

Virginia Board of Education Guidelines for Policies on Concussions in Students

Senate Bill 652, the 2010 General Assembly

Code of Virginia § 22.1-271.5

House Bill 410 & Senate Bill 172, the 2014 General Assembly

Code of Virginia § 22.1-271.5

House Bill 1096, the 2014 General Assembly

Code of Virginia § 22.1-271.6

And

**House Bill 954, the 2016 General Assembly
Code of Virginia §§ 22.1-271.5 and 22.1-271.6**

Virginia Board of Education Guidelines for Policies on Concussions in Students

Introduction

Pursuant to Senate Bill 652, (2010), House Bills 410 and 1096, and Senate Bill 172 (2014), and House Bill 954 (2016), the *Code of Virginia* was amended to include § 22.1-271.5 and § 22.1-271.6 directing the Board of Education to develop and distribute to school divisions by July 1, 2016, guidelines for policies dealing with concussions in students, and requiring each school division to develop policies and procedures regarding the identification and handling of suspected concussions in students. The full text of the 2010, 2014, and 2016 legislation is available at the end of this document.

The goals of the Student-Athlete Protection Act (SB 652, SB 172, HB 410, HB 1096, and HB 953) are to ensure that students who sustain concussions are properly diagnosed, given adequate time to heal, and are comprehensively supported until they are symptom free. According to the Consensus Statement on Concussion in Sport (4th International Conference on Concussion in Sport, Zurich, November 2012), “The cornerstone of concussion management is physical and cognitive rest until symptoms resolve and then a graded program of exertion prior to medical clearance and return to play.”

The Brain Injury Association of Virginia notes that it is important for all education professionals to be aware of the issues surrounding brain injuries and how they can affect the student's abilities in the educational setting. When a child is known or suspected to have sustained a concussion, either from a sports injury, motor-vehicle crash, fall, or other cause, the resulting impairments can be multidimensional and may include cognitive, behavioral, and/or physical deficits. Impairments can be mild or severe, temporary or prolonged. Because no two concussions are alike, it is difficult to determine the period of recovery.

Concussions are a medical and educational issue and are considered to be among the most complex injuries in medicine to assess, diagnose, and manage. The concussed brain requires mental and physical rest to recover. Developing brains are highly variable and concurrent issues may affect cognitive recovery. Every concussion is different, and each student will have unique symptoms and recovery times. Facilitating/managing a student's recovery from a concussive injury includes awareness of current symptoms, the pre-injury status of physical and cognitive function, and the student's sensitivity to physical and cognitive exertion.

Concussion symptoms may have a significant impact on learning and academic achievement. A concussion may interfere with a student's ability to focus, concentrate, memorize, and process information. This cognitive impairment may cause frustration, nervousness, anxiety, and/or irritability, and further affect mood or previously existing irritability or anxiety. The “return to learn” academic concussion management plan is divided into graduated phases to promote recovery, considering all factors in this complex injury. Some students may need a short period of rest with a gradual return to school, while others will be able to continue academic work with minimal instructional support.

The “return-to-play” protocols following a concussion are also a stepwise process in which the students will progress to the next level when physical exertion does not exacerbate symptoms or cause the re-emergence of previously resolved symptoms. If any post-concussion symptoms reoccur while in the stepwise process, the student-athlete would revert back to the previous level, rest, and try to progress again after a period of rest is completed. Most students who experience a concussion can recover completely as long as they do not “return-to-learn” or “return-to-play” prematurely. *Premature return to learn/play may delay and/or impede recovery.* Return-to-play should not occur before the student-athlete has managed to return to a full day of academic activities.

The effects of repeated concussions can be cumulative, and after a concussion, there is a period in which the brain is particularly vulnerable to further injury. If a student sustains a second concussion during this period, the risk of prolonged symptoms increases significantly, and the consequences of a seemingly mild second concussion can actually be very severe and potentially catastrophic (i.e., “second impact syndrome”).

Definitions

A *concussion* is a traumatic brain injury and is defined by the 4th International Conference on Concussion in Sports (2012) as a complex pathophysiological process affecting the brain and induced by biomechanical forces. Several common features that incorporate clinical, pathologic, and biomechanical injury constructs that may be utilized in defining the nature of a concussive head injury include the following:

- Concussion may be caused either by a direct blow to the head, face, neck, or elsewhere on the body with an "impulsive" force transmitted to the head.
- Concussion typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously. However, in some cases, symptoms and signs may evolve over a number of minutes, hours, or days.
- Concussion may result in neuropathological changes, but the acute clinical symptoms largely reflect a functional disturbance rather than a structural injury with no abnormality seen on standard structural neuroimaging studies.
- Concussion results in a graded set of clinical symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive symptoms typically follows a sequential course. It is important to note, however, that symptoms may be prolonged in some cases.

Appropriate licensed health care provider means a physician, physician assistant, osteopath, physician, or athletic trainer licensed by the Virginia Board of Medicine; a neuropsychologist licensed by the Board of Psychology; or a nurse practitioner licensed by the Virginia State Board of Nursing.

Cognitive rest means limiting cognitive exertion and careful management of neurometabolic demands on the brain during recovery.

Return-to-learn refers to instructional modifications that support a controlled, progressive increase in cognitive activities while the student recovers from a brain injury (i.e., concussion) allowing the student to participate in classroom activities and learn without worsening symptoms and potentially delaying healing.

Return-to-play means participate in a nonmedically supervised practice or athletic competition.

Non-interscholastic youth sports program means a program organized for recreational athletic competition or recreational athletic instruction for youth.

Virginia Board of Education Guidelines

A. Policies and Procedures

1. Each school division shall develop policies and procedures regarding the identification and handling of suspected concussions in students. Consideration should also be given to addressing the academic needs and gradual reintroduction of cognitive demands for *all* students who have been determined to have a concussion. The Brain Injury Association of Virginia offers resources on strategies for educators to consider when working with a student with a brain injury.
2. In order to participate in any extracurricular athletic activity, each student-athlete and the student-athlete's parent or guardian shall review, on an annual basis (every 12 months), information on concussions provided by the school division. After having reviewed materials describing the short- and long-term health and academic effects of concussions, each student-athlete and the student-athlete's parent or guardian shall sign a statement acknowledging receipt, review, and understanding of such information. The local school division will determine procedures for ensuring, annually, that statements are distributed to and collected from each student-athlete and his or her parent or guardian with appropriate signatures.
3. A student-athlete suspected by the coach, athletic trainer, or team physician of sustaining a concussion or brain injury in a practice or game shall be removed from the activity at that time. A student-athlete who has been removed from play, evaluated, and suspected to have a concussion or brain injury shall not return to play that same day nor until (i) evaluated by an appropriate licensed health care provider as defined by the Board of Education and (ii) in receipt of written clearance to return to play from such licensed health care provider. The licensed health-care provider evaluating student-athletes suspected of having concussions or brain injuries may be a volunteer.

4. Appropriate licensed health care providers or properly trained individuals evaluating student-athletes at the time of injury will utilize a standardized concussion sideline assessment instrument. Sideline Concussion Assessment Tool (SCAT-II, SCAT III, ChildSCAT3), the Standardized Assessment of Concussion (SAC), and the Balance Error Scoring System (BESS) are examples of sideline concussion assessment tools that test cognitive function and postural stability. A list of assessment tools is located in the Resources section of these guidelines.
5. The school division's concussion policy team may include a school administrator, teacher, school counselor, school psychologist, school nurse, athletic administrator, appropriate licensed health care provider, coach, parent/guardian, and student and shall refine and review local concussion management policies on an annual basis.

B. Protocol for Return to Learn

School personnel shall be alert to cognitive and academic issues that may be experienced by a student who has suffered a concussion or other head injury, including (i) difficulty with concentration, organization, and long-term and short-term memory; (ii) sensitivity to bright lights and sounds; and (iii) short-term problems with speech and language, reasoning, planning, and problem solving. Local school boards shall accommodate the gradual return to full participation in academic activities as appropriate, based on the recommendation of the student's licensed health care provider as to the appropriate amount of time that such student needs to be away from the classroom, and would benefit from these accommodations to promote recovery following a concussion.

1. A student recovering from a brain injury shall gradually increase cognitive activities progressing through *some or all* of the following phases. Some students may need total rest with a gradual return to school, while others will be able to continue doing academic work with minimal instructional modifications. The decision to progress from one phase to another should reflect the absence of any relevant signs or symptoms, and should be based on the recommendation of the student's appropriate licensed health-care provider in collaboration with school staff, including teachers, school counselors, school administrators, psychologists, nurses, clinic aides, or others as determined by local school division concussion policy.
 - a. Home: Rest
 - Phase 1: Cognitive and physical rest may include
 - minimal cognitive activities – limit reading, computer use, texting,
 - television, and/or video games;
 - no homework;
 - no driving; and
 - minimal physical activity.
 - Phase 2: Light cognitive mental activity may include
 - up to 30 minutes of sustained cognitive exertion;

- no prolonged concentration;
- no driving; and
- limited physical activity.

Student will progress to part-time school attendance when able to tolerate a minimum of 30 minutes of sustained cognitive exertion without exacerbation of symptoms or re-emergence of previously resolved symptoms.

b. School: Part-time

Phase 3: Maximum instructional modifications including, but not limited to

- shortened days with built-in breaks;
- modified environment (e.g., limiting time in hallway, identifying quiet and/or dark spaces);
- established learning priorities;
- exclusion from standardized and classroom testing;
- extra time, extra assistance, and/or modified assignments;
- rest and recovery once out of school; and
- elimination or reduction of homework.

Student will progress to the moderate instructional modification phase when able to tolerate part-time return with moderate instructional modifications without exacerbation of symptoms or re-emergence of previously resolved symptoms.

Phase 4: Moderate instructional modifications including, but not limited to

- established priorities for learning;
- limited homework;
- alternative grading strategies;
- built-in breaks;
- modified and/or limited classroom testing, exclusion from standardized testing; and
- reduction of extra time, assistance, and/or modification of assignments as needed.

Student will progress to the minimal instructional modification phase when able to tolerate full-time school attendance without exacerbation of existing symptoms or reemergence of previously resolved symptoms.

c. School: Full-time

Phase 5: Minimal instructional modification - instructional strategies may include, but are not limited to

- built-in breaks;
- limited formative and summative testing, exclusion from standardized testing;
- reduction of extra time, assistance, *and* modification of assignments; and
- continuation of instructional modification and supports in academically challenging subjects that require cognitive overexertion and stress.

Student will progress to nonmodified school participation when able to handle sustained cognitive exertion without exacerbation of symptoms or re-emergence of previously resolved symptoms.

Phase 6: Attends all classes; maintains full academic load/homework; requires no instructional modifications.

2. Progression through the above phases shall be governed by the presence or resolution of symptoms resulting from a concussion experienced by the student including, but are not limited to
 - a. difficulty with attention, concentration, organization, long-term and short-term memory, reasoning, planning, and problem solving;
 - b. fatigue, drowsiness, difficulties handling a stimulating school environment (e.g., sensitivity to light and sound);
 - c. inappropriate or impulsive behavior during class, greater irritability, less able to cope with stress, more emotional than usual; and
 - d. physical symptoms (e.g., headache, nausea, dizziness).
3. Progression through gradually increasing cognitive demands should adhere to the following guidelines:
 - a. increase the amount of time in school;
 - b. increase the nature and amount of work, the length of time spent on the work, or the type or difficulty of work (change only one of these variables at a time
 - c. if symptoms do not worsen, demands may continue to be gradually increased;
 - d. if symptoms do worsen, the activity should be discontinued for at least 20 minutes and the student allowed to rest
 - 1) if the symptoms are relieved with rest, the student may reattempt the activity at or below the level that produced symptoms; and
 - 2) if the symptoms are not relieved with rest, the student should discontinue the current activity for the day and reattempt when symptoms have lessened or resolved (such as the next day).
4. If symptoms persist or fail to improve over time, additional in-school support may be required with consideration for further evaluation. If the student is three to four weeks post injury without significant evidence of improvement, a 504 plan should be considered.

5. A student shall progress to a stage where he or she no longer requires instructional modifications or other support before being cleared to return to full athletic participation (return-to-play).

The American Academy of Pediatrics (AAP) Return to Learn Following a Concussion Guidelines (October 2013), and the American Medical Society for Sports Medicine (AMSSM) Position Statement (2013), are available online to assist healthcare providers, students, their families, and school divisions, as needed.

C. Protocol for return to play

1. No member of a school athletic team shall participate in any athletic event or practice the same day he/she is injured and:
 - a. exhibits signs, symptoms, or behaviors attributable to a concussion; or
 - b. has been diagnosed with a concussion.
2. No member of a school athletic team shall return to participate in an athletic event or training on the days after he/she experiences a concussion unless all of the following conditions have been met:
 - a. the student attends all classes, maintains full academic load/homework, and requires no instructional modifications;
 - b. the student no longer exhibits signs, symptoms, or behaviors consistent with a concussion, at rest or with exertion;
 - c. the student is asymptomatic during, or following periods of supervised exercise that is gradually intensifying; and
 - d. the student receives a written medical release from an appropriate licensed health care provider.

The Zurich Consensus Statement (November 2012) return-to-play guidelines and the American Academy of Pediatrics (AAP) Concussion Guidelines (August 2010), are available online to assist healthcare providers, student-athletes, their families, and school divisions, as needed.

D. Helmet replacement and reconditioning policies and procedures

1. Helmets must be National Operating Committee on Standards for Athletic Equipment (NOCSAE) certified by the manufacturer at the time of purchase.
2. Reconditioned helmets must be NOCSAE recertified by the reconditioner.
3. Regular training on proper helmet fitting and maintenance is recommended for coaches of all sports wearing protective headgear.

E. Require training for personnel and volunteers

1. The concussion policy management team shall ensure training is current and consistent with best practice protocols. Each school division shall develop policies and procedures to ensure school staff, coaches, athletic trainers, team physicians, and volunteers receive current training annually on:
 - a. how to recognize the signs and symptoms of a concussion;

- b. strategies to reduce the risk of concussions;
 - c. how to seek proper medical treatment for a person suspected of having a concussion; and
 - d. when the student-athlete may safely return to the event or training.
2. School divisions shall maintain documentation of compliance with the annual training requirement.
 3. Annual training on concussion management shall use a reputable program such as, but not limited to, the following:
 - a. The Centers for Disease Control's (CDC) tools for youth and high school sports coaches, parents, athletes, and health-care professionals provide important information on preventing, recognizing, and responding to a concussion, and are available at [Link: http://www.cdc.gov/concussion/HeadsUp/online_training.html](http://www.cdc.gov/concussion/HeadsUp/online_training.html). These include *Heads Up to Schools: Know Your Concussion ABCs*; *Heads Up: Concussion in Youth Sports*; and *Heads Up: Concussion in High School Sports*.
 - b. The National Federation of State High School Associations' (NFHS) online coach education course – *Concussion in Sports – What You Need to Know*. This CDC endorsed program provides a guide to understanding, recognizing and properly managing concussions in high school sports. It is available at [Link: www.nfhslearn.com](http://www.nfhslearn.com).
 - c. The Oregon Center for Applied Science (ORCAS) ACTive® course, an online training and certification program that gives sports coaches the tools and information to protect players from sports concussions. Available at [Link: http://activecoach.orcasinc.com/](http://activecoach.orcasinc.com/), ACTive® is funded by the National Institutes of Health, developed by leading researchers, and validated in a clinical trial.

Community Involvement

Non-interscholastic youth sports programs utilizing public school property shall establish policies and procedures regarding the identification and handling of suspected concussions in students, consistent with either the local school division's policies or procedures developed in compliance with this section, or the Board of Education's Guidelines for Policies on Concussions in Students.

In addition, local school divisions may provide the guidelines to organizations sponsoring athletic activity for student-athletes on school property. Including the provision of the guidelines in the facility joint use agreements is strongly encouraged. Local school divisions shall not be required to enforce compliance with such policies.

Code of Virginia, as amended by the 2014 General Assembly

§ 22.1-271.5. *Policies on concussions in student-athletes.*

- A. *The Board of Education shall develop and distribute to each local school division guidelines on policies to inform and educate coaches, student-athletes, and their parents or guardians of the nature and risk of concussions, criteria for removal from and return*

to play, risks of not reporting the injury and continuing to play, and the effects of concussions on student-athletes' academic performance.

- B. Each local school division shall develop policies and procedures regarding the identification and handling of suspected concussions in student-athletes. Such policies shall require:*
- 1. In order to participate in any extracurricular physical activity, each student-athlete and the student-athlete's parent or guardian shall review, on an annual basis, information on concussions provided by the local school division. After having reviewed materials describing the short- and long-term health effects of concussions, each student-athlete and the student athlete's parent or guardian shall sign a statement acknowledging receipt of such information, in a manner approved by the Board of Education; and*
 - 2. A student-athlete suspected by that student-athlete's coach, athletic trainer, or team physician of sustaining a concussion or brain injury in a practice or game shall be removed from the activity at that time. A student-athlete who has been removed from play, evaluated, and suspected to have a concussion or brain injury shall not return to play that same day nor until (i)evaluated by an appropriate licensed health care provider as determined by the Board of Education and (ii) in receipt of written clearance to return to play from such licensed health care provider.*

The licensed health care provider evaluating student-athletes suspected of having a concussion or brain injury may be a volunteer.

- C. Each non-interscholastic youth sports program utilizing public school property shall either (i) establish policies and procedures regarding the identification and handling of suspected concussions in student-athletes, consistent with either the local school division's policies and procedures developed in compliance with this section or the Board's Guidelines for Policies on Concussions in Student-Athletes, or (ii) follow the local school division's policies and procedures as set forth in subsection B. In addition, local school divisions may provide the guidelines to organizations sponsoring athletic activity for student-athletes on school property. Local school divisions shall not be required to enforce compliance with such policies*
- D. As used in this section, "non-interscholastic youth sports program" means a program organized for recreational athletic competition or recreational athletic instruction for youth.*
- 3. That the Board of Education, in developing the policies pursuant to subsection A of § 22.1-271.5, shall work with the Virginia High School League, the Department of Health, the Virginia Athletic Trainers Association, representatives of the Children's Hospital of the King's Daughters and the Children's National Medical Center, the Brain Injury Association of Virginia, the American Academy of Pediatrics, the Virginia College of Emergency Physicians and other interested stakeholders.*
 - 4. That the policies of the Board of Education developed pursuant to subsection A of § 22.1-271.5 shall become effective on July 1, 2011.*

2010, c. 483; 2014, cc. 746, 760.

§ 22.1-271.6. *School division policies and procedures on concussions in student-athletes. The Board of Education shall amend its guidelines for school division policies and procedures on concussions in student-athletes to include a "Return to Learn Protocol" with the following requirements:*

1. *School personnel shall be alert to cognitive and academic issues that may be experienced by a student-athlete who has suffered a concussion or other head injury, including (i) difficulty with concentration, organization, and long-term and short-term memory; (ii) sensitivity to bright lights and sounds; and (iii) short-term problems with speech and language, reasoning, planning, and problem solving; and*
2. *School personnel shall accommodate the gradual return to full participation in academic activities by a student-athlete who has suffered a concussion or other head injury as appropriate, based on the recommendation of the student-athlete's licensed health care provider as to the appropriate amount of time that such student-athlete needs to be away from the classroom.*

2014, c. 349.

Code of Virginia, as amended by the 2016 General Assembly

Be it enacted by the General Assembly of Virginia:

1. That §§ 22.1-271.5 and 22.1-271.6 of the Code of Virginia are amended and reenacted as follows:

§ 22.1-271.5. Guidelines and policies and procedures on concussions in student-athletes.

- A. The Board of Education shall develop and distribute to each local school division guidelines on policies to inform and educate coaches, student-athletes, and their parents or guardians of the nature and risk of concussions, criteria for removal from and return to play, risks of not reporting the injury and continuing to play, and the effects of concussions on student-athletes' academic performance.
- B. Each local school division shall develop policies and procedures regarding the identification and handling of suspected concussions in student-athletes. Such policies shall require:
 1. *In Require that in order to participate in any extracurricular physical activity, each student athlete and the student-athlete's parent or guardian shall review, on an annual basis, information on concussions provided by the local school division. After having reviewed materials describing the short- and long-term health effects of concussions, each student-athlete and the student athlete's parent or guardian shall sign a statement acknowledging receipt of such information, in a manner approved by the Board of Education; and*

2. *A Require a student-athlete suspected by that student-athlete's coach, athletic trainer, or team physician of sustaining a concussion or brain injury in a practice or game shall to be removed from the activity at that time. A student-athlete who has been removed from play, evaluated, and suspected to have a concussion or brain injury shall not return to play that same day nor until (i) evaluated by an appropriate licensed health care provider as determined by the Board of Education and (ii) in receipt of written clearance to return to play from such licensed health care provider.*

The licensed health care provider evaluating student-athletes suspected of having a concussion or brain injury may be a volunteer.; *and*

3. *Include a "Return to Learn Protocol" with the following requirements:*
 - a. *School personnel shall be alert to cognitive and academic issues that may be experienced by a student who has suffered a concussion or other head injury, including (i) difficulty with concentration, organization, and long-term and short-term memory; (ii) sensitivity to bright lights and sounds; and (iii) short-term problems with speech and language, reasoning, planning, and problem solving; and*
 - b. *School personnel shall accommodate the gradual return to full participation in academic activities of a student who has suffered a concussion or other head injury as appropriate, based on the recommendation of the student's licensed health care provider as to the appropriate amount of time that such student needs to be away from the classroom.*
- C. Each non-interscholastic youth sports program utilizing public school property shall either (i) establish policies and procedures regarding the identification and handling of suspected concussions in student-athletes, consistent with either the local school division's policies and procedures developed in compliance with this section or the Board's Guidelines for Policies on Concussions in Student-Athletes, or (ii) follow the local school division's policies and procedures as set forth in subsection B. In addition, local school divisions may provide the guidelines to organizations sponsoring athletic activity for student-athletes on school property. Local school divisions shall not be required to enforce compliance with such policies.
- D. As used in this section, "non-interscholastic youth sports program" means a program organized for recreational athletic competition or recreational athletic instruction for youth.

§ 22.1-271.6. School division policies and procedures on concussions in students.

The Board of Education shall amend its guidelines for school division policies and procedures on concussions in student-athletes to include a "Return to Learn Protocol" with the following requirements:

1. School personnel shall be alert to cognitive and academic issues that may be experienced by a student-athlete *student* who has suffered a concussion or other head injury, including

- (i) difficulty with concentration, organization, and long-term and short-term memory; (ii) sensitivity to bright lights and sounds; and (iii) short-term problems with speech and language, reasoning, planning, and problem solving; and
2. School personnel shall accommodate the gradual return to full participation in academic activities by *of* a student-athlete *student* who has suffered a concussion or other head injury as appropriate, based on the recommendation of the student-athlete's *student's* licensed health care provider as to the appropriate amount of time that such student-athlete *student* needs to be away from the classroom.

Resources

A. Organizations and agencies that provide resources related to concussions

1. [American Academy of Pediatrics](http://www.aap.org), Link: <http://www.aap.org>
2. [American Medical Society for Sports Medicine](http://www.amssm.org/), Link: <http://www.amssm.org/>
3. [Brain Injury Association of Virginia](http://www.biav.net), Link: <http://www.biav.net>
4. [Centers for Disease Control and Prevention](http://www.cdc.gov/), Link: <http://www.cdc.gov/>
5. [Children's Hospital of the King's Daughters](http://www.chkd.org), Link: <http://www.chkd.org>
6. [Children's National Medical Center](http://www.childrennational.org), Link: <http://www.childrennational.org>
7. [Consensus Statement on Concussion in Sport \(4th International Conference on Concussion in Sport, Zurich, November 2012\)](http://www.ncbi.nlm.nih.gov/pubmed/23479479), Link: <http://www.ncbi.nlm.nih.gov/pubmed/23479479>
8. [National Academy of Neuropsychology](http://www.nanonline.org), Link: <http://www.nanonline.org>
9. [Virginia Athletic Trainers' Association](http://www.vata.us), Link: <http://www.vata.us>
10. [Virginia College of Emergency Physicians](https://www.acep.org), Link: <https://www.acep.org>
11. [Virginia Department of Health](http://www.vdh.state.va.us), Link: <http://www.vdh.state.va.us>
12. [Virginia High School League](http://www.vhsl.org), Link: <http://www.vhsl.org>
13. [Virginia Recreation and Park Society](http://www.vrps.com), Link: www.vrps.com

B. Concussion assessment tools

1. [Sports Concussion Assessment Tool \(SCAT\), Concussion in Sport Group](http://bjsm.bmj.com/content/47/5/259.full.pdf), Link: <http://bjsm.bmj.com/content/47/5/259.full.pdf>
Link: <http://bjsm.bmj.com/content/47/5/263.full.pdf>
2. [Sports-Related Concussions in Children and Adolescents, Pediatrics](http://pediatrics.aappublications.org/cgi/content/abstract/peds.2010-2005v1?rss=1), Link: <http://pediatrics.aappublications.org/cgi/content/abstract/peds.2010-2005v1?rss=1>