

# Physical Exams and Health Issues

## Table of Contents

*(click on an item to jump directly to that section)*

	Page
<a href="#"><u>PHYSICALS</u></a> .....	2
<a href="#"><u>COMMUNICABLE DISEASE PROCEDURES</u></a> .....	2
<a href="#"><u>HEAT STRESS AND ATHLETIC PARTICIPATION</u></a> .....	3
<a href="#"><u>HEAT ACCLIMATIZATION AND HEAT ILLNESS PREVENTION POSITION STATEMENT</u></a> .....	4
<a href="#"><u>MRSA IN SPORTS PARTICIPATION</u></a> .....	8
<a href="#"><u>REDUCING HEAD AND NECK INJURIES IN FOOTBALL</u></a> .....	9
<a href="#"><u>CONCUSSIONS DON'T ONLY HAPPEN TO ATHLETES ON THE PLAYING FIELD</u></a> .....	11
<a href="#"><u>CONCUSSION FACT SHEET FOR ATHLETES</u></a> .....	12
<a href="#"><u>CONCUSSION FACT SHEET FOR PARENTS</u></a> .....	14
<a href="#"><u>PERFORMANCE-ENHANCING RESOLUTION</u></a> .....	16
<a href="#"><u>SDHSAA AND NFHS POLICY STATEMENT ON STEROIDS</u></a> .....	16
<a href="#"><u>EXTRA TIME-OUT DUE TO HEAT</u></a> .....	16
<a href="#"><u>DISRUPTION OF GAMES DUE TO WEATHER (LIGHTNING, ETC)</u></a> .....	16
<a href="#"><u>INVASIVE MEDICAL PROCEDURES ON THE DAY OF COMPETITION</u></a> .....	17
<a href="#"><u>SPORTS RELATED SKIN INFECTIONS</u></a> .....	18
<a href="#"><u>SOFT OR PADDED HEADGEAR IN NON-HELMETED SPORTS POSITION STATEMENT</u></a> .....	20
<a href="#"><u>HYDRATION TO MINIMIZE THE RISK FOR DEHYDRATION AND HEAT ILLNESS</u></a> .....	21
<a href="#"><u>A PARENT'S GUIDE TO CONCUSSION</u></a> .....	24
<a href="#"><u>ANSWERING QUESTIONS ABOUT CTE</u></a> .....	30
<a href="#"><u>SDHSAA CONTACT POLICY</u></a> .....	32
SDHSAA AIR QUALITY GUIDANCE .....	34

**SEE “PHYSICAL EXAMS” ON FORMS PAGE OF SDHSAA WEBSITE FOR ANNUAL FORMS THAT ARE REQUIRED TO BE COMPLETED PRIOR TO EACH SCHOOL YEAR BY STUDENT ATHLETES.**

# PHYSICAL EXAMS AND HEALTH ISSUES

## PHYSICALS

Every student before being allowed to participate in interscholastic athletics must have passed a physical examination within the last three years. Each local school board shall decide the length between the exams; recommendations from the American Pediatrics and others who have helped design the physical exam and health history forms show no specific advantage/disadvantage between the options of annual, biennial or triennial. A pre-participation health history report must be completed annually. The very first time an athlete takes the exam, an Initial Pre-Participation History is required. Thereafter, participants must submit the Interim Pre-Participation History on an annual basis.

Students who are either 18 years of age, or those who will turn 18 years of age, must themselves sign off on forms as required by this information. Signatures from parents after a student has turned 18 are invalid.

Certification as to the adequacy of a student's health for athletic participation shall be restricted to a duly licensed doctor of medicine, doctor of osteopathy, doctor of chiropractic, licensed physicians assistant or licensed nurse practitioner.

Stamping the name of a medical clinic or a medical association as a substitute for the Doctor's signature is unacceptable. All exams must be signed by authorized medical personnel as listed in paragraph two above.

The date of the physical shall be entered on the annual report of student athletic participation made to the Executive Director by each member school.

In accordance with Chapter II, Part I, Section 3, of the SDHSAA Constitution and Bylaws member schools must also report on their Annual Athletic Eligibility Form the date of said exam and whether the physical exam is annual, biennial or triennial in length.

Physical forms are available on the SDHSAA website and should be reproduced by each member school in quantities sufficient to meet their needs. A copy of all forms must be kept on file at the school.

It is permissible to administer athletic physicals in the spring, summer or fall for the ensuing school term. Physicals taken in the spring for the ensuing school term shall be taken after April 1.

In addition to doctors of medicine, doctors of osteopathy and doctors of chiropractic; SDCL 36-4A-22 (1) gives physicians assistants the authority to give exams and sign the form. SDCL 36-9A-12 (5) gives nurse practitioners the authority to give exams and sign the forms.

## COMMUNICABLE DISEASE PROCEDURES

A national concern for the health and safety of all athletes dictates the need to develop policies that relate to infectious diseases such as HIV (Human Immunodeficiency Virus) and/or HBV (Hepatitis B Virus). Each of the NFHS Rule Books now include basic communicable disease procedures to follow. The South Dakota High School Activities Association also provides additional information below.

Doctors, coaches, athletic trainers and student trainers, who care for athletes should employ the universal precautions recommended currently by the Center for Disease Control in the care of all athletes, since medical history and examination cannot reliably identify patients infected with communicable diseases.

All those involved should be cognizant that anytime there is blood present that it be treated with respect regarding its ability to transmit infectious disease and therefore observe the following universal precautions for the athletic setting.

1. **Before competing, an athlete must cover any open wound on their body.** This will reduce the risk of transmission of a blood-borne pathogen from their open wound to the open wound or mucous membrane of another person or vice versa.
2. **An athlete should render first-aid to herself/himself and cover any of their own wounds whenever possible.**
3. **When rendering first-aid to others, an individual should wear protective gloves** (such as latex surgical gloves) **any time blood, open wounds or mucous membranes are involved.** The individual should wear clean gloves for each athlete treated or when treating the same athlete more than one time.
4. **If an individual gets someone else's blood on their skin,** they or person assisting (athletic trainer), should wear protective gloves and wipe the blood off with a disposable towel using an approved disinfectant such as hibistat towelettes or sodium hypochlorite (example bleach) diluted with water 1-100 (1/4 cup to 1 gallon of water).
5. **If an athlete begins to bleed during practice or competition, play must be stopped at the earliest possible time and the competitor should be escorted from the playing area for the appropriate treatment.** The athlete should not return to the game/practice until bleeding has been arrested and the open wound properly covered. If bleeding resumes the practice or contest must be stopped again and any potentially contaminated surfaces cleaned.
6. **Any potentially contaminated surfaces, such as a basketball court, wrestling mat, etc., should be cleaned before the practice session or competition resumes.** In wrestling, the mat should then be rinsed with clean water to avoid participants getting the disinfectant in their eyes. The individual doing the clean up should wear protective

gloves. **NOTE:** The most appropriate and cost effective disinfectant to clean all blood contaminate surfaces and equipment is sodium hypochlorite. Sodium hypochlorite, commonly known as household bleach, should be diluted in water 1-100. The solution must be prepared fresh each time used.

7. **If a competitor has an excessive (saturated) amount of blood on their uniform from either their own bleeding or from another player, the athlete must be removed from the contest.** Play must be stopped at the earliest possible time and the competitor escorted from the playing area. The uniform must be changed. The competitor may not return until the first opportunity to return as allowed by the rules. The change in jersey number is to be recorded in the scorebook with no penalty. Duplicate numbers are not allowed at the varsity level. It is not necessary to stop play because of blood on the uniform that is deemed not to be excessive. However the uniform should be cleaned at the earliest possible time by the recommended procedures.

**Note:** The use of hot water and soap is considered the best way to clean a bloodied uniform. If at all possible, the uniform should be removed during the cleaning process. The use of hibstat towelettes may be considered as another cleaning agent during a game.

8. **An individual who has treated an injury where blood is present** or has cleaned a potentially contaminated surface should wash their hands with soap and hot water or an approved disinfectant such as hibstat towelettes. In all cases, hands must be thoroughly washed after the gloves are removed.
9. **Towels which will be used for any purpose by athletes, coaches or officials** should not be used to clean blood off any potentially contaminated surface. Neither should towels be shared by athletes, coaches or officials.  
**NOTE:** Disposable towels should be used in all clean-up. Towels, protective gloves and other materials used in clean up, as well as any cotton used to stem bleeding, should be placed in a sealed container lined with a plastic bag. Close the plastic bag and discard daily. Do not reuse the plastic bags.
10. If an official or coach should get blood on himself/herself, they should follow the same procedures as suggested for the athlete.
11. All coaches, officials and athletes should practice good hygiene. Towels, cups and water bottles should not be shared.
12. Wash all soiled uniforms, towels, and other dirty linen in warm or hot soapy water. .
13. Officials should refrain from cleaning blood spills as this is the responsibility of the home management.

## **HEAT STRESS AND ATHLETIC PARTICIPATION**

Early fall practices are conducted in very hot and humid weather in many parts of the United States. There are no excuses for heatstroke deaths as they are generally 100% preventable. During all weather conditions, and not necessarily only warm, humid or hot conditions, athletes are subject to the following: **HEAT CRAMPS, HEAT SYNCOPE, HEAT EXHAUSTION AND HEAT STROKE.**

Each of the above-mentioned heat illnesses can be prevented provided certain precautions are taken. The following practices and precautions are recommended:

1. All Coaches, Head or Assistant, Paid or Volunteer, who coach a fall sport, must complete the NFHS online course for Heat Illness Prevention. This must be done annually prior to the assumption of coaching duties for the fall. All other coaches are also encouraged to view the material.
2. Each athlete should have a physical examination with a medical history when first entering a program and an annual health history update. History of previous heat illness and type of training activities before organized practice begins should be included. State High School Associations recommendations should be followed.
3. It is clear that top physical performance can only be achieved by an athlete who is in top physical condition. Lack of physical fitness impairs the performance of an athlete who participates in high temperatures. Coaches should know the PHYSICAL CONDITION of their athletes and set practice schedules accordingly.
4. Along with physical conditioning the factor of acclimatization to heat is important. Acclimatization is the process of becoming adjusted to heat and it is essential to provide for GRADUAL ACCLIMATIZATION. It is necessary for an athlete to exercise in the heat if he/she is to become acclimatized to it.
5. **WATER SHOULD BE AVAILABLE IN UNLIMITED QUANTITIES.** Check and be sure athletes are drinking the water. Replacement by thirst alone is inadequate. Test the air prior to practice or game using a wet bulb, globe, temperature index (WBGT index) which is based on the combined effects of air temperature, relative humidity, radiant heat and air movement. The following precautions are recommended when using the WBGT Index: (NATA, 2023). A chart can be found in the health section of the SDHSAA website. n  
Below 82 – Normal activity. Provide at least 3 breaks of at least 3 minutes each per workout.  
82-86.9 – Use discretion for intense or prolonged exercise. Watch at-risk players. Provide at least 3 breaks of at least 4 minutes each per workout.  
87-89.9 – Maximum practice time 2 hours. Football should use helmet, shoulder pads, and shorts, all protective equipment removed for conditioning. At least 4 breaks of at least 4 minutes each.  
90-92.0 – Maximum practice time 1 hour. No protective equipment. 20 minutes of rest breaks.  
92.1 and above- No outdoor workouts.

6. An alternative method for assessing heat and humidity is the weather guide or heat index. Refer to the SDHSAA website for a custom HI calculator.
7. Cooling by evaporation is proportional to the area of the skin exposed. In extremely hot and humid weather reduce the amount of clothing covering the body as much as possible.
8. Observe athletes carefully for signs of trouble, particularly athletes who lose significant weight and the eager athlete who constantly competes at his/her capacity. Some trouble signs are nausea, incoherence, fatigue, weakness, vomiting, cramps, weak rapid pulse, visual disturbance and unsteadiness.
9. Teams that encounter hot weather during the season through travel or following an unseasonably cool period, should be physically fit but will not be environmentally fit. Coaches in this situation should follow the above recommendations and substitute more frequently during games.
10. Know what to do in case of an emergency and have your emergency plans written with copies to all your staff. Be familiar with immediate first aid practice and prearranged procedures for obtaining medical care, including ambulance service.
11. Warn your athletes about the use of any products that contain ephedra. Ephedra has been associated with multiple heat stroke deaths in athletes. Ephedra speeds metabolism and increases body heat, constricts the blood vessels in the skin preventing the body from cooling itself, and by making the user feel more energetic it keeps him/her exercising longer when they should stop. Do not use ephedra or ephedra products.

## Heat Acclimatization and Heat Illness Prevention Position Statement National Federation of State High School Associations (NFHS) Sports Medicine Advisory Committee (SMAC)

**Exertional Heatstroke (EHS) is the leading cause of preventable death in high school athletics.** Students participating in high-intensity, long-duration or repeated same-day sports practices and training activities during the summer months or other hot-weather days are at greatest risk.

This NFHS Sports Medicine Advisory Committee (SMAC) position statement is the companion piece to the NFHSLearn.com online course “Heat Illness Prevention.” **This position statement provides an outline of “Fundamentals” and should be used as a guiding document by member state associations.** Further and more detailed information can be found within the NFHSLearn.com online course, the NFHS Sports Medicine Handbook, the NFHS SMAC “Position Statement and Recommendations for Maintaining Hydration to Optimize Performance and Minimize the Risk for Exertional Heat Illness” and the resources listed below.

**Following the recommended guidelines in this position statement and “Heat Illness Prevention” can reduce the risk and incidence of EHS and the resulting deaths and injuries in high school athletics.** The NFHS recognizes that various states and regions of the country have unique climates and variable resources, and that there is no “one-size-fits-all” optimal acclimatization plan. However, the NFHS and the NFHS SMAC strongly encourage member state associations to incorporate all of the “Fundamentals” into any heat acclimatization plan to improve athlete safety. In addition, the online course **“Heat Illness Prevention” should be required viewing for all coaches.**

### Heat Acclimatization and Safety Priorities:

- ☐ Recognize that EHS is the leading preventable cause of death among high school athletes.
- ☐ Know the importance of a formal pre-season heat acclimatization plan.
- ☐ Know the importance of having and implementing a specific hydration plan, keeping your athletes well-hydrated, and encouraging and providing ample opportunities for regular fluid replacement.
- ☐ Know the importance of appropriately modifying activities in relation to the environmental heat stress and contributing individual risk factors (e.g., illness, obesity) to keep your athletes safe and performing well.
- ☐ Know the importance for all members of the coaching staff to closely monitor all athletes during practice and training in the heat, and recognize the signs and symptoms of developing heat illnesses.
- ☐ Know the importance of, and resources for, establishing an emergency action plan and promptly implementing it in case of suspected EHS or other medical emergency.
- ☐ Energy drinks are NOT appropriate hydration fluids. Refer to NFHS SMAC “Position Statement and Recommendations for the Use of Energy Drinks by Young Athletes”.

## Fundamentals of a Heat Acclimatization Program

*1. Physical exertion and training activities should begin slowly and continue progressively. An athlete cannot be “conditioned” in a period of only two to three weeks.*

A. Begin with shorter, less intense practices and training activities, with longer recovery intervals between bouts of activity.

B. Minimize protective gear (helmets only, no shoulder pads) during first several practices, and introduce additional uniform and protective gear progressively over successive days.

C. Emphasize instruction over conditioning during the first several practices.

**Rationale:** The majority of heat-related deaths happen during the first few days of practice, usually prompted by doing too much, too soon, and in some cases with too much protective gear on too early in the season (wearing helmet, shoulder pads, pants and other protective gear). Players must be allowed the time to adapt safely to the environment, intensity, duration, and uniform/equipment.

*2. Keep each athlete’s individual level of conditioning and medical status in mind and adjust activity accordingly. These factors directly affect exertional heat illness risk.*

**Rationale:** Athletes begin each season’s practices and training activities at varying levels of physical fitness and varying levels of risk for exertional heat illness. For example, there is an increased risk if the athlete is obese, unfit, has been recently ill, has a previous history of exertional heat illness, or has Sick Cell Trait.

*3. Adjust intensity (lower) and rest breaks (increase frequency/duration), and consider reducing uniform and protective equipment, while being sure to monitor all players more closely as conditions are increasingly warm/humid, especially if there is a change in weather from the previous few days.*

**Rationale:** Coaches must be prepared to immediately adjust for changing weather conditions, while recognizing that tolerance to physical activity decreases and exertional heat illness risk increases, as the heat and/or humidity rise. Accordingly, it is imperative to adjust practices to maintain safety and performance.

*4. Athletes must begin practices and training activities adequately hydrated.*

**Rationale:** While proper hydration alone will not necessarily prevent exertional heat illness, it will decrease risk. Athletes can observe the color of their urine, which should be straw yellow or the color of lemonade, when adequately hydrated.

A urine color chart can be accessed at <http://www.urinecolors.com/themes/uctheme/assets/dehydration-chart.pdf>

*5. Recognize early signs of distress and developing exertional heat illness, and promptly adjust activity and treat appropriately. First aid should not be delayed!*

**Rationale:** An athlete will often show early signs and/or symptoms of developing exertional heat illness. If these signs and symptoms are promptly recognized and the athlete is appropriately treated, serious injury can be averted and the athlete can often be treated, rested and returned to activity when the signs and symptoms have resolved.

*6. Recognize more serious signs of exertional heat illness (clumsiness, stumbling, collapse, obvious behavioral changes and/or other central nervous system problems), immediately stop activity and promptly seek medical attention by activating the Emergency Medical System. On-site rapid cooling should begin immediately.*

**Rationale:** Immediate medical treatment and prompt rapid cooling can prevent death or minimize further injury in the athlete with EHS. Ideally, pools or tubs of ice water to be used for rapid cooling of athletes should be available on-site and personnel should be trained and practiced in using these facilities for rapid cooling. Ice water baths are the preferred method for rapid cooling, however, if ice water pools or tubs are not available, then applying ice packs to the neck, axillae, and groin and rotating ice water-soaked towels to all other areas of the body can be effective in cooling an affected athlete. **Remember- cool first, transport later.**

*7. An Emergency Action Plan with clearly defined written and practiced protocols should be developed and in place ahead of time.*

**Rationale:** An EAP should be in place in case of any emergency, as a prompt and appropriate response in any emergency situation can save a life. The EAP should be designed and practiced to address all teams (freshman, junior varsity, varsity) and all practice and game sites. For heat illness emergencies, emphasis must be place on **full body cooling prior to transport.**

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**April 2015**

**April 2012**

Revised 7/24

## **Heat-Acclimatization Regulations for SDHSAA Football**

1. Days 1 through 5 of the heat-acclimatization period consist of the first 5 days of formal practice. During this time, athletes may not participate in more than 1 practice per day.
2. If a practice is interrupted by inclement weather or heat restrictions, the practice should recommence once conditions are deemed safe. Total practice time should not exceed 3 hours in any 1 day.
3. A 1-hour maximum walk-through is permitted during days 1–5 of the heat-acclimatization period. However, a 3-hour recovery period should be inserted between the practice and walk-through (or vice versa). The only pieces of player equipment to be worn by the individuals during the walk-through are shoes and helmets. The only pieces of general equipment to be used during the walk-through are footballs and kicking tees.
4. During days 1 & 2 of the heat-acclimatization period, helmets are the only protective equipment permitted. During days 3 & 4, only helmets and shoulder pads permitted. Beginning on day 5, all protective equipment may be worn.
5. Beginning no earlier than day 6 and continuing through day 14 or the first scheduled varsity game, double-practice days must be followed by a single- practice day. On single-practice days, a 1-hour maximum walk-through is permitted, separated from the practice by at least 3 hours of continuous rest. When a double-practice day is followed by a rest day, another double- practice day is permitted after the rest day. Following the initial 14 days or varsity game, this restriction is removed.
6. On a double-practice day, neither practice should exceed 3 hours in duration, and student-athletes should not participate in more than 5 total hours of practice. Warm-up, stretching, cool-down, walk-through, conditioning, and weight-room activities are included as part of the practice time. The 2 practices should be separated by at least 3 continuous hours in a cool environment.
7. Because the risk of exertional heat illnesses during the preseason heat-acclimatization period is high, we strongly recommend that an medical personnel be on site before, during, and after all practices when possible.

### **\*NOTES:**

1. Consideration should also be taken for any practices conducted in hot and humid weather in non-air cooled facilities.
2. Marching Bands should be considered for Heat Acclimatization protocols.
3. Consult the Heat Index Calculator for more information at:  
<http://www.sdhsaa.com/Athletics/HealthSafetyIssues/HeatIndexCalculator.aspx>
4. Days are calculated inclusive of Sundays/weekends.

### **References:**

National Federation of State High School Associations Sports Medicine Advisory Committee. Heat acclimatization and heat illness prevention position statement. Published 2012, Revised 2022. <http://www.nfhs.org>.

## **Heat-Acclimatization Regulations for SDHSAA Fall Soccer & Tennis**

1. Days 1 through 5 of the heat-acclimatization period consist of the first 5 days of formal practice. During this time, athletes may not participate in more than 1 practice per day.
2. If a practice is interrupted by inclement weather or heat restrictions, the practice should recommence once conditions are deemed safe. Total practice time should not exceed 3 hours in any 1 day.
3. Beginning no earlier than day 6 and continuing through day 14 or the first varsity contest, double-practice days must be followed by a single-practice day. When a double-practice day is followed by a rest day, another double-practice day is permitted after the rest day.
4. On a double-practice day, neither practice should exceed 3 hours in duration, and student-athletes should not participate in more than 5 total hours of practice. Warm-up, stretching, cool-down, walk-through, conditioning, and weight-room activities are included as part of the practice time. The 2 practices should be separated by at least 3 continuous hours in a cool environment.
5. Because the risk of exertional heat illnesses during the preseason heat-acclimatization period is high, we strongly recommend that an athletic trainer be on site before, during, and after all practices.

### **\*NOTES:**

1. Consideration should also be taken for any practices conducted in hot and humid weather in non-air cooled facilities.
2. Consult the Heat Index Calculator for more information at:  
<http://www.sdhsaa.com/Athletics/HealthSafetyIssues/HeatIndexCalculator.aspx>
3. Days are calculated inclusive of Sundays/weekends.

### **References:**

National Federation of State High School Associations Sports Medicine Advisory Committee. Heat acclimatization and heat illness prevention position statement. Published 2012, Revised 2022. <http://www.nfhs.org>.

## **MRSA IN SPORTS PARTICIPATION**

Skin infections occasionally become a problem in all sports. Some activities are more prone to them than others. Recent outbreaks of MRSA (Methicillin-Resistant Staphylococcal aureus) have occurred prompting the development of new guidelines to: help identify an outbreak, means to minimize its spread and preventative measures to reduce its occurrence. First and foremost, simple hygienic measures must be used to prevent any form of infection from developing. All athletes should shower after each practice or competing event. Work-out gear or clothing needs to be washed at the end of each day or practice. Be sure to properly clean and disinfect all equipment that is in direct contact with an athlete's skin, i.e. mats, on a daily basis. Notify your parent and coach about any suspicious skin lesion and seek medical attention before practice or competing.

### **Simple Measures to Prevent or Minimize the Risk of MRSA**

- Shower after all competition
- Wash all work-out gear after practice or competition
- Certain sports require cleaning equipment (mats) before each practice or event
- Use liquid soap, not bar soap
- Refrain from cosmetic (whole body) shaving
- Don't share towels or hygiene products
- Notify parents and coach about any skin sores and have it evaluated by health care provider before returning to competition
- Shower before using whirlpools or cold tubs
- Refrain from using whirlpools or cold tubs with any open sores, scratches or scrapes

## **MRSA**

Staphylococcal aureus is a common bacterium that can exist on the body and under special circumstances in the nose. Rarely does it invade the skin and cause infections. When it does, it's usually in the form of impetigo or folliculitis. Methicillin-resistant staphylococcal aureus is a form of this bacterium that has developed resistance to certain antibiotics. One reason for concern is that this organism, previously only thought to exist in hospitals or nursing homes, has now spread into the community. Antibiotics, such as Penicillin and related medicines, which were used in the past, are now ineffective causing the problem we presently have. An aggressive form (1) that can spread quickly and usually appears as a boil or abscess (59%). Other forms, cellulitis (42%) and folliculitis (7%) can occur, but less frequent. This infection can invade deeper tissues and cause significant damage to the skin and muscles. Occasionally it can spread to the lungs and cause a serious type of pneumonia.

### **Risk Factors for MRSA**

Several issues increase the risk for MRSA to develop. Male-to-male sexual contact, history of intravenous drug usage and known contact with individuals with this bacterium serve as the greatest risk. Children and adolescents have a greater preponderance than adults (2). Other factors are: contact sports, i.e. football, wrestling, rugby and soccer, and history of recurrent boils (3-7).

### **What to do with an outbreak in an athlete**

As with any skin infection, treat the individual and remove them from competition and practice. All players should be screened for similar infections on a daily basis. If possible, work with one health care provider in your community. Continuity of medical care is of the utmost importance in managing these infections. If suspicious, culturing these infections will be necessary to ensure the proper antibiotics are being used. If multiple outbreaks develop on a team, i.e. clusters, contact your Public Health Department for assistance. Multiple outbreaks could indicate there are carriers for the bacteria on the team. If present, consider having nasal cultures obtained on all team members, including coaches, to determine who these carriers are. With a contact sport, consider treating all infected and carrier individuals with oral antibiotics. Once being treated, performing hexachlorophene (ex: Betacept®) body washes daily for one week will help to remove or 'decolonize' the bacterium from the body (8).



## What to do to prevent an outbreak

All clothing for practice and competition needs to be cleaned daily. Equipment-intense sports, i.e. football, hockey, need to address means to properly clean these items on a routine basis\*. Wrestling mats and gymnastic horse need to be disinfected (1:100 solution of household bleach and water) before each practice and several times a day throughout a tournament. Don't share any personal sporting equipment, i.e. gloves, knee pads. Don't use a whirlpool or cold tub with any open wounds, scrapes or scratches. Individuals need to shower immediately after practice and competition, consider showering multiple times during tournaments when several events occur each day and before using whirlpools or common tubs. Use soap from liquid dispensers, not shared bar soap. Require the use of personal towels and hygiene products. Sharing of these is felt to be a major source of spreading the bacterium to others. Refrain from cosmetic shaving of the skin, i.e. chest, back and pubic regions. Provided there aren't any outbreaks, carriers of MRSA can continue to compete in sporting events. Proper care of all skin abrasions or cuts will minimize the risk of an infection and its spread.

\* Cleaning of these equipment-intense sports can be difficult and costly. Manual disinfecting with 1:100 solution of household bleach and water is recommended. If not feasible, there are several companies that can clean larger pieces of equipment using various modalities (i.e., detergents, ozone). Consider seeking help from these companies or contact your local dry cleaners for assistance.

*Excerpts from:*

### **REDUCING HEAD AND NECK INJURIES IN FOOTBALL**

ROBERT C. CANTU, M.D.

Brain and spinal injuries in football have been dramatically reduced since the rules were changed in 1976 to prohibit butt blocking and face tackling, and any other technique in which the helmet and facemask purposely received the brunt of the initial impact. There are still a small number of football players (and fewer in other sports) that become paralyzed, but the lesson to keep the head and face out of blocking and tackling remains.

Generally, about 3 – 5% of the injuries experienced by participants in athletics are concussions, e.g., temporary dizziness, confusion, nausea, headaches, and perhaps unconsciousness. Concussions are given grades from Grade 1 (a hit that dazes for a few minutes to Grade 3 (unconscious). No concussion should be dismissed as minor until proven so by medical personnel. The task is to be sure that the athlete no longer has any post concussion symptoms at rest and exertion before returning to competition. What is now called “the second impact syndrome” with its high rate of morbidity, if not mortality, is the result of returning to play too soon.

Suggestions for reducing brain and spinal injuries follow:

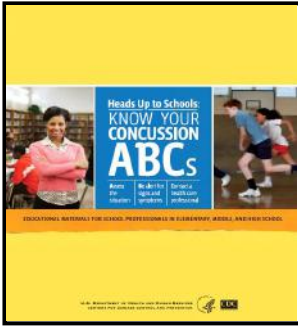
1. Preseason physical exams for all participants. Identify during the physical exam those athletes with a history of previous brain or spinal injuries. If the physician has any questions about the athlete's readiness to participate, the athlete should not be allowed to play.
2. The total staff should be organized in that each person will know what to do in case of a brain or spinal injury in game or practice. Have a plan ready and have your staff prepared to implement that plan. Prevention of further injury is the main objective.
3. Athletes must be given proper conditioning exercises which will strengthen their neck muscles in order for them to be able to hold their head firmly erect when making contact. Strong neck muscles may help prevent neck injuries.
4. Coaches should drill the athletes in the proper execution of the fundamentals of the football skills, particularly blocking and tackling. **KEEP THE HEAD OUT OF FOOTBALL.**
5. Coaches and officials should discourage the players from using their heads as battering rams. The rules prohibiting spearing should be enforced in practice and games. The players should be taught to respect the helmet as a protective device and that the helmet should not be used as a weapon.
6. All coaches, physicians and trainers should take special care to see that the players' equipment is properly fitted, particularly the helmet.
7. Strict enforcement of the rules of the game by both coaches and officials will help reduce serious injuries.
8. When a player has experienced or shown signs of brain trauma (loss of consciousness, visual disturbances, headache, inability to walk correctly, obvious disorientation, memory loss) he/she should receive immediate medical attention and should not be allowed to return to practice or game without permission from the proper medical authorities. Coaches should encourage players to let them know if they have any of the above mentioned symptoms (that can't be seen by others, such as headaches) and why it is important.
9. Both athletes and their parents should be warned of the risks of injuries.

10. Coaches should not be hired if they do not have the training and experience needed to teach the skills of the sport and to properly train and develop the athletes for competition.

Following is a list of Post Concussion: Signs/Symptoms:

Depression	Numbness/tingling	Dizziness	Poor Balance
Drowsiness	Poor Concentration	Excess Sleep	Ringling in the ears
Fatigue	Sadness	Feel “in fog”	Sensitive to Light
Headache	Sensitivity to Noise	Irritability	Trouble falling asleep
Memory Problems	Vomiting	Nausea	Nervousness

## ***Concussions don't only happen to athletes on the playing field.***



That's why the Centers for Disease Control and Prevention (CDC) and the National Federation of State High School Associations (NFHS), as well as several other distinguished organizations encourage school professionals to use new the “[Heads Up to Schools: Know Your Concussion ABCs](#)” materials.

CDC created this flexible set of materials, including fact sheets, a checklist, a poster, and a magnet, to help school professionals identify and respond to concussions in an array of school settings.

### ***How Can these Materials be Used?***

School nurses can keep these materials in their office and also present them to other school staff during staff meetings. The signs and symptoms checklist is particularly useful in helping to monitor a student with a head injury. The [Fact Sheet for Parents](#) should be sent home with a student who has a head injury, so that mom and dad know which symptoms to look out for at home.

Other school professionals can use the [Fact Sheet for Teachers, Counselors, and School Professionals](#) as a quick reference guide in the classroom. The magnet and poster can be placed in any number of locations, from a school filing cabinet to the refrigerator in the staff lounge. The laminated card can be placed in first aid kits or taken on field trips.

**Because children and adolescents are at greatest risk of concussion**—and we know that you are dedicated to their safety as well as their education—**CDC and the NFHS urge you to use and promote the “Heads Up to Schools” materials with your member schools in your state.**

To download these materials, please visit: [www.cdc.gov/Concussion](http://www.cdc.gov/Concussion).

*The “Heads Up to Schools: Know Your Concussion ABC’s” materials are part of CDC’s Heads Up series of initiatives for different audiences. For great resources specifically designed for Youth Sports and High School Coaches, please also visit: [www.cdc.gov/Concussion](http://www.cdc.gov/Concussion).*

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## How Can I Tell If I Have a Concussion?

You may have a concussion if you have any of these symptoms after a bump, blow, or jolt to the head or body:

-  ..... **Get a headache**
-  ..... **Feel dizzy, sluggish, or foggy**
-  ..... **Are bothered by light or noise**
-  ..... **Have double or blurry vision**
-  ..... **Vomit or feel sick to your stomach**
-  ..... **Have trouble focusing or problems remembering**
-  ..... **Feel more emotional or “down”**
-  ..... **Feel confused**
-  ..... **Have problems with sleep**

Concussion symptoms usually show up right away, but you might not notice that something “isn’t right” for hours or days. A concussion feels different to each person, so it is important to tell your parents and doctor how you are feeling.

## How Can I Help My Team?



### **Protect Your Brain.**

Avoid hits to the head and follow the rules for safe and fair play to lower your chances of getting a concussion. Ask your coaches for more tips.



### **Be a Team Player.**

You play an important role as part of a team. Encourage your teammates to report their symptoms and help them feel comfortable taking the time they need to get better.

The information provided in this document or through linkages to other sites is not a substitute for medical or professional care. Questions about diagnosis and treatment for concussion should be directed to a physician or other healthcare provider.

Revised January 2019

To learn more,  
go to [cdc.gov/HEADSUP](https://cdc.gov/HEADSUP)



# A FACT SHEET FOR Parents



## What is a concussion?

A concussion is a type of brain injury that changes the way the brain normally works. A concussion is caused by a bump, blow, or jolt to the head. Concussions can also occur from a blow to the body that causes the head and brain to move rapidly back and forth. Even what seems to be a mild bump to the head can be serious. Concussions can have a more serious effect on a young, developing brain and need to be addressed correctly.

## What are the signs and symptoms of a concussion?

You can't see a concussion. Signs and symptoms of concussion can show up right after an injury or may not appear or be noticed until hours or days after the injury. It is important to watch for changes in how your child or teen is acting or feeling, if symptoms are getting worse, or if s/he just "doesn't feel right." Most concussions occur without loss of consciousness.

If your child or teen reports one or more of the symptoms of concussion listed below, or if you notice the signs or symptoms yourself, seek medical attention right away. Children and teens are among those at greatest risk for concussion.

## Signs & Symptoms of a Concussion

### Signs Observed by Parents or Guardians

- Appears dazed or stunned
- Is confused about events
- Answers questions slowly
- Repeats questions
- Can't recall events *prior* to hit, bump, or fall
- Can't recall events *after* hit, bump, or fall
- Loses consciousness (even briefly)
- Shows behavior or personality changes
- Forgets class schedule or assignments

### Symptoms Reported by Your Child or Teen

#### Thinking/Remembering

- Difficulty thinking clearly
- Difficulty concentrating or remembering
- Feeling more slowed down
- Feeling sluggish, hazy, foggy, or groggy

#### Physical

- Headache or "pressure" in head
- Nausea or vomiting
- Balance problems or dizziness
- Fatigue or feeling tired
- Blurry or double vision
- Sensitivity to light or noise
- Numbness or tingling
- Does not "feel right"

#### Emotional

- Irritable
- Sad
- More emotional than usual
- Nervous

#### Sleep\*

- Drowsy
- Sleeps *less* than usual
- Sleeps *more* than usual

*\*Only ask about sleep symptoms if the injury occurred on a prior day.*

To download this fact sheet in Spanish, please visit: [www.cdc.gov/HEADSUP](http://www.cdc.gov/HEADSUP). Para obtener una copia electrónica de esta hoja de información en español, por favor visite: [www.cdc.gov/HEADSUP](http://www.cdc.gov/HEADSUP)  
January 2021



# Danger Signs

Be alert for symptoms that worsen over time. Your child or teen should be seen in an emergency department right away if she or he has one or more of these danger signs:

- One pupil (the black part in the middle of the eye) larger than the other
- Drowsiness or cannot be awakened
- A headache that gets worse and does not go away
- Weakness, numbness, or decreased coordination
- Repeated vomiting or nausea
- Slurred speech
- Convulsions or seizures
- Difficulty recognizing people or places
- Increasing confusion, restlessness, or agitation
- Unusual behavior
- Loss of consciousness (even a brief loss of consciousness should be taken seriously)

**Children and teens with a suspected concussion should NEVER return to sports or recreation activities on the same day the injured occurred.**

They should delay returning to their activities until a healthcare provider experienced in evaluating for concussion says it's OK to return to play. This means, until permitted, not returning to:

- Physical Education (PE) class
- Sports practices or games
- Physical activity at recess

## ➤ What should I do if my child or teen has a concussion?

### 1. Seek medical attention right away.

A healthcare provider experienced in evaluating for concussion can determine how serious the concussion is and when it is safe for your child or teen to return to normal activities, including physical activity and school (concentration and learning activities).

### 2. Help them take time to get better.

If your child or teen has a concussion, her or his brain needs time to heal. Your child or teen may need to limit activities while s/he is recovering from a concussion. Exercising or activities that involve a lot of concentration, such as studying, working on the computer, or playing video games may cause concussion symptoms (such as headache or tiredness) to reappear or get worse. After a concussion, physical and cognitive activities—such as concentration and learning—should be carefully managed and monitored by a healthcare provider.

### 3. Talk to your child or teen about how they are feeling.

Your child may feel frustrated, sad, and even angry because s/he cannot return to recreation and sports right away, or cannot keep up with schoolwork. Your child may also feel isolated from peers and social networks. Talk often with your child about these issues and offer your support and encouragement.

## ➤ How can I help my child return to school safely after a concussion?

Most children can return to school within a few days. Help your child or teen get needed support when returning to school after a concussion. Talk with your child's teachers, school nurse, coach, speech-language pathologist, or counselor about your child's concussion and symptoms.

Your child's or teen's healthcare provider can use CDC's Letter to Schools to provide strategies to help the school set up any needed supports.

As your child's symptoms decrease, the extra help or support can be removed gradually. Children and teens who return to school after a concussion may need to:

- Take rest breaks as needed
- Spend fewer hours at school
- Be given more time to take tests or complete assignments
- Receive help with schoolwork
- Reduce time spent reading, writing, or on the computer
- Sit out of physical activities, such as recess, PE, and sports until approved by a healthcare provider
- Complete fewer assignments
- Avoid noisy and over-stimulating environments

To learn more, go to [www.cdc.gov/HEADSUP](http://www.cdc.gov/HEADSUP) or call 1.800.CDC.INFO

January 2021



### **PERFORMANCE-ENHANCING RESOLUTION**

School personnel and coaches should not dispense any drug, medication or food supplement except with extreme caution and in accordance with policies developed in consultation with parents, health-care professionals and senior administrative personnel of the school or school district. Use of any drug, medication or food supplement in a way not prescribed by the manufacturer should not be authorized or encouraged by school personnel and coaches. Even natural substances in unnatural amounts may have short-term or long-term negative health effects.

In order to minimize health and safety risks to student-athletes, maintain ethical standards and reduce liability risks, school personnel and coaches should never supply, recommend or permit the use of any drug, medication or food supplement solely for performance-enhancing purposes.

### **SDHSAA and NFHS POLICY STATEMENT ON STEROIDS**

The South Dakota High School Activities Association (SDHSAA) and the National Federation of State High School Associations (NFHS), strongly oppose the abuse of anabolic steroids and other performance-enhancing substances by high school student-athletes. Such use violates legal, ethical and competitive equity standards, and imposes unreasonable long-term health risks.

The SDHSAA and the NFHS support prohibitions by educational institutions, amateur and professional organizations and governmental regulators on the use of anabolic steroids and other controlled substances, except as specifically prescribed by physicians for therapeutic purposes.

### **EXTRA TIME-OUT DUE TO HEAT**

The National Federation Football rule authorized all football officials to call an “extra time-out” in the event of heat/humidity. This time-out is not charged to either team. The officials are authorized to call time somewhere close to the mid-point of each quarter. It should be taken at a time when it will not strategically benefit or work to the disadvantage of either team. The decision as to whether extra time-outs will be taken should be dealt with prior to the start of game. The rationale for taking these additional time-outs is concern for the safety and health of the athletes. The additional time-outs will enable the athletes to cool down a bit and also get a drink of water or some other appropriate fluids.

### **DISRUPTION OF GAMES DUE TO WEATHER (LIGHTNING) ETC.**

Officials and school personnel should always rule on the side of safety and postpone or delay any outside activity when threatening weather exist. If there is any doubt as to whether the contest should be suspended, it is always better to error on the side of safety. The decision to suspend a contest lies with the game officials. However, local school administrators should not hesitate to discuss a suspension of play with the officials if they feel weather conditions warrant. Teams should be sent to their respective locker rooms or buses and fans should be instructed to leave the stadium. Full policy information for these situations can be found in the back of any/all outdoor sports NFHS Rules Books.



**Invasive Medical Procedures on the Day of Competition  
Position Statement  
National Federation of State High School Associations (NFHS)  
Sports Medicine Advisory Committee (SMAC)**

The NFHS Sports Medicine Advisory Committee (SMAC) investigates and considers the potential health and safety impact to student-athletes of numerous issues, rules, and situations. One of these issues involves the use of invasive medical procedures on the day of a contest.

This position statement is intended to represent the general philosophy of the NFHS SMAC and is not intended to be used as a rule or to direct the individual practice of medicine by highly trained and experienced sports medicine physicians. In considering invasive medical procedures, the NFHS SMAC recommends that physicians remember that the patient is a high school-aged, interscholastic student-athlete.

The NFHS SMAC encourages a philosophy that high school athletics serve the purpose of providing boys and girls the opportunity for personal growth in a reasonably and acceptably safe environment. Medical interventions can enhance athletic performance by promoting improved health and fitness and providing better control of chronic disease processes. Medical intervention can also enhance athletic performance by minimizing the symptoms of injury without increasing the risk of additional injury.

Medical interventions which increase the risk of disease exacerbation or additional injury are never appropriate on the day of competition, or on any other day, for a high school student-athlete. There are three steps of decision making for the basis of the Return to Play decision<sup>1</sup>. These include evaluation of health risks, participation risks, and any factors in decision modification. If a disease process or injury is not adequately controlled by the day of competition to allow safe clearance for play with full function, then invasive medical procedures on the day of competition, performed with the sole purpose of enabling the student-athlete to participate, are philosophically inappropriate.

1. Creighton DW, Shrier I, Shultz, R, et al. *Return-To-Play in Sport: a Decision-based Model*. Clin J Sport Med. 2010; 20:379-385.

**Revised and Approved May 2020**  
**April 2016**  
**April 2013**  
**April 2009**

**DISCLAIMER – NFHS Position Statements and Guidelines**

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**Sports Related Skin Infections  
Position Statement and Guidelines  
National Federation of State High School Association (NFHS)  
Sports Medicine Advisory Committee (SMAC)**

Skin-related infections in both the community setting and the sports environment have increased considerably over the past several years. While the majority of these infections are transmitted through skin-to-skin contact, a significant number are due to shared equipment, towels or poor hygiene in general. The NFHS Sports Medicine Advisory Committee (SMAC) has put forth general guidelines for the prevention of the spread of these infectious diseases (See NFHS General Guidelines for Sports Hygiene, Skin Infections and Communicable Diseases).

The NFHS SMAC recognizes that even with strict adherence to these guidelines, given the nature of certain sports, skin infections will continue to occur. For example, the risk of transmission is much higher in sports with a great deal of direct skin-to-skin contact such as wrestling and football. Therefore, the NFHS SMAC has developed specific guidelines for the skin infections most commonly encountered in sports. The guidelines set forth follow the principles of Universal Precautions and err in favor of protecting participants in situations where skin-to-skin contact may occur. Consideration may be given to the particular sport regarding risk of transmission, but these guidelines must be strictly adhered to in sports where skin-to-skin contact is frequent and unavoidable.

**Tinea Corporis (ringworm), Tinea Capitis (scalp), Tinea Cruris (groin)**

These fungal lesions are due to dermatophytes. Diagnosis can be made visually or by a KOH preparation if diagnosis is in question. As they are easily transmissible, the student should be treated with a topical antifungal medication (terbinafine or naftidine) for a minimum of 72 hours prior to participation and a minimum of 1 week after lesion resolution. Persistent lesions require oral anti-fungal medications. Once the lesion is considered to be no longer contagious, it may be covered with a bio-occlusive dressing. For scalp involvement (Tinea Capitis), the infection is more difficult to treat and requires 14 days of oral antifungal medication before return to practice and competition. With scalp involvement, shedding of fungal spores can persist well beyond 2 weeks. Consider washing scalp before practice with ketoconazole 1% shampoo to reduce transmission of spores. Continue with treatment until scalp lesions are gone. Tinea Cruris is a groin infection. Treatment with a topical antifungal until resolution is usually adequate. As lesion is covered by the uniform no exclusion from participation is indicated. Athletes should be reminded to wash hands with soap and water after applying medication.

**Impetigo, Folliculitis, Carbuncle and Furuncle**

While these infections may be secondary to a variety of bacteria, methicillin-resistant *Staphylococcus aureus* (MRSA) infections are of greatest concern. MRSA presents as abscess formation and if not properly addressed, can lead to serious consequences and possible reoccurrence. An infected athlete should be treated and removed from practice and competition. Treatment may consist of incision and drainage with appropriate oral antibiotics based on culture if available. If MRSA is present, abscess incision and drainage is recommended for return to practice and competition may be considered after 72 hours of treatment, provided there is no further drainage or new abscess formation. For non-MRSA infections, return to contact practices and competition may occur after 72 hours of treatment, provided the infection is not actively draining and is being treated. At this time the involved site may be covered with a bio-occlusive dressing. If there is spontaneous drainage or incision and drainage, then may return to practice and competition after 72 hours of treatment. All lesions should be considered infectious until each one has a well-adherent scab without any drainage or weeping fluids. Once a lesion is no longer considered infectious, it should be covered with a bio-occlusive dressing until complete resolution.

During the time when a student has been identified with any of these infections, increased screening should occur. At this time, all team members should be carefully screened for similar infections on a daily basis by a knowledgeable coach or appropriate health-care professional. If multiple students are infected, consideration should be given to contacting the local or state health department for further guidance.

**Varicella/Zoster (shingles), Herpes Simplex (HSV1, cold sore, fever blister)**

These are viral infections, which are transmitted by skin-to-skin contact. Contact with fluid from a shingles lesion can cause varicella (chickenpox) in an individual who has never had chickenpox or the varicella vaccine. Fever blisters (cold sores) are HSV1 infections around the mouth and lips. Lesions on exposed areas of skin that are not covered by clothing, uniform or equipment require the player to be withdrawn from any activity that may result in direct skin-to-skin contact with another participant. Covering infectious lesions with an occlusive dressing is not adequate, sufficient, or acceptable. Prior to returning to participation, primary outbreaks of shingles and cold sores

require 10-14 days of oral antiviral medications, while recurrent outbreaks require 120 hours of treatment as a minimum treatment time. For a student to be considered “non-contagious,” all lesions must be scabbed over with no oozing or discharge, no new lesions should have occurred in the preceding 72 hours, and no systemic symptoms (fever, malaise).

### **Herpes Gladiatorum**

This skin infection, primarily seen among wrestlers, is caused by herpes simplex virus Type 1 (HSV-1). The spreading of this virus is strictly skin-to-skin. The majority of the outbreaks develop on the head, face and neck, reflecting the typical wrestling lock-up position. The initial outbreak is characterized by a raised rash with groupings of 6-10 vesicles (blisters). For head, face and neck involvement, symptoms include sore throat, fever, malaise and swollen cervical lymph nodes. The infected individual must be immediately removed from contact (practices and contests) and seek appropriate care and treatment. Return to contact is permissible only after all lesions are healed with well-adherent scabs, no new vesicles have formed, and no swollen lymph nodes remain near the infected area. Oral antiviral medications should be started and can expedite the clearing of an outbreak. Careful consideration should be given to prophylactic oral antivirals for the remainder of the season and each subsequent season. For a primary infection (first episode of Herpes Gladiatorum), wrestlers should be treated and not allowed to practice or compete for a minimum of 10 days. If general body signs and symptoms like fever and swollen lymph nodes are present, that minimum period of treatment should be extended to 14 days. If antivirals are not used, the infected participant may return to full contact wrestling only after all lesions are well-healed with well-adhered scabs, there has been no new vesicle formation in the preceding 72 hours, and there are no swollen lymph nodes near the affected area. The infected individual must be immediately removed from contact (practices and contests) and seek appropriate care and treatment. Return to contact is permissible only after all lesions are healed with well-adherent scabs, no new vesicles have formed, and no swollen lymph nodes remain near the affected area.

Recurrent outbreaks usually involve a smaller area of skin, milder systemic illness and a shorter duration of symptoms. Treatment should include oral antivirals. If antiviral therapy is initiated, the participant must be held from contact sports for a minimum of 120 hours. Even greater consideration should be given to prophylactic antivirals for the remainder of the season. As the herpes virus may spread prior to vesicle formation, anyone in contact with the infected individual during the three days prior to the outbreak **must** be isolated from any contact activity for eight days and be examined daily by a knowledgeable coach or appropriate health-care professional for suspicious skin lesions.

### **Miscellaneous Viral Infections**

Verrucae (warts) are skin infections that are also caused by viruses but are not considered highly contagious. Therefore, these lesions require no treatment or restrictions, but should be covered if prone to bleeding when abraded. Molluscum contagiosum is considered contagious and transmits via direct skin-to-skin contact. Treatment consists of expressing the material from each vesicle and lightly treating with a hyfrecator, usually performed by an appropriate health-care professional. Participation can ensue immediately after treatment, provided sites are covered with a bio-occlusive dressing.

### **Revised and Approved January 2022**

**April 2018**

**April 2016**

**April 2013**

**April 2010**

**October 2006**

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**Soft Headgear in Non-Helmeted Sports Position Statement**  
**National Federation of State High School Associations (NFHS)**  
**Sports Medicine Advisory Committee (SMAC)**

There is currently limited medical evidence to support the use of soft headgear products to reduce the risk of concussion. Their design and recommended uses do not fully address the suspected mechanisms of concussive injury such as acceleration, deceleration, and rotational forces acting upon the brain. The permissive use of soft headgear in some non-helmeted sports is allowed, but the primary intent of the usage should not be concussion prevention.

A recent study of high school soccer players showed no reduction in concussion risk among boys wearing soft headgear, but did show they may be effective in reducing concussion risk in girls.

The use of soft headgear may produce unintended consequences, including providing a false sense of security to athletes. While a recent study shows that the use of soft headgear in soccer players did not result in an increase in other injuries, a false sense of security may result in athletes, coaches, and parents/guardians, placing less emphasis upon other strategies that include, but are not limited to: avoidance of head impact and foul play, concussion education, and the immediate reporting of concussion symptoms.

The NFHS SMAC is aware of reports of athletes with a history of concussions being returned to play contact sports wearing soft headgear in an attempt to lessen further concussion risk. The NFHS SMAC strongly advises against using soft headgear as a justification to permit medical clearance of an athlete who would otherwise not be medically cleared to participate in a contact sport. However, soft headgear may be used to cover soft tissue injuries (such as lacerations and sutures) if deemed appropriate within the sport's playing rules.

When considering the use of soft headgear in non-helmeted sports, athletes, parents/guardians, and coaches should evaluate the available literature and read the manufacturers' instructions that address specific limitations in preventing injuries to the head and brain. Additionally, they should read the warning labels and should monitor that the equipment is being used as intended.

Valid scientific research should continue to be pursued to determine the ability of soft headgear to decrease the incidence of concussion. The NFHS SMAC will continue to monitor research and will consider revision of this position statement should significant evidence arise.

In summary, protective headgear is required by NFHS rules in some sports and is permissive in others. Hard helmets can decrease the incidence of certain head trauma, such as skull fractures and subdural hematomas. Soft headgear may protect against cuts and bruises to the scalp and forehead. Coaches, athletes and parents/guardians should review the manufacturers' warnings about proper usage and performance limits of such products. **No helmet or headgear can eliminate the risk of concussion and all sports should be played, coached, and officiated in recognition of that fact.**

**References:**

**McGuine T et al. Does soccer headgear reduce the incidence of sport-related concussion? A cluster, randomised controlled trial of adolescent athletes. Br J Sports Med, 2019.**

**Approved April 2019**

**April 2017**

**June 2013**

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**POSITION STATEMENT AND RECOMMENDATIONS**  
**FOR MAINTAINING HYDRATION TO OPTIMIZE PERFORMANCE AND**  
**MINIMIZE THE RISK FOR EXERTIONAL HEAT ILLNESS**

**National Federation of State High School Associations (NFHS)**  
**Sports Medicine Advisory Committee (SMAC)**

**DEHYDRATION, ITS EFFECTS ON PERFORMANCE, AND ITS RELATIONSHIP TO HEAT ILLNESS:**

- Appropriate hydration before, during, and after physical activity is integral to healthy, safe and successful sports participation.
- Weight loss during exercise and other physical activity represents primarily a loss of body water. A loss of just 1 to 2% of body weight (1.5 to 3 pounds for a 150-pound athlete) can negatively impact performance. A loss of 3% or more of body weight during vigorous exercise can also significantly increase the risk for exertional heat-related illness. If an athlete is already dehydrated prior to beginning activity, these effects will occur even sooner.
- Athletes should be weighed (in shorts and T-shirt) before and after warm or hot weather practice sessions and contests to assess their estimated change in hydration status.
- Athletes with high body fat percentages can become significantly dehydrated and over-heat faster than athletes with lower body fat percentages, while working out under the same environmental conditions at the same or similar workload.
- Athletes have different sweating rates and some lose much more water and salt through their sweat than others. “Salty sweaters” will often have noticeable salt stains on their clothing and skin after workouts, and they often have a higher risk of developing exertional muscle cramps.
- Poor heat acclimatization/fitness levels can greatly contribute to an athlete’s heat intolerance and exertional heat illness risk.
- Certain medications or current/recent illness, especially for illnesses involving gastrointestinal distress (e.g., vomiting, diarrhea) and/or fever, can negatively affect an athlete’s hydration status and temperature regulation, increasing the risk for exertional heat illness.
- Environmental temperature and humidity each independently contribute to dehydration and exertional heat illness risk.
- Clothing that is dark or bulky, as well as protective equipment (such as helmets, shoulder pads and other padding and coverings), can increase body temperature, sweat loss and subsequent dehydration and exertional heat illness risk.
- Even naturally dry climates can have high humidity on the field if irrigation systems are run prior to early morning practices start. This temporary increase in humidity will continue until the water completely soaks into the ground or evaporates.
- A heat safety table should be followed to help determine if practices/contests should be modified or cancelled. The National Athletic Trainers Association (NATA) Guidelines for Wet Bulb Globe Temperature (WBGT) can be found at <https://kestrelinstruments.com/mwdownloads/download/link/id/356>
  - On-site wet-bulb temperature is the “gold standard” for assessing heat index and should be measured 10-15 minutes before practices or contests. The results should be used with a heat index to determine if practices or contests should be started, modified, or stopped.
  - If WBGT measurement is not available, the heat index for your approximate location can be determined by entering your postal zip code: <http://www.osaa.org/heatindex/>
  - Best practices may be established by your state and region by your state athletic association. We recommend strict adherence to state or regional guidelines.

### **The interplay of relative humidity and temperature on sweating and the risk for exertional heat illness:**

- A combined relative humidity of 40 percent and a temperature of 95 degrees Fahrenheit are associated with a *likely risk* of incurring significant sweat loss and exertional heat illness during strenuous physical activity. However, even with a *lower air temperature* of only 85 degrees Fahrenheit, for example, the risk for extensive sweating and exertional heat illness would likely be the *same or greater with a higher relative humidity* of 70 percent or more.

### **WHAT TO DRINK DURING EXERCISE AND OTHER PHYSICAL ACTIVITY:**

- For most exercising athletes in most scenarios, water is appropriate and sufficient for pre-hydration and rehydration. Water is quickly absorbed, well-tolerated, an excellent thirst quencher and cost-effective.
- Traditional sports drinks with an appropriate carbohydrate and sodium formulation may provide additional benefit in the following general situations:
  - Prolonged continuous or intermittent activity of greater than 60 minutes
  - Multiple, same-day bouts of intense, continuous or repeated exertion
  - Warm-to-hot and humid conditions
- Traditional sports drinks with an appropriate carbohydrate and sodium formulation may provide additional benefit for the following individual conditions:
  - Poor hydration prior to participation
  - A high sweat rate and/or “salty sweater”
  - Poor caloric intake prior to participation
  - Poor acclimatization to heat and humidity
- A 6 to 8% carbohydrate formulation is the maximum that should be utilized in a sports drink. Any greater concentration will slow stomach emptying and potentially cause the athlete to feel bloated. An appropriate sodium concentration (0.4–1.2 grams per liter) will help with fluid retention and distribution and decrease the risk of exertional muscle cramping.

### **WHAT NOT TO DRINK DURING EXERCISE AND OTHER PHYSICAL ACTIVITY:**

- Fruit juices with greater than 8 percent carbohydrate content and carbonated soda can both result in a bloated feeling and abdominal cramping.
- Athletes should be aware that nutritional supplements are not limited to pills and powders as many “energy” drinks contain high levels of sugar, caffeine, and other sources of caffeine such as guarana and green tea extract.
  - The high levels of sugar and caffeine may result in increased anxiety, jitteriness, nausea, and upset stomach or diarrhea. Both can act as a diuretic, leading to increased risk of dehydration.
  - Many of these drinks are being produced by traditional water, soft drink and sports drink companies which can cause confusion in the sports community. As is true with other forms of supplements, these “power drinks”, “energy drinks”, or “fluid supplements” are not regulated by the FDA. Thus, the purity and accuracy of contents on the label is not guaranteed.
  - Many of these beverages which claim to increase power, energy, and endurance, among other claims, may have additional ingredients that are not listed. Such ingredients may be harmful and may be banned by governing bodies like the NCAA, USOC, or individual state athletic associations.

- See the **NFHS Position Statement and Recommendations for the use of Energy Drinks by Young Athletes** for further information.

## **HYDRATION AND FLUID INTAKE TIPS AND GUIDELINES:**

- Many athletes do not voluntarily drink enough water to prevent significant dehydration during physical activity.
- Drink regularly throughout all physical activities. An athlete cannot always rely on his or her sense of thirst to sufficiently maintain proper hydration. When athletes begin to feel thirsty, they are already in an early state of dehydration.
- Drink before, during, and after practices and games. For example:
  - Drink 16 ounces of fluid 2 hours before physical activity.
  - Drink another 8 to 16 ounces 15 minutes before physical activity.
  - During physical activity, drink 4 to 8 ounces of fluid every 15 to 20 minutes (some athletes who sweat considerably can safely and comfortably tolerate up to 48 ounces per hour).
  - After physical activity, drink 16 to 20 ounces of fluid for every pound lost during physical activity to achieve normal hydration status before the next practice or competition (if there is sufficient time to do this safely and comfortably). Importantly, excessive fluid intake in a short period of time can be dangerous to one's health (see below on hyponatremia).
- The volume and color of your urine is an excellent way of determining if you're well hydrated. Small amounts of dark urine mean that you need to drink more, while a "regular" amount of light-colored or nearly clear urine generally means you are well hydrated. A Urine Color Chart can be accessed at: <http://www.urinecolors.com/themes/uctheme/assets/dehydration-chart.pdf>
- Hyponatremia is a rare, but potentially deadly disorder resulting from the over-consumption of water or other low-sodium fluid (including most sports drinks). It is most commonly seen during endurance events, such as marathons, when participants consume large amounts of water or other beverages over several hours, far exceeding fluid lost through sweating. The opposite of dehydration, hyponatremia is a condition where there is an excessive amount of water in the blood and the sodium content of the blood is consequently diluted to dangerous levels. Affected individuals may exhibit disorientation, altered mental status, headache, lethargy and seizures. A confirmed diagnosis can only be made by testing blood sodium levels. Suspected hyponatremia is a medical emergency and the Emergency Medical System must be activated (or Call 9-1-1). Hyponatremia is treated by administering intravenous fluids containing high levels of sodium.

References available at <https://www.nfhs.org/media/5919614/nfhs-hydration-position-statement-april-2022-final.pdf>

**Revised and Approved April 2022**

**April 2018, October 2014, October 2011, October 2008**

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## A PARENT'S / GUARDIAN'S GUIDE TO CONCUSSION

National Federation of State High School Associations (NFHS)  
Sports Medicine Advisory Committee (SMAC)

### What is a concussion?

- A concussion is a traumatic brain injury that interferes with the normal function of the brain. Concussions were previously referred to as a “ding” or a “bell-ringer” but this undermines the seriousness of problem. Any suspected concussion must be taken very seriously. An athlete does not need to lose consciousness (be “knocked-out”) to suffer a concussion. In fact, less than 5% of concussed athletes suffer a loss of consciousness.

### Concussion Facts

- Structural injuries, like torn ligaments and broken bones, can be seen on an x-ray or on scans like an MRI. On the other hand, a concussion is a disruption of how the brain works, or its function, and not in its structure. That is why CT scans and MRIs are of limited value. The injury affects the way the brain works, not how it looks.
- It is estimated that approximately 1.1 million to 1.9 million recreational concussions and sports related concussions occur annually in the United States in children 18 years of age or younger. In nine popular high school sports alone, well over 200,000 concussions are sustained by high school athletes each year. (Halstead ME, et.al.)
- Concussions can happen in any sport. While they are more common in sports that involve collisions, athletes in all sports are at risk for a concussion. When researchers looked at 14 different high school sports, they found that over two-thirds of concussions result from contact with another athlete and the second leading cause of concussion, is player-to-surface contact. This includes falling and hitting the ground.
- An athlete may report many physical, behavioral, and cognitive symptoms. Physical symptoms include headaches, nausea, vomiting, dizziness, and sleep changes. Some behavioral changes include irritability, anxiety, and depression. Cognitive symptoms are changes in the way we think and include feeling sluggish, hazy, or foggy, difficulty falling asleep or staying asleep, difficulty concentrating or memory problems, and confusion.
- Many symptoms appear immediately after the injury, while others may develop over the next several days. The symptoms can interfere with normal daily life in addition to difficulty with school, work, and social life.
- Concussion symptoms typically resolve within one week to one month. It is important to remember that each student athlete responds and recovers differently.
- Athletes should not return to sports or activities that will put them at risk for another head injury until the concussion has completely resolved. To do so puts them at risk for worsening and prolonged symptoms and a more severe injury. While rare, a repeat concussion can also result in severe swelling and bleeding in the brain. This condition can lead to death or permanent disability.



### **What should I do if I think my child has had a concussion?**

If your child sustains a head injury, it is good to be aware of the signs and symptoms of a concussion. If you suspect an athlete has a concussion, the athlete must be immediately removed from activity. Do not allow the athlete to drive until symptoms have resolved. Continuing to participate in a contact or collision sport while experiencing concussion symptoms can lead to worsening of symptoms, increased risk for further injury and sometimes death.

Parents and coaches should not make the diagnosis of a concussion. Any athlete suspected of having a concussion should be evaluated by a medical professional trained in the diagnosis and management of concussions.

### **When in doubt, sit them out!**

All athletes who sustain a concussion need to be evaluated by an appropriate health-care professional, who is experienced in concussion management. If your child's school has an athletic trainer (AT), please inform the AT of your concerns. You should also call your child's primary care provider and explain what has happened and follow the instructions you are given. Sometimes, an injury is more severe than it appears. If your child has persistent vomiting, a worsening headache, a seizure, or is acting differently, you should take your child to an emergency department for immediate attention.

### **What are the signs and symptoms of a concussion?**

#### **SIGNS OBSERVED BY PARENTS, ATHLETIC TRAINERS, FRIENDS, TEACHERS OR COACHES**

- Dazed, vacant or stunned appearance.
- Confusion about assignment or position.
- Forgetfulness.
- Uncertainty of game, score, or opponent.
- Clumsy movements.
- Slow response to questions.
- Mood, behavior or personality changes.
- Can't recall events prior to or after hit or fall.

#### **SYMPTOMS REPORTED BY ATHLETE**

- Headache or "pressure" in head.
- Neck pain
- Balance problems or dizziness
- Nausea
- Double or blurry vision
- Sensitivity to light or noise
- Feeling sluggish, hazy, or mentally foggy
- Concentration or memory problems
- Confusion
- "Not feeling right" or "feeling down"

### How can a concussion affect schoolwork?

Following a concussion, many students have difficulty in school due to difficulties with short-term memory, concentration, and organization.

In many cases after the injury, it is best to decrease the athlete's class load early in the recovery phase. This may include staying home from school for no more than 1 or 2 days, followed by academic adjustments (such as a reduced class schedule, extended time to complete assignments, printed notes, delayed testing, etc.), until the athlete has fully recovered. Decreasing the stress on the brain and not allowing the athlete to push through symptoms will shorten the recovery time and ensure total resolution of symptoms. The academic adjustments are best managed by a school concussion team. Speak with the school guidance counselor, school nurse, or athletic trainer to help with this process.

### Return-to-Learn (RTL)

Facilitating return-to-learn is a vital part of the recovery process for student athletes. The return-to-learn process should be individualized and include a plan for return to the classroom / studying as tolerated. The majority of athletes of all ages have a full return-to-learn with no additional academic support by 10 days. Return-to-learn participation after sport-related concussion follows a graduated stepwise strategy as outlined in **Table 1**: Return-to-learn (RTL) strategy:

Table 1 Return-to-learn (RTL) strategy			
Step	Mental activity	Activity at each step	Goal
1	Daily activities that do not result in more than a mild exacerbation* of symptoms related to the current concussion	Typical activities during the day (eg, reading) while minimising screen time. Start with 5–15 min at a time and increase gradually.	Gradual return to typical activities
2	School activities	Homework, reading or other cognitive activities outside of the classroom.	Increase tolerance to cognitive work
3	Return to school part time	Gradual introduction of schoolwork. May need to start with a partial school day or with greater access to rest breaks during the day.	Increase academic activities
4	Return to school full time	Gradually progress in school activities until a full day can be tolerated without more than mild* symptom exacerbation.	Return to full academic activities and catch up on missed work
Following an initial period of relative rest (24–48 hours following an injury at Step 1), athletes can begin a gradual and incremental increase in their cognitive load. Progression through the strategy for students should be slowed when there is more than a mild and brief symptom exacerbation.			
*Mild and brief exacerbation of symptoms is defined as an increase of no more than 2 points on a 0–10 point scale (with 0 representing no symptoms and 10 the worst symptoms imaginable) for less than an hour when compared with the baseline value reported prior to cognitive activity.			

Patricios JS, et.al.

### When can an athlete return to sport following a concussion?

After suffering a concussion, or if you suspect an athlete has a concussion, **no athlete should EVER return to sport or practice on that same day.**

### Return-to-Sport (RTS)

Athletes should be allowed to engage in activities of daily living (including walking) immediately following injury, even during the initial period of 24–48 hours of relative rest. Athletes may begin Step 1 (i.e., symptom-limited activity) within 24 hours of injury, with progression through each subsequent step typically taking a minimum of 24 hours. Progression through the later Return-to-Sport strategy (Steps 4–6) should be monitored by a health care provider. Return-to-sport participation after sport-related concussion follows a graduated stepwise strategy, as outlined in **Table 2**:

**Table 2** Return-to-sport (RTS) strategy—each step typically takes a minimum of 24 hours

Step	Exercise strategy	Activity at each step	Goal
1	Symptom-limited activity	Daily activities that do not exacerbate symptoms (eg, walking).	Gradual reintroduction of work/school
2	Aerobic exercise <b>2A—Light</b> (up to approximately 55% maxHR) <b>then 2B—Moderate</b> (up to approximately 70% maxHR)	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increase heart rate
3	Individual sport-specific exercise Note: If sport-specific training involves any risk of inadvertent head impact, medical clearance should occur prior to Step 3	Sport-specific training away from the team environment (eg, running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement, change of direction
Steps 4–6 should begin after the resolution of any symptoms, abnormalities in cognitive function and any other clinical findings related to the current concussion, including with and after physical exertion.			
4	Non-contact training drills	Exercise to high intensity including more challenging training drills (eg, passing drills, multiplayer training) can integrate into a team environment.	Resume usual intensity of exercise, coordination and increased thinking
5	Full contact practice	Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff
6	Return to sport	Normal game play.	

\*Mild and brief exacerbation of symptoms (ie, an increase of no more than 2 points on a 0–10 point scale for less than an hour when compared with the baseline value reported prior to physical activity). Athletes may begin Step 1 (ie, symptom-limited activity) within 24 hours of injury, with progression through each subsequent step typically taking a minimum of 24 hours. If more than mild exacerbation of symptoms (ie, more than 2 points on a 0–10 scale) occurs during Steps 1–3, the athlete should stop and attempt to exercise the next day. Athletes experiencing concussion-related symptoms during Steps 4–6 should return to Step 3 to establish full resolution of symptoms with exertion before engaging in at-risk activities. Written determination of readiness to RTS should be provided by an HCP before unrestricted RTS as directed by local laws and/or sporting regulations.  
HCP, healthcare professional; maxHR, predicted maximal heart rate according to age (ie, 220-age).

Patricios JS, et.al.

Progression through the strategy is symptom limited (ie, no more than a mild and brief exacerbation of current symptoms related to the current concussion) and its course may vary across individuals based on tolerance and symptom resolution. Further, while the return-to-learn and return-to-sport strategies can occur in parallel, student-athletes should complete full return-to-learn before unrestricted return-to-sport.

Concerns over athletes returning to sport too quickly led lawmakers in all 50 states and the District of Columbia to pass laws stating that **no player shall return to sport or practice the day of a concussion, and the athlete must be cleared by an appropriate health-care professional before being allowed to return to sport in either games or practices.** Many of these laws require players, parents and coaches to receive education on the dangers of concussion in addition to recognizing the signs and symptoms of concussion.

#### What can I do?

- └ Both you and your child should learn to recognize the “Signs and Symptoms” of concussion as listed above.
- └ Encourage your child to tell the medical and/or coaching staff if any of these signs and symptoms appear after a blow to the head or body.
- └ Emphasize to administrators, coaches, physicians, athletic trainers, teachers and other parents your concerns and expectations about concussion and safe play.
- └ Encourage your child to tell the medical and coaching staff if there is suspicion that a teammate has suffered a concussion.
- └ Ask teachers to monitor any decrease in grades or changes in behavior in students that could indicate a concussion.
- └ Report concussions that occurred during the school year to appropriate school staff. This will help in monitoring injured athletes as they move to the next season’s sports.



Click here for more information about returning to school after a concussion:

[http://www.cdc.gov/headsup/basics/return\\_to\\_school.html](http://www.cdc.gov/headsup/basics/return_to_school.html)

#### **Other Frequently Asked Questions:**

##### **Why is it so important that athletes not return to sport until they have completely recovered from a concussion?**

Students that return to sport too soon may worsen concussion symptoms, prolong the recovery time, and they also risk catastrophic consequences if they suffer another head injury. These consequences are preventable if each athlete is allowed time to recover from their concussion including completing the stepwise return-to-sport protocol. No athlete should return to sport or other at-risk activity when signs or symptoms of concussion are present and recovery is ongoing.

##### **Is a CT scan or MRI needed to diagnose a concussion?**

**No!** The diagnosis of a concussion is based upon the athlete's history of the injury and an appropriate health-care professional's physical examination and testing. CT and MRI scans are rarely needed following a concussion since this is a functional injury and not a structural one. However, they are helpful in identifying life-threatening head and brain injuries such as skull fractures, bleeding or swelling.

##### **What is the best treatment to help my child recover quickly from a concussion?**

The first step in recovering from a concussion is relative rest. Rest is essential to help the brain heal. Athletes with a concussion need rest from physical and mental activities that require concentration and attention as these activities may worsen symptoms and delay recovery. Exposure to loud noises, bright lights, computers, video games, television and phones all may worsen the symptoms of concussion. Athletes typically require 24-48 hours of *relative rest*, which include activities of daily living and reduced screen time. Individuals can return to light-intensity physical activity, such as walking that does not more than mildly exacerbate symptoms, during the initial 24-48 hours following a concussion. After the initial 24-48 hours begin gradually increasing mental and physical activity as tolerated. Early aerobic exercise can help speed recovery.

There are no medications to treat concussions, but an appropriate health-care professional may prescribe medications and therapies to treat symptoms of a concussion, such as headache, dizziness, sleep changes, etc. Some athletes may require rehabilitation, such as physical, occupational, vestibular, ocular or speech/cognitive therapy. Others may require treatment for mood and behavior changes. All of these interventions are done on a personalized basis.

##### **How long do the symptoms of a concussion usually last?**

Typically, athletes can expect a minimum of 1 week to complete the full rehabilitation strategy; however, unrestricted return-to-sport can take up to 1 month following a sports related concussion, with an estimated average of 20 days. Progression through the strategy is symptom limited (ie, no more than a mild and brief exacerbation of current symptoms related to the current concussion) and its course may vary across individuals based on tolerance and symptom resolution. Further, while the return-to-learn and return-to-sport strategies can occur in parallel, student-athletes should complete full return-to-learn before unrestricted return-to-sport.

##### **How many concussions can an athlete have before we should consider retiring from playing sports?**

There is no "magic number" of concussions that determine when an athlete should give up playing sports that put one at high risk for a concussion. The circumstances that surround each individual injury, such as how the injury occurred as well as the number and duration of symptoms following the concussion, are very important.

These circumstances must be individually considered when assessing an athlete's risk for potential long-term consequences and potentially more serious brain injuries. The decision to "retire" from sports is a decision best reached after a complete evaluation by your child's primary care provider and consultation with an appropriate health-care professional who specializes in treating concussions.

We cannot eliminate all of the risk of concussion from sports. However, we can take what we learn from science to reduce the chance for injury and set policy to ensure that students with a concussion get the care they need.

Everyone involved in high school sports plays an active role in educating others about concussion and other serious brain injuries. Please check out the Resource section on the Sports Medicine page of the NFHS Website for more information on how you can take an active role and get involved in keeping students safe, healthy and active.

Some of this information has been adapted from the CDC's "Heads Up: Concussion in High School Sports" materials by the NFHS's Sports Medicine Advisory Committee. Please go to [www.cdc.gov/ncipc/tbi/Coaches Tool Kit.htm](http://www.cdc.gov/ncipc/tbi/Coaches_Tool_Kit.htm) for more information.

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## ANSWERING QUESTIONS ABOUT

# Chronic Traumatic Encephalopathy (CTE)



This handout provides a brief summary of what researchers currently know and don't know about chronic traumatic encephalopathy, or CTE. Research on CTE is growing, and more studies are needed to help answer many remaining questions. CDC will update this handout as more information on CTE becomes available.

## What is CTE?

CTE is a brain disease that can only be diagnosed after death. It has been linked to specific changes in the brain that affect how the brain works. The research to-date suggests that CTE is caused in part by repeated traumatic brain injuries, including **concussions**, and repeated hits to the head, called subconcussive head impacts.<sup>1</sup> However, understanding among researchers about the causes of CTE is currently limited. Researchers do not know the number and types of head impacts that increase the risk for CTE. It is possible that biological, environmental, or lifestyle factors could also contribute to the brain changes found in people with CTE diagnosed after death.<sup>2,3</sup> More studies are needed to learn about the causes of CTE, its symptoms, and how it affects the brain.<sup>4</sup> In addition, research on the role of genetics, a person's medical history, and other factors (such as environmental or lifestyle factors) is needed to better understand the risk factors for CTE.

## What are Subconcussive Head Impacts?

Subconcussive head impacts are bumps, blows, or jolts to the head. Unlike concussions, which cause symptoms, subconcussive head impacts do not cause symptoms. A collision while playing sports is one way a person can get a subconcussive head impact.

## The National Institutes of Health (NIH) is looking for answers on CTE

NIH funded **research studies** to learn how to diagnose CTE while a person is alive. Developing ways to diagnose CTE during life will help researchers learn more about its causes, and may also lead to treatments in the future.<sup>10,11</sup>



## Occasional hits to the head do not cause CTE

Occasional hits to the head, such as the bumps and tumbles that children experience when learning to walk, do not cause CTE.

## How is CTE Diagnosed?

To diagnose CTE, doctors check the brain of a person after he or she dies. Doctors look for changes in the brain that happen in people with CTE.<sup>5</sup> Through this process, doctors confirm whether the person had CTE or another disease, such as Alzheimer's disease, or no disease at all.<sup>5</sup> Given the limited understanding of CTE and its causes, doctors cannot diagnose CTE in a living person.



## How Common is CTE?

Researchers do not know how many people in the United States have CTE. Most studies on CTE have focused on a small group of people who experienced head or brain injuries over many years. People in this group had their brains donated for research, and according to reports from family members, they often had problems with thinking, emotions, or behavior while they were alive.<sup>6-8</sup>

CTE has been diagnosed in people with and without a history of head or brain injuries.<sup>9</sup> However, most people with a history of head or brain injuries do not develop CTE.

[cdc.gov/HEADSUP](https://cdc.gov/HEADSUP)



UPDATED JANUARY 2019

## What are the Signs and Symptoms of CTE?

Researchers are not certain what symptoms are directly linked to CTE. Family members have reported noticing changes in thinking, feeling, behavior, and movement among people who are later diagnosed with CTE after death.<sup>4</sup> Some people diagnosed with CTE first had problems with depression or anxiety. Some later developed memory and other thinking problems. Over time, some of these people had mood or personality changes. Family members of people who were later diagnosed with CTE have reported that their family member had problems that became serious enough to get in the way of normal daily activities (such as social or work-related activities).<sup>4-6</sup>

The symptoms described by family members are similar to those of other health problems (e.g., Alzheimer's Disease, Parkinson's Disease), so having these symptoms does not mean a person has CTE.

In addition, while there is increasing media attention on suicide among former professional athletes, the link between CTE and suicide is unclear.<sup>9</sup>

If you or a family member or friend have any questions or concerns, it is important to talk to a doctor. Treatments are available to help with many of these symptoms.



### Resources:

#### To learn more about CTE and other brain diseases:

- Visit the NIH website at <https://www.ninds.nih.gov/Current-Research/Focus-Research/Traumatic-Brain-Injury/NIH-Chronic-Traumatic-Encephalopathy>



#### If you or someone you know needs to speak with a trained counselor:

- Call the Substance Abuse and Mental Health Services Administration National Helpline at **1-800-662-HELP (4357)**, or text **"home"** to **741741**.
- Call the National Alliance on Mental Illness Helpline at **1-800-950-NAMI (6264)**.
- Contact the National Suicide Prevention Lifeline at **1-800-273-TALK (1-800-273-8255)**, or visit <https://suicidepreventionlifeline.org>.

#### The Veterans Crisis Line connects veterans, their family, or friends with qualified, caring responders:

- Call the confidential, toll-free hotline at **1-800-273-8255**, or text to **838255**.

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## **SDHSAA CONTACT POLICY**

### **LEVELS OF CONTACT**

Levels of Contact focus on the varying levels of intensity throughout practices to build player confidence, ensure their safety and prevent both physical and mental exhaustion. These Levels of Contact will increase player safety by reducing the risk of helmet-to-helmet contact without sacrificing skill development.

Five intensity levels are used to introduce players to practice drills which position them to master the fundamentals and increase skill development.

<b><i>Air</i></b>	(Coach pre-determined outcome) Players run a drill unopposed without contact.
<b><i>Bags</i></b>	(Coach pre-determined outcome) Drill is run against a bag or another soft-contact surface.
<b><i>Control</i></b>	(Coach pre-determined outcome) Drill is run at assigned speed until the moment of contact; one player is pre-determined the “winner” by the coach. Contact remains above the waist and players stay on their feet.
<b><i>Thud</i></b>	(No coach pre-determined outcome) Drill is run at assigned speed through the moment of contact; no pre-determined “winner”. Contact remains above the waist, players stay on their feet and a quick whistle ends the drill.
<b><i>Live Action</i></b>	(No coach pre-determined outcome) Games, scrimmages and drills run in game-like conditions. These are the only times that players are taken to the ground.



## **CONTACT LIMITATION**

<b><i>Day 1 &amp; 2</i></b>	3.11.4.6 – No Contact Rule Equipment –Helmets Allowable Contact – “Air” and “Bag” (COACH PRE-DETERMINED OUTCOME) Unlimited
<b><i>Day 3 &amp; 4</i></b>	Equipment – Helmets and shoulder pads Allowable Contact – <ul style="list-style-type: none"> <li>• “Air”, “Bag” and “Control” (COACH PRE-DETERMINED OUTCOME) Unlimited</li> </ul>
<b><i>Day 5 – 14</i></b>  <b><i>OR</i></b>  <b><i>Day 5 – First Contest Date</i></b>	Equipment – Full protective equipment may be worn Allowable Contact – <ul style="list-style-type: none"> <li>• “Air”, “Bag” and “Control” (COACH PRE-DETERMINED OUTCOME)</li> <li>• Unlimited “Thud” and “Live Action” (NO COACH PRE-DETERMINED OUTCOME)</li> <li>• Maximum 30 minutes per practice</li> <li>• No more than 2 consecutive days</li> <li>• Only one practice (on a scheduled 2-a-day)</li> <li>• 2 scheduled scrimmages, not to exceed 90 minutes each</li> <li>• Not to be scheduled before day 6</li> </ul>
<b><i>Remainder of Season</i></b>	Equipment – Full protective equipment may be worn Allowable Contact – <ul style="list-style-type: none"> <li>• “Air”, “Bag” and “Control” (COACH PRE-DETERMINED OUTCOME)</li> <li>• Unlimited “Thud” and “Live Action” (NO COACH PRE-DETERMINED OUTCOME)</li> <li>• Maximum of 4 days per week (including games)</li> <li>• No more than 2 consecutive days</li> <li>• Maximum of 30 minutes per practice</li> </ul>

Note: Days are calculated inclusive of Sundays/weekends.

## SDHSAA Air Quality Guidance

To assist schools in making decisions regarding practice or competition impacted by air quality issues, and for use in SDHSAA led post-season contests impacted by air quality issues, the SDHSAA Sports Medicine Advisory Committee (SMAC) recommends using the NCAA's air quality guidelines and the U.S. Environmental Protection Agency's air quality guidelines for schools as the reference standards for the SDHSAA's air quality guidance.

The National Weather Service's (NWS) Air Quality Forecast System uses a component known as the Air Quality Index (AQI), which accounts for ground level ozone, particle pollution/particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. The AQI presents a single number ranging from 0-500, with higher numbers indicating lower air quality.

The NWS issues air quality alerts based on monitoring stations around the country. AQI levels and NWS alerts can be found at <https://www.airnow.gov>. Member schools should check AQI readings from the closest reporting station to gauge local air quality and base decisions about outdoor activities on the following guidance:

- At AQI levels of **100-150**, all students should be monitored for respiratory difficulty, and sensitive students should be monitored closely or considered for removal from activity.
- At AQI levels of **150-200**, outdoor activities should be shortened if possible. For longer activities such as practice or competition, all athletes should be monitored for respiratory symptoms and sensitive students should follow their medical plans and considered for removal from activity.
- At AQI levels of **200-300**, schools should consider postponement or cancellation of outdoor activities. Sensitive individuals should avoid all outdoor activity.
- At AQI levels of **300 or above**, outdoor activities should be cancelled and/or moved indoors.

Students with preexisting pulmonary or cardiac conditions, such as asthma, should be managed accordingly with guidance from the student's family and healthcare team.

All schools should have emergency plans which include responses to respiratory issues in students.

### References:

1. NCAA Sports Science Institute. NCAA Air Quality Guidance. 2018. <https://www.ncaa.org/sports/2017/9/14/air-quality.aspx> Accessed August 16, 2023.
2. United States Environmental Protection Agency. Air Quality and Outdoor Activity Guidance for Schools. 2023. <https://www.airnow.gov/sites/default/files/2021-03/school-outdoor%20activity%20guidance.pdf> Accessed August 16, 2023.
3. United States Environmental Protection Agency. Air Quality Index (AQI) Basics. 2023. <https://www.airnow.gov/aqi/aqi-basics/> Accessed August 16, 2023.