DDESS GUIDELINES

FALL SPORTS COACHES PRESEASON ALERTS
Sports Medicine, Heat Illness, Concussions
JULY, 2010

Coaches and administrators of all fall sports should review the material below and also consider similar procedures as are detailed specifically for football that may well serve other sports. Football specific material for coaches and administrators is found at http://www.khsaa.org/sportsmedicine/

PROPER CONDITIONING
IN HOT WEATHER

Heatstroke and heat exhaustion is preventable if the proper precautions are taken. Probably the best method is to have water available at all times and to allow the athlete to drink water whenever he/she needs it. Never restrict the amount of water an athlete drinks, and be sure athletes are drinking the water.

SPORTS MEDICINE: HEAT STRESS AND ATHLETIC PARTICIPATION

(Provided by the National Federation of State High School Associations-2010)

(This material was edited for the specific purposes of the MHSAA)
Heat Stress and Athletic Participation- Early fall football, cross country, soccer and field hockey practices are conducted in very hot and humid weather in many parts of the United States. Due to the equipment and uniform needed in football, most of the heat problems have been associated with football. From 1995 through the 2005 football season there have been 19 high school heat stroke deaths in football. This is not acceptable. 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 -- Painful cramps involving abdominal muscles and extremities caused by intense, prolonged exercise in the heat and depletion of salt and water due to profuse sweating. HEAT SYNCOPE -- Weakness fatigue and fainting due to loss of salt and water in sweat and exercise in the heat. Predisposes to heat stroke. HEAT EXHAUSTION (WATER DEPLETION) -- Excessive weight loss, reduced sweating, elevated skin and core body temperature, excessive thirst, weakness, headache and sometimes unconsciousness.
HEAT EXHAUSTION (SALT DEPLETION) -- Exhaustion, nausea, vomiting, muscle cramps, and dizziness due to profuse sweating and inadequate replacement of body salts. HEAT STROKE -- An acute medical emergency related to thermoregulatory failure. Associated with nausea, seizures, disorientation, and possible unconsciousness or coma. It may occur suddenly without being preceded by any other clinical signs. The individual is usually unconscious with a high body temperature and a hot dry skin (heat stroke victims, contrary to popular belief, may sweat profusely). It is believed that the above-mentioned heat stress problems can be controlled provided certain precautions are taken. According to the American Academy of Pediatrics Committee on Sports Medicine, heat related illnesses are all preventable.(Sports Medicine: Health Care for Young Athletes, American Academy of Pediatrics, July 2000). The following practices and precautions are recommended: 1. 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. 2. 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. 3. 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. It is suggested that a graduated physical conditioning program be used and that 80% acclimatization can be expected to occur after the first 7-10 days. Final stages of acclimatization to heat are marked by increased sweating and reduced salt concentration in the sweat. 4. The old idea that water should be withheld from athletes during workouts has NO SCIENTIFIC FOUNDATION. **The most important safeguard to the health of the athlete is the replacement of water. Water must be on the field and readily available to the athletes at all times. It is recommended that a minimum 10-minute water break be scheduled for every twenty minutes of heavy exercise in the heat. Athletes should rest in a shaded area during the break. WATER SHOULD BE AVAILABLE IN UNLIMITED QUANTITIES**. 5. 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, 2001)
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 Sports Medicine Handbook section on heat related illness published by the NFHS. Figure I is an example of a heat-humidity index table that defines low, moderate, high, and extreme risk zones. 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. NEVER USE RUBBERIZED CLOTHING. 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 two 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 STROKE THIS IS A MEDICAL EMERGENCY DELAY COULD BE FATAL**. Immediately cool body while waiting for transfer to a hospital. Remove clothing and immerse torso in ice/cold water. Immersion therapy has the best cooling rates. A plastic baby pool can be available at all practices and games, and can always be ready for immersion procedures. If not available apply ice packs in armpits, groin and neck areas. Continue cooling efforts until EMS arrives. HEAT EXHAUSTION OBTAIN MEDICAL CARE AT ONCE. Cool body as you would for heat stroke while waiting for transfer to hospital. Give fluids if athlete is able to swallow and is conscious. SUMMARY The main problem associated with exercising in the hot weather is water loss through sweating. Water loss is best replaced by allowing the athlete unrestricted access to water. Water breaks two or three times every hour are better than one break an hour. Probably the best method is to have water available at all times and to allow the athlete to drink water whenever he/she needs it. Never restrict the amount of water an athlete drinks, and be sure the athletes are drinking the water. The small amount of salt lost in sweat is adequately replaced by salting food at meals. Talk to your medical personnel concerning emergency treatment plans.

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 exercise is an important ingredient to healthy and successful sports participation.

●Rapid weight loss represents a loss of body water. A loss of just 1-2% 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 increase the risk for exertional heat related illness.

●Athletes should be weighed before and after warm weather practice sessions and contests to assess fluid losses.

●Athletes with high body fat percentages can become dehydrated faster than athletes with lower body fat percentages while working out under the same environmental conditions.

●All athletes have different sweating rates and some lose much more salt through their sweat than others.

●Medications and fevers can each greatly contribute to an athlete's dehydration problems and risk for heat illness.

●Environmental temperatures and humidity both contribute to dehydration and heat illness.

●Clothing, such as dark, bulky, or rubber protective equipment can drastically increase the chance of dehydration and heat illness.

●Wet bulb temperature measurements should be taken 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.

●Even dry climates can have high humidity if sprinkler systems are scheduled to run before early morning practices start. This collection of water does not evaporate until environmental temperatures increase and dew points lower.

●A heat index chart should be followed to determine if practices/contests should be held. The NOAA National Weather Service's heat index chart can be found at: http://www.weather.gov/om/heat/index.shtml

●The heat index for your location can be determined by entering your postal zip code into the OSAA Heat Index Calculator

●A relative humidity of 35 percent and a temperature of 95 degrees Fahrenheit are likely to cause heat illness, with heat stroke likely.
●A relative humidity of 70 percent and a temperature of 95 degrees Fahrenheit are **very** likely to cause heat illness, **with heat stroke very likely**.

WHAT TO DRINK DURING EXERCISES:

●For most exercising athletes, **the ideal fluid for pre-hydration and re-hydration is water.** Water is quickly absorbed, well tolerated, an excellent thirst quencher, and cost effective.
●The use of a sports drink with appropriate carbohydrates (CHO) and sodium as described below may prove beneficial in some general situations and for some individuals.
●Traditional sports drinks with appropriate CHO and sodium may provide additional benefit in the following general situations:
●A 6-8% addition of CHO to water is the maximum that should be utilized. Any greater concentration will produce slow emptying from the stomach and a bloated feeling to the athlete.
●The other ingredient that may be helpful is a low concentration (0.3 - 0.7 g/L) of sodium which may help with cramping.

WHAT NOT TO DRINK DURING EXERCISE:

●Fruit juices with greater than 8 percent carbohydrate content and soda can both result in a bloated feeling and abdominal cramping.
●Beverages containing caffeine, alcohol, and carbonation are not to be used because of the high risk of dehydration associated with excess urine production, or decreased voluntary fluid intake.
●Athletes should be aware that nutritional supplements are not limited to pills and powders; many of these new fluids contain stimulants such as caffeine and/or ephedrine.
These stimulants may increase the risk of heart or heat illness problems when exercising.
Many of these drinks are being produced by traditional water, soft drink, and sports drink companies and may provide confusion to the sports community. As is true with other forms of supplements these "power drinks or fluid supplements" are not regulated by the FDA. Thus, the purity and accuracy of contents on the label are not guaranteed.
Many of these beverages, which claim to provide additional power, energy, etc., have additional ingredients that are not necessary, some that are potentially harmful, and some that actually include substances banned by such governing bodies as the NCAA and the USOC.

HYDRATION TIPS AND FLUID GUIDELINES:

●In general, athletes do not voluntarily drink sufficient water to prevent dehydration during physical activity.
Drink early, by the time you're thirsty, you're already dehydrated.
After exercise, drink 24 ounces of fluid for every pound lost during exercise to achieve normal fluid statue within 6 hours.

●The volume and color of your urine is an excellent way of determining if you're well hydrated. Large amounts of clear urine mean your hydrated, small amounts of dark urine mean that you need to drink more! A Urine Color Chart can be accessed at:
http://at.uwa.edu/admin/UM/urinecolorchart.doc

●The NFHS SMAC strongly recommends that coaches, certified athletic trainers, physicians, and other school personnel working with athletes not provide or encourage use of any beverages for hydration of these youngsters other than water and appropriate sports drinks that meet the above criteria. They should also make information on the potential harm and lack of benefit associated with many of these other beverages available to parents and athletes.

References: Casa DJ, Armstrong LE, Hillman SK, Montain SJ, Reiff RV, Rich BSE, Roberts WO, Stone JA. National Athletic Trainers' Association Position Statement: Fluid Replacement for Athletes. Journal of Athletic Training. 35(2):212-224, 2000. McKeag DB, Moeller JL. ACSM's Primary Care Sports Medicine. 2nd Ed, Philadelphia: Wolters Kluwer/Lippincott Williams & Wilkins, 2007.

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CONCUSSIONS

Since the 2006-07 academic year, the NFHS has included in all of its playing rules a Point of Emphasis on "Proper Procedures for Handling Apparent Concussions" (See below). The information was developed and published by the Centers for Disease Control (CDC) in a booklet for coaches called "Heads Up: Concussion in High School Sports." The CDC, with the assistance of the NFHS and its member state high school associations, distributed the booklet and corollary materials to many of the nation's high schools. The well-being of student-athletes is of utmost concern to the NFHS and its members. We hope the information in the CDC information packet, in the Point of Emphasis, and on the NFHS Web site will be of assistance to coaches, teammates and sideline personnel, and also to families and friends. The signs and symptoms of concussions are listed so that all such persons may better evaluate a player's condition if a concussion is suspected. While the ultimate responsibility for each student-athlete's health rests with the student-athlete and his or her parents, guardians and medical professionals, the NFHS believes that this information will help all persons better understand the signs, symptoms and importance of responding to apparent concussions.
ACTION PLAN If you suspect that a player has a concussion, you should take the following steps:

1. Remove athlete from play.
2. Ensure athlete is evaluated by an appropriate health care professional. Do not try to judge the seriousness of the injury yourself.
3. Inform athlete's parents or guardians about the known or possible concussion.
4. Allow the athlete to return to play only with permission from an appropriate health care professional.

SIGNS AND SYMPTOMS These signs and symptoms may indicate that a concussion has occurred. Signs Observed by Coaching Staff * Appears dazed or stunned * Is confused about assignment * 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 vision or fuzzy vision * Sensitivity to light or noise * Feeling sluggish * Feeling foggy or groggy * Concentration or memory problems * Confusion

PROTOCOL FOR IMPLEMENTATION OF NATIONAL FEDERATION SPORTS PLAYING RULES FOR CONCUSSIONS
"Any athlete who exhibits signs, symptoms, or behaviors consistent with a concussion (such as loss of consciousness, headache, dizziness, confusion, or balance problems) shall be immediately removed from the contest and shall not return to play until cleared by an appropriate health care professional."
The language above, which will appear in all National Federation sports rule books for the 2010-11 school year, reflects a strengthening of rules regarding the safety of athletes suspected of having a concussion. For 2009-10, some sports rules required officials to remove from play any athlete who was "unconscious or apparently unconscious." This new language reflects an increasing focus on safety, given that the vast majority of concussions do not involve a loss of consciousness.
This protocol is intended to provide the mechanics to follow during the course of contests when an athlete sustains an apparent concussion.

1) The officials will have no role in determining concussion other than the obvious one where a player is either unconscious or apparently unconscious as is provided for under the current rule. Officials will merely point out to a coach that a player is apparently injured and advise that the player should be examined by a health care provider for an exact determination of the extent of injury.

2) If it is confirmed by the school's designated health care professional that the student did not sustain a concussion, the head coach may so advise the officials during an appropriate stoppage of play and the athlete may reenter competition pursuant to the contest rules.

3) Otherwise, if competition continues while the athlete is withheld for an apparent concussion, that athlete may not be returned to competition that day but is subject to the return to play protocol.

a) Only an MD or DO may clear the individual to return to competition.
b) The clearance must be in writing.
c) The clearance may not be on the same date on which the athlete was removed from play.

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

Skin related infections have grown considerably in the community and needless to say also in the sports environment. The vast majority of these infections are transmitted through skin-to-skin contact, but a smaller yet significant portion is due to shared equipment. If proper hygienic practices are followed (See NFHS Sports Hygiene Position Statement and Guidelines), this risk can be reduced. Contact with an opponent or piece of equipment in certain sporting events is inherent to the activity. Some sports have more direct contact than others and therefore carry a much greater risk for transmission. Others have virtually none and their risk is minimal. Due to the uniqueness of Wrestling, it requires its own protocol and is addressed separately (See NFHS Wrestling Physician Release for Skin Lesion(s) Form). The NFHS Sports Medicine Advisory Committee realizes these issues and has helped establish guidelines to educate the sporting and medical community about their presence, means to treat and reduce transmission of sports related skin infections.
Definitions of contact: High Risk – where the nature of the sport requires significant contact with an opponent or equipment. Medium Risk – there exists a minimal level contact. Low Risk – where virtually no contact exists.

Risk of Transmission

High Risk: Football, Wrestling
Medium Risk: Baseball, Lacrosse, Ice Hockey, Softball, Soccer, Basketball, Spirit/Cheer, Field Hockey, Volleyball, Water Polo
Low Risk: Tennis, Track & Field, Cross Country, Gymnastics, Bowling, Swimming & Diving, Golf
High Risk Sports: Contact with an opponent or equipment is by nature a high occurrence in these sports. Specific concern needs to address exposed areas that have direct contact with an opponent.

Ringworm, Tinea Corporus - Due to a dermatophyte, or fungal infection. Easily transmissible to an opposing player. Must be covered with a biocclusive dressing (i.e., Tegaderm) then prewrap and taped. If the area can't be covered, then the athlete may need to be removed from competition. In these situations, the athlete needs treatment with oral or topical antifungal medication for 72 hours before return to competition.

Impetigo, Folliculitis, Carbuncle, Furuncle – Infection due to *Staphylococcal* or *Streptococcal* bacteria. The athlete needs to be removed from competition and started on oral antibiotics. May return to competition after 72 hours of treatment, provided the infection is resolving and not oozing. Scabs must be well adherent and have no signs of weeping fluid or material. Reevaluate any lesion not improving and consider Herpes or Methicillin-Resistant Staph aureus (MRSA) as a possible source. (See NFHS Statements on MRSA and Herpes Gladiatorum for

guidance). Covering with Tegaderm, prewrap and tape only after 72 hours and when infection shows signs of resolving. **Herpes, Cold Sores. Shingles** – Transmission of this virus is via skin-to-skin contact. Exposed areas of the skin that isn't naturally covered with equipment, i.e., forearms, shins, hands, require the player to be withdrawn from competition until properly treated and resolving. Primary Outbreaks require 10-14 days of oral antiviral medications. Recurrent outbreaks 5 days of treatment. Covering these lesions can help prevent secondary bacterial infections, but may come off with competition thus not helping to prevent spreading it to opposing players. Cover with Tegaderm, prewrap and tape under equipment.

Other viral infections (Molluscum Contageosum, Warts) – No restrictions. Can be covered by Tegaderm, prewrap and tape.
Medium Risk Sports: Activities that require infrequent contact with an opponent. Equipment may play a larger role in transmission. The risk of transmission is minimal.

* **Ringworm, Tinea Corporus** – Due to a dermatophyte, or fungal infection. No restrictions for competition provided the area can be covered with Tegaderm, prewrap and tape. If the area can't be covered, then the athlete may need to be removed from competition. In these situations, the athlete needs treatment with oral or topical antifungal medication for 72 hours before return to competition.

Impetigo, Folliculitis, Carbuncle, Furuncle – Infection due to *Staphylococcal* or *Streptococcal* bacteria. No restrictions for competition, provided the area can be covered with Tegaderm, prewrap and tape. If the area can't be covered, may return to competition after 72 hours of treatment provided the infection isresolving and not oozing. Scabs must be well adherent and have no signs of weeping fluid or material. Reevaluate any lesion not improving and consider Herpes or MRSA as a possible source. (See NFHS Statements on MRSA and Herpes Gladiatorum for guidance).

Herpes, Cold Sores, Shingles – Transmission of this virus is via skin-to-skin contact. Covering the outbreak with biocclusive (Tegaderm), prewrap and tape may help reduce that risk. Areas that can't be covered and are in a region of potential contact should prompt the withdrawal of the athlete until the infection has resolved. Primary Outbreaks require 10-14 days of oral antiviral medications. Recurrent outbreaks require 5 days of treatment. Covering these lesions may also help prevent secondary bacterial infections, but may not help prevent spreading it to opposing players.

Other viral infections (Molluscum Contageosum, Warts) – No restrictions. Can be covered by Tegaderm, prewrap and tape.
Low Risk Sports: By definition, activities that have no direct physical contact with an opponent during play.* Equipment may play a larger role in transmission.

Ringworm, Tinea Corporus - Due to a dermatophyte, or fungal infection. No restrictions. Must be covered in certain sports where shared surfaces do occur, i.e., mats. If covering is needed, then use a biocclusive dressing (i.e., Tegaderm), prewrap and tape. If the area can't be covered, then the athlete may need to be removed from competition. In these situations, the athlete needs treatment with oral or topical antifungal medication for 72 hours before return to competition.

Impetigo, Folliculitis, Carbuncle, Furuncle – Infection due to *Staphylococcal* or *Streptococcal* bacteria. Bacterial infections can be transmitted via fomites, i.e, inanimate objects like balls, batons and mats. Skin infections on exposed areas must be covered with Tegaderm, prewrap and tape. If the area can't be covered, may return to competition after 72 hours of treatment provided the infection is resolving and not oozing. Scabs must be well adherent and have no signs of weeping fluid or material. Reevaluate any lesion not improving and consider Herpes or MRSA as a possible source. (See Statements on MRSA and Herpes Gladiatorum for guidance).

Herpes, Cold Sores, Shingles – Transmission of this virus is via skin-to-skin contact. No restrictions are necessary in these sports. Covering these with biocclusive (Tegaderm), prewrap and tape may also help prevent secondary bacterial infection.