however, and as such should be treated by the physician on an individualized basis with the physician making the deciding determination regarding RTL. The physician should communicate the importance of cognitive rest following a concussion to parents and school officials, emphasizing that a student may require a lighter workload, exemption from classes that appear to exacerbate concussion symptoms, and/or testing extensions until symptoms improve or disappear.