

# 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> .....	13
<a href="#"><u>PERFORMANCE-ENHANCING RESOLUTION</u></a> .....	14
<a href="#"><u>SDHSAA AND NFHS POLICY STATEMENT ON STEROIDS</u></a> .....	14
<a href="#"><u>EXTRA TIME-OUT DUE TO HEAT</u></a> .....	14
<a href="#"><u>DISRUPTION OF GAMES DUE TO WEATHER (LIGHTNING, ETC)</u></a> .....	14
<a href="#"><u>MEDICAL PROCEDURES ON THE DAY OF COMPETITION</u></a> .....	15
<a href="#"><u>SPORTS RELATED SKIN INFECTIONS</u></a> .....	16
<a href="#"><u>INVASIVE MEDICAL PROCEDURES ON THE DAY OF COMPETITION</u></a> .....	18
<a href="#"><u>SOFT OR PADDED HEADGEAR IN NON-HELMETED SPORTS POSITION STATEMENT</u></a> .....	19
<a href="#"><u>HYDRATION TO MINIMIZE THE RISK FOR DEHYDRATION AND HEAT ILLNESS</u></a> .....	20
<a href="#"><u>A PARENT'S GUIDE TO CONCUSSION</u></a> .....	23
<a href="#"><u>SDHSAA CONTACT POLICY</u></a> .....	26
<a href="#"><u>ANSWERING QUESTIONS ABOUT CTE</u></a> .....	28

**SEE “PHYSICAL EXAMS” ON FORMS PAGE OF SDHSAA WEBSITE FOR THE FOLLOWING:**

PHYSICAL EXAMINATION INSTRUCTIONS .....	PHYS - #1
PHYSICAL EXAMINATION – ITEMS TO BE EVALUATED .....	PHYS - 1A
ANNUAL PARENT OR GUARDIAN PERMIT/INITIAL PRE-PARTICIPATION HISTORY .....	PHYS - 1B
SDHSAA PHYSICAL EXAMINATION FORM .....	PHYS - 1C
ANNUAL PARENT OR GUARDIAN PERMIT/INTERIM PRE-PARTICIPATION HISTORY .....	PHYS - #2
CONSENT FOR MEDICAL TREATMENT .....	PHYS - #3
SDHSAA ANNUAL PARENT AND STUDENT CONSENT FORM.....	PHYS - #4
CONSENT FOR RELEASE OF MEDICAL INFORMATION FORM (HIPAA).....	PHYS - #5
RETURN TO COMPETITION, PRACTICE, OR TRAINING .....	PHYS - #6
CONCUSSION FACT SHEET FOR ATHLETES.....	PHYS - #7
CONCUSSION FACT SHEET FOR PARENTS .....	PHYS - #8

# PHYSICAL EXAMS AND HEALTH ISSUES

## PHYSICALS

Every student before being allowed to participate in interscholastic athletics must have passed a physical examination of a duration no longer than triennial. Each local school board shall decide the length between the exams. The choices are annual, biennial or triennial. A pre-participation health history report must be completed annually. The very first time an athlete takes the exam, the **Initial Pre-Participation History** is required. Thereafter, parents 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 HIPAA release 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 National Federation Sport Rule Books now includes 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 HIV.

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. Use a normal laundry cycle and follow the washer and detergent manufacturer's recommendations.
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, if the proper precautions are taken. During hot weather conditions the athlete is 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 TO HOT WEATHER**. 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: (ACSM's Guidelines for the Team Physician, 1991)  
Below 65 – Unlimited activity  
65-73 – Moderate risk  
73-82 – High risk  
82 plus – Very high risk
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. Athletes should weigh each day before and after practice and **WEIGHT CHARTS CHECKED**. Generally a 3 percent weight loss through sweating is safe and over a 3 percent weight loss is in the danger zone. Over a 3 percent weight loss the athlete should not be allowed to practice in hot and humid conditions. Observe the athletes closely under all conditions. Do not allow athletes to practice until they have adequately replaced their weight.
9. 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.
10. 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.
11. 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.
12. 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. Football has received the most attention because of the number and severity of exertional heat illnesses. Notably, the National Center for Catastrophic Sports Injury Research reports that **35 high school football players died of EHS between 1995 and 2010**. EHS also results in thousands of emergency room visits and hospitalizations throughout the nation each year.

This NFHS Sports Medicine Advisory Committee (SMAC) position statement is the companion piece to the NFHS’s online course “A Guide to Heat Acclimatization and 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 NFHS on-line course, the 4th Edition of the NFHS Sports Medicine Handbook, the NFHS SMAC “Position Statement and Recommendations for Hydration to Minimize the Risk for Dehydration and Heat Illness” and the resources listed below.

**Following the recommended guidelines in this position statement and “A Guide to Heat Acclimatization 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, **“A Guide to Heat Acclimatization and 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.

### **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 Sickle 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.

*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.

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

**Rationale:** An effective emergency action plan (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.

## **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. <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. <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:

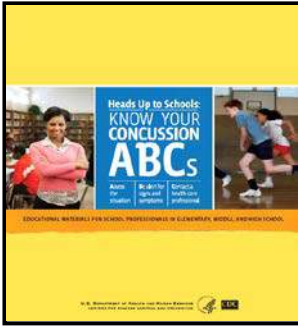
1. Preseason physical exams for all participants. Identify during the physical exam those athletes with a history of previous brain or spinal injuries. If the physician has any questions about the athlete's readiness to participate, the athlete should not be allowed to play.
2. The total staff should 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	ringing 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 "[Hheads 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 “Hheads 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 “Hheads Up to Schools: Know Your Concussion ABC’s” materials are part of CDC’s Hheads 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).*

# HEADS+UP

## CONCUSSION IN HIGH SCHOOL SPORTS

A FACT SHEET FOR **ATHLETES**

### What is a concussion?

A concussion is a brain injury that:

- Is caused by a bump, blow, or jolt to the head.
- Can change the way your brain normally works.
- Can range from mild to severe.
- Can occur during practices or games in any sport.
- Can happen even if you haven't been knocked out.
- Can be serious even if you've just been "dinged" or had your "bell rung."

### How can I prevent a concussion?

It's different for every sport. But there are steps you can take to protect yourself from concussion.

- Follow your coach's rules for safety and the rules of the sport.
- Practice good sportsmanship at all times.
- Use the proper sports equipment, including personal protective equipment (such as helmets).  
In order for equipment to protect you, it must be:
  - Appropriate for the game, position, and activity
  - Well maintained
  - Properly fitted
  - Used every time you play

### How do I know if I've had a concussion?

You can't see a concussion, but you might notice some of the symptoms right away. Other symptoms can show up days or weeks after the injury. It's best to see a health care professional if you think you might have a concussion. An undiagnosed concussion can affect your ability to do schoolwork and other everyday activities. It also raises your risk for additional, serious injury.

### What are the symptoms of a concussion?

- Nausea (feeling that you might vomit)
- Balance problems or dizziness
- Double or fuzzy vision
- Sensitivity to light or noise
- Headache
- Feeling sluggish
- Feeling foggy or groggy
- Concentration or memory problems (forgetting game plays)
- Confusion

### What should I do if I think I have a concussion?

- **Tell your coaches and your parents.** Never ignore a bump, blow, or jolt to the head. Also, tell your coach if one of your teammates might have a concussion.
- **Get a medical check up.** A health care professional can tell you if you have had a concussion and when you are OK to return to play.
- **Give yourself time to recover.** If you have had a concussion, your brain needs time to heal. While your brain is still healing, you are much more likely to have a second concussion. Second or later concussions can cause permanent brain damage, and even death in rare cases. Severe brain injury can change your whole life.

**It's better to miss one game than the whole season.**

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION



February 2005

# HEADS+UP

## CONCUSSION IN HIGH SCHOOL SPORTS

A FACT SHEET FOR **PARENTS**

### What is a concussion?

A concussion is a brain injury. Concussions are caused by a bump, blow, or jolt to the head. They can range from mild to severe and can disrupt the way the brain normally works. Even a “ding” or a bump on the head can be serious.

### What are the signs and symptoms?

You can’t see a concussion. Signs and symptoms of concussion can show up right after the injury or can take days or weeks to appear. If your teen reports any symptoms of concussion, or if you notice the symptoms yourself, seek medical attention right away.

Signs Observed by Parents or Guardians	Symptoms Reported by Athlete
<ul style="list-style-type: none"> <li>• Appears dazed or stunned</li> <li>• Is confused about assignment</li> <li>• Forgets plays</li> <li>• Is unsure of game, score, or opponent</li> <li>• Moves clumsily</li> <li>• Answers questions slowly</li> <li>• Loses consciousness</li> <li>• Shows behavior or personality changes</li> <li>• Can’t recall events prior to hit</li> <li>• Can’t recall events after hit</li> </ul>	<ul style="list-style-type: none"> <li>• Headache</li> <li>• Nausea</li> <li>• Balance problems or dizziness</li> <li>• Double or fuzzy vision</li> <li>• Sensitivity to light or noise</li> <li>• Feeling sluggish</li> <li>• Feeling foggy or groggy</li> <li>• Concentration or memory problems</li> <li>• Confusion</li> </ul>

### What should you do if you think your teenage athlete has a concussion?

- 1. Seek medical attention right away.** A health care professional will be able to decide how serious the concussion is and when it is safe for your teen to return to sports.
- 2. Keep your teen out of play.** Concussions take time to heal. Don’t let your teen return to play until a health care professional says it’s OK. Athletes who return to play too soon—while the brain is still healing—risk a greater chance of having a second concussion. Second or later concussions can be very serious. They can cause permanent brain damage, affecting your teen for a lifetime.
- 3. Tell all of your teen’s coaches about any recent concussion.** Coaches should know if your teen had a recent concussion in ANY sport. Your teen’s coaches may not know about a concussion your teen received in another sport or activity unless you tell them. Knowing about the concussion will allow the coach to keep your teen from activities that could result in another concussion.
- 4. Remind your teen:** It’s better to miss one game than the whole season.

**It’s better to miss one game than the whole season.**

DEPARTMENT OF HEALTH AND HUMAN SERVICES  
CENTERS FOR DISEASE CONTROL AND PREVENTION



February 2005

### **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.

**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 numerous issues, rules, and situations and considers their potential risks to student athletes. One of these issues has been inquires about invasive 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 a physician who is highly trained and experienced in sports medicine, on his or her patient. In considering these invasive procedures, the NFHS SMAC recommends that the physician remembers that the patient is a student athlete.

The NFHS SMAC encourages a philosophy that high school athletics serve the purpose of providing young men and women the opportunity for personal growth in a reasonably and acceptably safe and controlled environment. Medical interventions can enhance athletic performance by encouraging more optimal 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 student athlete. There are three steps of decision making for the Basis of the Return to Play<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 heroic invasive procedures, on the day of competition, performed with the sole purpose of enabling the athlete to participate, are philosophically inappropriate.

Finally, while the primary concern is with protecting the health of the student athlete, the NFHS SMAC believes invasive procedures are also a matter of participation equity to be addressed by member state associations.

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 April 2013**  
**April 2009**

**DISCLAIMER – NFHS Position Statements and Guidelines**

The NFHS regularly distributes position statements and guidelines to promote public awareness of certain health and safety-related issues. Such information is neither exhaustive nor necessarily applicable to all circumstances or individuals, and is no substitute for consultation with appropriate health-care professionals. Statutes, codes or environmental conditions may be relevant. NFHS position statements or guidelines should be considered in conjunction with other pertinent materials when taking action or planning care. The NFHS reserves the right to rescind or modify any such document at any time.

**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 football and wrestling. 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 rules must be strictly adhered to in sports such as wrestling, football and basketball where skin-to-skin contact is frequent and unavoidable.

**Ringworm, Tinea Corporis**

These fungal lesions are due to dermatophytes. As they are easily transmissible, the athlete should be treated with an oral or topical antifungal medication for a minimum of 72 hours prior to participation. Once the lesion is considered to be no longer contagious, it may be covered with a bio occlusive dressing. For scalp involvement, the infection is more difficult to treat and requires a full two weeks of oral antifungal medication before return to practice or competition.

**Impetigo, Folliculitis, Carbuncle and Furuncle**

While these infections may be secondary to a variety of bacteria, they should all be treated as Methicillin-Resistant Staphylococcus aureus (MRSA) infections. The athlete should be removed from practices and competition and treated with oral antibiotics. Return to contact practices and competition may occur after 72 hours of treatment, provided the infection is resolving.

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.

All team members should be carefully screened for similar infections. If multiple athletes are infected, consideration should be given to contacting the local Public Health Department or team physician for guidance.

**Shingles, Cold Sores**

These are viral infections which are transmitted by skin-to-skin contact. 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 sufficient or acceptable. Primary outbreaks of shingles and cold sores require 10-14 days of oral antiviral medications; while recurrent outbreaks require five days of treatment as a minimum treatment time, prior to returning to participation. To be considered “non-contagious,” all lesions must be scabbed over with no oozing or discharge, and no new lesions should have occurred in the preceding 48 hours.

**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 preponderance of the outbreaks develop on the head, face and neck, reflecting the typical 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. Primary outbreaks are much more extensive and may take up to two weeks to clear. The infected individual must be immediately removed from contact. Return to contact is permissible only after all lesions are healed with well adherent scabs, no new vesicle formation and no swollen lymph nodes near the affected area. Oral antiviral medications should be started and can expedite the clearing of an outbreak. Consideration should be given to prophylactic oral antivirals for the remainder of the season and each subsequent season.

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 wrestling for five days. If antivirals are not used, the infected participant may return to contact only after all lesions are well healed with well adhered scabs, no new vesicle formation in the preceding 48 hours and no swollen lymph



nodes near the affected area. 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 for suspicious skin lesions.

#### **Miscellaneous Viral Infections**

Molluscum contagiosum and verruca (warts) are skin infections that are 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.

**Revised and Approved April 2013**

**April 2010**

**October 2006**

#### **DISCLAIMER – NFHS Position Statements and Guidelines**

The NFHS regularly distributes position statements and guidelines to promote public awareness of certain health and safety-related issues. Such information is neither exhaustive nor necessarily applicable to all circumstances or individuals, and is no substitute for consultation with appropriate health-care professionals. Statutes, codes or environmental conditions may be relevant. NFHS position statements or guidelines should be considered in conjunction with other pertinent materials when taking action or planning care. The NFHS reserves the right to rescind or modify any such document at any time.

**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 numerous issues, rules, and situations and considers their potential risks to student athletes. One of these issues has been inquires about invasive 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 a physician who is highly trained and experienced in sports medicine, on his or her patient. In considering these invasive procedures, the NFHS SMAC recommends that the physician remembers that the patient is a student athlete.

The NFHS SMAC encourages a philosophy that high school athletics serve the purpose of providing young men and women the opportunity for personal growth in a reasonably and acceptably safe and controlled environment. Medical interventions can enhance athletic performance by encouraging more optimal 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 student athlete. There are three steps of decision making for the Basis of the Return to Play<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 heroic invasive procedures, on the day of competition, performed with the sole purpose of enabling the athlete to participate, are philosophically inappropriate.

Finally, while the primary concern is with protecting the health of the student athlete, the NFHS SMAC believes invasive procedures are also a matter of participation equity to be addressed by member state associations.

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 April 2013  
April 2009**

**DISCLAIMER – NFHS Position Statements and Guidelines**

The NFHS regularly distributes position statements and guidelines to promote public awareness of certain health and safety-related issues. Such information is neither exhaustive nor necessarily applicable to all circumstances or individuals, and is no substitute for consultation with appropriate health-care professionals. Statutes, codes or environmental conditions may be relevant. NFHS position statements or guidelines should be considered in conjunction with other pertinent materials when taking action or planning care. The NFHS reserves the right to rescind or modify any such document at any time.

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

The NFHS SMAC has developed the following position statement regarding soft or padded headgear products in non-helmeted sports:

The NFHS does not consider soft or padded headgear products as effective equipment in preventing a concussion in non-helmeted sports. As explained below, soft or padded headgear products may be worn in non-helmeted sports that allow for such optional equipment, but the intent of that equipment should be for reasons other than concussion prevention. Valid scientific research should be pursued to more definitively determine evidence-based efficacy regarding using such products to decrease the incidence of concussion. However, no currently available soft or padded headgear can prevent a concussion.

The NFHS recommends caution in using soft or padded headgear devices to permit medical clearance of a student-athlete, if he or she would otherwise not be medically cleared to participate in sports. Currently, wearing such headgear as a condition to play in order to prevent another concussion is not scientifically or medically supported; therefore, a medical waiver for wearing this type of equipment in the case of hastening return to play after a concussion is inappropriate. However, this equipment may be used to cover lacerations and sutures, if these devices are deemed appropriate within the sport's playing rules. Current design and recommended use of these devices do not address the proposed mechanism of concussive injury, that being acceleration, deceleration and rotational forces acting on the brain. Schools should refer to equipment standards from the National Operating Committee on Standards for Athletic Equipment (NOCSAE), American Society for Testing Materials (ASTM), and the Hockey Equipment Certification Council, Inc. (HECC), when considering protective equipment for student-athletes, and monitor that the equipment is being used for mitigating the risk of injuries for which the equipment is designed.

When considering the use of optional soft or padded headgear products in non-helmeted sports, athletes and coaches should take the time to read the qualifying statements provided with such products that address specific limitations, particularly those related to preventing serious head injuries. Wearing such products may provide a false sense of security in concussion protection to student-athletes, coaches and parents. Moreover, a false sense of security in concussion protection may increase the likelihood that players, coaches and parents will consider a given medical condition to be adequately addressed and may cause them to place less importance upon avoiding head impact, reporting concussion symptoms and recovering fully before returning to play.

The NFHS SMAC will continue to monitor developments in soft and padded headgear and will consider adjustments to its position should valid scientific and clinical evidence arise.

**Approved June 2013**

**DISCLAIMER – NFHS Position Statements and Guidelines**

The NFHS regularly distributes position statements and guidelines to promote public awareness of certain health and safety-related issues. Such information is neither exhaustive nor necessarily applicable to all circumstances or individuals, and is no substitute for consultation with appropriate health-care professionals. Statutes, codes or environmental conditions may be relevant. NFHS position statements or guidelines should be considered in conjunction with other pertinent materials when taking action or planning care. The NFHS reserves the right to rescind or modify any such document at any time.

**POSITION STATEMENT AND RECOMMENDATIONS**  
**FOR HYDRATION TO MINIMIZE THE RISK FOR**  
**DEHYDRATION AND 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 an important ingredient to healthy 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 can 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 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.
- Athletes have different sweating rates and some lose much more salt through their sweat than others. “Salty sweaters” will often have noticeable salt stains on clothing after workouts, and 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 heat illness risk.
- Certain medications, or fever, can negatively affect an athlete’s hydration status and temperature regulation, increasing the risk for heat illness.
- Environmental temperature and humidity each independently contribute to dehydration and 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 heat illness risk.
- Even naturally dry climates can have high humidity on the field if irrigation systems are scheduled to 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 index chart should be followed to help determine if practices/contests should be modified or canceled. The NOAA National Weather Service’s heat index chart can be found at:  
<http://www.weather.gov/om/heat/index.shtml>
  - On-site wet-bulb temperature 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 wet-bulb temperature 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/>

**Example of the effects of relative humidity on the risk for dehydration and heat illness:**

- A relative humidity of 40 percent and a temperature of 95 degrees Fahrenheit are associated with a *likely risk* of incurring heat illness if strenuous physical activity is conducted. However, even with a *lower air temperature* of only 85 degrees Fahrenheit, the risk for exertional heat illness could be the *same or greater with a higher relative humidity* of 70 percent.

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

- For most exercising athletes, 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 45 minutes
  - 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 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:**

- 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 of the new “energy” drinks contain stimulants such as caffeine and/or ephedrine.
  - These stimulants may increase the risk of heat illness and/or heart problems with exercise. They can also cause anxiety, jitteriness, nausea, and upset stomach or diarrhea.
  - 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 TIPS AND FLUID 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.
- 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 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.

- The volume and color of your urine is an excellent way of determining if you're well hydrated. Small amounts of dark urine means 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://at.uwa.edu/admin/UM/urinecolorchart.doc>
- Hyponatremia is a rare, but potentially deadly disorder resulting from the over consumption of water. It is most commonly seen during endurance events, such as marathons, when participants consume large amounts of water over several hours, far exceeding fluid lost through sweating. The opposite of dehydration, hyponatremia is a condition where the sodium content of the blood is diluted to dangerous levels. Affected individuals may exhibit disorientation, altered mental status, headache, lethargy, and seizures. The diagnosis can only be made by testing blood sodium levels. Suspected hyponatremia is a medical emergency and EMS (Emergency Medical Services) must be activated. It is treated by administering intravenous fluids containing high levels of sodium.

**References:**

Casa DJ, Armstrong LE, Hillman SK, et al. National Athletic Trainers' Association position statement: Fluid replacement for athletes. *Journal of Athletic Training* 2000;35:212-224.

McKeag DB, Moeller JL. *ACSM's Primary Care Sports Medicine*. 2<sup>nd</sup> Ed, Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins, 2007.

Montain SJ. Hydration recommendations for sport 2008. *Current Sports Medicine Reports* 2008;7:187-92.

National Collegiate Athletic Association. Guideline 2c: Prevention of heat illness. 2010-11 *Sports Medicine Handbook* (21<sup>st</sup> edition).

Sawka MN, Burke LM, Eichner ER, et al. [American College of Sports Medicine position stand. Exercise and fluid replacement](#). *Medicine & Science in Sports & Exercise* 2007;39:377-90.

**Revised and Approved October 2011**

**DISCLAIMER – NFHS Position Statements and Guidelines**

The NFHS regularly distributes position statements and guidelines to promote public awareness of certain health and safety-related issues. Such information is neither exhaustive nor necessarily applicable to all circumstances or individuals, and is no substitute for consultation with appropriate health-care professionals. Statutes, codes or environmental conditions may be relevant. NFHS position statements or guidelines should be considered in conjunction with other pertinent materials when taking action or planning care. The NFHS reserves the right to rescind or modify any such document at any time.

**A PARENT’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 brain injury which results in a temporary disruption of normal brain function. A concussion occurs when the brain is violently rocked back and forth or twisted inside the skull, typically from a blow to the head or body. An athlete does not need to lose consciousness (be “knocked-out”) to suffer a concussion, and in fact, less than ten percent of concussed athletes suffer loss of consciousness.

**Concussion Facts**

- A concussion is a type of traumatic brain injury. The result is a more obvious functional problem than a clear structural injury, causing it to be invisible to standard medical imaging (CT and MRI scans).
- It is estimated that over 140,000 high school athletes across the United States suffer a concussion each year. (Data from NFHS Injury Surveillance System)
- Concussions occur most frequently in football, but boys’ ice hockey, boys’ lacrosse, girls’ soccer, girls’ lacrosse and girls’ basketball follow closely behind. All athletes are at risk.
- A concussion may cause multiple symptoms. Many symptoms appear immediately after the injury, while others may develop over the next several days or weeks. The symptoms may be subtle and are often difficult to fully recognize.
- Concussions can cause symptoms which interfere with school, work, and social life.
- Concussion symptoms may last from a few days to several months.
- An athlete should not return to sports or physical activity like physical education or working-out while still having symptoms from a concussion. To do so puts them at risk for prolonging symptoms and further injury.

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

If an athlete is suspected of having a concussion, he or she must be immediately removed from that activity. Continuing to play or work out when experiencing concussion symptoms can lead to worsening of symptoms, increased risk for further injury and possibly death. Parents and coaches are not expected to be able to make the diagnosis of a concussion. A medical professional trained in the diagnosis and management of concussions will determine the diagnosis. However, you must be aware of the signs and symptoms of a concussion. If you are suspicious your child has suffered a concussion, he or she must stop activity right away and be evaluated.

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

All student-athletes who sustain a concussion need to be evaluated by a health care professional who is experienced in concussion management. You should call your child’s physician and explain what has happened and follow your physician’s instructions. If your child is vomiting, has a severe headache, is having difficulty staying awake or answering simple questions, he or she should be immediately taken to the emergency department.

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

**SIGNS OBSERVED BY PARENTS, FRIENDS, TEACHERS OR COACHES**

- Appears dazed or stunned**
- Is confused about what to do**
- Forgets plays**
- Is unsure of game, score, or opponent**
- Moves clumsily**
- Answers questions slowly**
- Loses consciousness**
- Shows behavior or personality changes**
- Can’t recall events prior to hit**
- Can’t recall events after hit**

**SYMPTOMS REPORTED BY ATHLETE**

- Headache**
- Nausea**
- Balance problems or dizziness**
- Double or fuzzy vision**
- Sensitivity to light or noise**
- Feeling sluggish**
- Feeling foggy or groggy**
- Concentration or memory problems**
- Confusion**

**When can an athlete return to play following a concussion?**

After suffering a concussion, **no athlete should return to play or practice on that same day**. Previously, athletes were allowed to return to play if their symptoms resolved within 15 minutes of the injury. Studies have shown that the young brain does not recover quickly enough for an athlete to safely return to activity in such a short time.

Concerns over athletes returning to play too quickly have led state lawmakers in almost all states to pass laws stating that **no player shall return to play that day following a concussion, and the athlete must be cleared by an appropriate health-care professional before he or she is allowed to return to play in games or practices.** The laws typically also mandate that players, parents and coaches receive education on the dangers and recognizing the signs and symptoms of concussion.

Once an athlete no longer has symptoms of a concussion and is cleared for return to play, he or she should proceed with activity in a step-wise fashion to allow the brain to re-adjust to exertion. On average, the athlete will complete a new step each day. An example of a typical return-to-play schedule is shown below:

*Day 1:* Light exercise, including walking or riding an exercise bike. No weight-lifting.

*Day 2:* Running in the gym or on the field. No helmet or other equipment.

*Day 3:* Non-contact training drills in full equipment. Weight-training can begin.

*Day 4:* Full contact practice or training.

*Day 5:* Game play.

**If symptoms occur at any step, the athlete should cease activity and be re-evaluated by their health care provider.**

### **How can a concussion affect schoolwork?**

Following a concussion, many student-athletes will have difficulty in school. These problems may last from days to months and often involve difficulties with short- and long-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 a few days, followed by academic accommodations (such as a reduced class schedule), 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.

### **What can I do?**

- Both you and your child should learn to recognize the "Signs and Symptoms" of concussion as listed above.
- Teach your child to tell the coaching staff if he or she experiences such symptoms.
- Emphasize to administrators, coaches, teachers and other parents your concerns and expectations about concussion and safe play.
- Teach your child to tell the coaching staff if he or she suspects that a teammate has suffered a concussion.
- Ask teachers to monitor any decrease in grades or changes in behavior 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.

### **Other Frequently Asked Questions**

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

Student-athletes that return to any activity too soon (school work, social activity or sports activity), can cause the recovery time to take longer. They also risk recurrent, cumulative or even catastrophic consequences, if they suffer another concussion. Such risk and difficulties are prevented if each athlete is allowed time to recover from his or her concussion and the return-to-play decisions are carefully and individually made. 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 "CAT scan" or MRI needed to diagnose a concussion?** Diagnostic testing, which includes CT ("CAT") and MRI scans, are rarely needed following a concussion. While these are helpful in identifying life-threatening head and brain injuries (skull fractures, bleeding or swelling), they are currently insensitive to concussive injuries and do not aid in the diagnosis of concussion. Concussion diagnosis is based upon the athlete's story of the injury and a health care provider's physical examination and testing.

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

The best treatment for a concussion is rest. There are no medications that can help speed the recovery. Exposure to loud noises, bright lights, computers, video games, television and phones (including text messaging) may worsen the symptoms of a concussion. You should allow your child to rest as much as possible in the days following a concussion. As the symptoms lessen, you can allow increased use of computers, phone, video games, etc., but the access must be lessened or eliminated, if symptoms worsen.



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

The symptoms of a concussion will usually go away within 2–3 weeks of the initial injury. You should anticipate that your child will likely be out full participation in sports for about 3–4 weeks following a concussion. However, in some cases symptoms may last for many more weeks or even several months. Symptoms such as headache, memory problems, poor concentration, difficulty sleeping and mood changes can interfere with school, work, and social interactions. The potential for such long-term symptoms indicates the need for careful management of all concussions.

**How many concussions can an athlete have before he or she should stop playing sports?**

There is no “magic number” of concussions that determine when an athlete should give up playing contact or collision sports. The circumstances that surround each individual injury, such as how the injury occurred and the duration of symptoms following the concussion, are very important and must be individually considered when assessing an athlete’s risk for and potential long-term consequences from incurring further and potentially more serious concussions. 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 a physician or neuropsychologist who specializes in treating sports concussions.

**I’ve read recently that concussions may cause long-term brain damage in professional football players. Is this a risk for high school athletes who have had a concussion?**

The issue of “chronic traumatic encephalopathy (CTE)” in former professional players has received a great deal of media attention lately. Very little is known about what may be causing these dramatic abnormalities in the brains of these unfortunate players. At this time we do not know the long-term effects of concussions (or even the frequent sub-concussive impacts) which happen during high school athletics. In light of this, it is important to carefully manage every concussion and all concussion-like signs and symptoms on an individual basis.

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.

**Revised and Approved April 2013**

**April 2010**

**DISCLAIMER – NFHS Position Statements and Guidelines**

The NFHS regularly distributes position statements and guidelines to promote public awareness of certain health and safety-related issues. Such information is neither exhaustive nor necessarily applicable to all circumstances or individuals, and is no substitute for consultation with appropriate health-care professionals. Statutes, codes or environmental conditions may be relevant. NFHS position statements or guidelines should be considered in conjunction with other pertinent materials when taking action or planning care. The NFHS reserves the right to rescind or modify any such document at any time.

## 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>	<p>3.11.4.6 – No Contact            Rule Equipment –            Helmets            Allowable Contact – “Air” and “Bag” (COACH PRE-DETERMINED OUTCOME)</p>
<b><i>Day 3 &amp; 4</i></b>	<p>Equipment – Helmets and shoulder pads            Allowable Contact – “Air”, “Bag” and “Control” (COACH PRE-DETERMINED OUTCOME)</p>
<b><i>Day 5 – 14</i></b>  <b><i>OR</i></b>  <b><i>Day 5 – First Contest Date</i></b>	<p>Equipment – Full protective equipment may be worn            Allowable Contact – “Air”, “Bag” and “Control” (COACH PRE-DETERMINED OUTCOME)</p> <ul style="list-style-type: none"> <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> </ul>
<b><i>Remainder of Season</i></b>	<p>Equipment – Full protective equipment may be worn            Allowable Contact – “Air”, “Bag” and “Control” (COACH PRE-DETERMINED OUTCOME)</p> <ul style="list-style-type: none"> <li>○ Unlimited              “Thud” and “Live Action” (NO COACH PRE-DETERMINED OUTCOME)</li> <li>○ Maximum of 4 days per week (including games)</li> </ul>

Note: Days are calculated inclusive of Sundays/weekends.



ANSWERING QUESTIONS ABOUT

# Chronic Traumatic Encephalopathy (CTE)

This handout provides a snapshot of what researchers currently know about chronic traumatic encephalopathy or CTE. Research on CTE is growing. More studies can help answer many questions about this disease.

## What is CTE?

CTE is a *brain disease* that results from changes in the brain. These changes can affect how a person thinks, feels, acts, and moves. Traumatic brain injuries, including [concussions](#), and repeated hits to the head, called subconcussive head impacts, may lead to 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.

CTE has been diagnosed in people who had a history of repeated subconcussive head impacts and did not have any known history of concussion.<sup>1,2</sup> Researchers believe that the more years a person has repeated subconcussive head impacts or other brain injuries, the higher the chance they have of getting CTE.<sup>3</sup>

## How Common is CTE?

Researchers do not know how many people in the United States have CTE. Most studies on CTE focus on former athletes who played contact sports (such as football or boxing) and military service members.

## Occasional Hits to the Head Do Not Cause CTE

Not everyone who has repeated hits to the head or brain injuries will develop CTE. Occasional hits to the head, such as the bumps and tumbles that children take when learning to walk, do not cause CTE.

## What are the Signs and Symptoms of CTE?

CTE symptoms can affect the way a person thinks, feels, acts, and moves. Symptoms do not show up in the same way for each person.<sup>4</sup> Some people with CTE may first have problems with depression or anxiety. They may then later develop memory and other thinking problems that become serious enough to get in the way of their normal daily activities (such as social or work-related activities).<sup>1,4,5</sup> Other people with CTE may experience memory and thinking problems first. Over time they may have mood or personality changes or become forgetful and struggle with daily tasks.<sup>1,4,5</sup> Mental health problems can increase for those with CTE.<sup>4</sup> The link between CTE and suicide is unclear.<sup>6</sup>

Symptoms of CTE are similar to those of other health problems. Having CTE symptoms does not mean a person has CTE. If you or a family member or friend have any questions or concerns, it is important to talk to a doctor. Treatments may be available to help.

### CTE Symptoms May Affect How A Person:



#### THINKS

Trouble with memory and problem-solving



#### FEELS

Changes in emotion (such as depression, hopelessness, or anxiety)



#### ACTS

Problems with behavior (such as anger or impulsivity)



#### MOVES

Problems with coordination, greater risk of falling, or tremors

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



## How is CTE Diagnosed?

Currently, CTE can only be diagnosed after death. To diagnose CTE, doctors check the brain for changes that happen to people with CTE. Through this process, doctors confirm whether the person had CTE or another disease, such as Alzheimer's disease.<sup>7</sup>



## National Institutes of Health (NIH) Study is Looking for Answers on CTE

NIH funded a large [research study](#) to learn how to diagnose CTE while a person is alive. Developing ways to diagnose CTE during life will help researchers learn more about the disease. It may also lead to treatments for CTE in the future.<sup>8</sup>



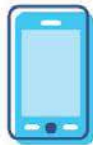
### Resources:

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

- Visit <https://www.ninds.nih.gov/Current-Research/Focus-Research/Focus-Traumatic-Brain-Injury>.

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

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

## References:

1. McKee A, Stern RA, Nowinski C, et al. The spectrum of disease in chronic traumatic encephalopathy. *Brain*. 2013;136(pt 1):43-64. doi:10.1093/brain/aww307
2. Stein TD, Alvarez VE, McKee AC. Concussion in chronic traumatic encephalopathy. *Curr Pain Headache Rep*. 2015;19(10):47. doi:10.1007/s11916-015-0522-z
3. McKee AC, Alosco ML, Huber BR. Repetitive head impacts and chronic traumatic encephalopathy. *Neurosurg Clin N Am*. 2016;27(4):529-535. doi:10.1016/j.nec.2016.05.009
4. Stern RA, Daneshvar DH, Baugh CM, et al. Clinical presentation of chronic traumatic encephalopathy. *Neurology*. 2013;81(13):1122-1129. doi:10.1212/WNL.0b013e3182a55f7f
5. Mez J, Daneshvar DH, Kiernan PT, et al. Clinicopathological evaluation of chronic traumatic encephalopathy in players of American football. *JAMA*. 2017;318(4):360-370. doi:10.1001/jama.2017.8334
6. Iverson GL. Chronic traumatic encephalopathy and risk of suicide in former athletes. *Br J Sports Med*. 2014;48(2):162-164. doi:10.1136/bjsports-2013-092935
7. McKee AC, Cairns NJ, Dickson DW, et al. The first NINDS/NIBIB consensus meeting to define neuropathological criteria for the diagnosis of chronic traumatic encephalopathy. *Acta Neuropathol*. 2016;131:75-86. doi:10.1007/s00401-015-1515-z
8. Asken BM, Sullan MJ, DeKosky ST, Jaffee MS, Bauer RM. Research gaps and controversies in chronic traumatic encephalopathy: a review. *JAMA Neurol*. 2017;74(10):1255-1262. doi:10.1001/jamaneurol.2017.2396