CHSAA SPORTS MEDICINE ADVISORY HANDBOOK

This is a collection of best practices and is not intended to be construed as policy or in place of medical advice but is intended to <u>serve as an educational tool</u> and reference material for coaches, athletes and parents. This information is thorough, will be updated when appropriate, and is not all-inclusive.

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THANK YOU TO THE CHSAA SPORTS MEDICINE ADVISORY COMMITTEE MEMBERS FOR THEIR DEDICATION AND EXPERTISE ON THE SPORTS MEDICINE HANDBOOK

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CHSAANOW

PURPOSE

The CHSAA Sports Medicine Advisory Committee is a collective group of medical and educational professionals whose expertise provides current information to the association membership. The committee is designed to evaluate and communicate information based on best practices.

MISSION

The mission of the Sports Medicine Advisory Committee (SMAC) is to provide information, vision, and guidance to the Colorado High School Activities Association (CHSAA), while emphasizing the health and safety of students participating in interscholastic sports and activities.

Goals of the Committee

- Advise the Colorado High School Activities Association member schools on medical based safety issues.
- Monitor, evaluate and disseminate current sports medicine information to the member schools and CHSAA.
- Work cooperatively with the CHSAA sports committees to address sports medicine issues as they impact high school rules and the health and risk management of its participating students.
- Provide the CHSAA leadership and membership current information on sports medicine issues and injury prevention through the CHSAA Sports Advisory Handbook.

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AIR QUALITY & EXERCISE

DEFINITION

- Key Pollutants that may trigger or worsen asthma or affect lungs during exercise
- Ozone, particle pollution, carbon monoxide and smoke
- Athletes are at higher risk of inhaling air pollutants during exercise.
- Smoke from forest and grass fires is a special concern in Colorado, often causing severe air pollution.

AIR QUALITY INDEX (AQI)

The AQI is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you.

MANAGEMENT

- Distance runners should avoid running next to busy roadways.
- Ozone exposure can be lessened by early morning work outs.
- Athletes with asthma must be carefully monitored when AQI is above 100.

Athletes with asthma should always have a rescue inhaler readily available.

- Practices, contests, and outdoor activities should be modified or moved indoors when AQI is above 100 and consideration given to rescheduling or moving them when AQI is greater than 200.

PREVENTION AND RESOURCES

To check Air Quality in your area, go to https://www.colorado.gov/airquality/advisory.aspx

Air Quality Apps:

Air Quality | Air Visual
Air Quality Index BreezoMeter
Air Quality: Real time AQI
Plume Air Report – Live and forecast smog reports
Air Quality Index Near Me
Airveda – Monitor Air Quality
Air Quality
AirNow

REFERENCES

NFHS Sports Medicine Position Statements and Guidelines – **http://www.nfhs.org/sports-resource-content/nfhs-sports-medicine-position-statements-and-guidelines/**

ALLERGIC REACTION (ANAPHYLAXIS) PROTOCOL

DEFINITION

- Anaphylaxis is a **severe, life threatening** allergic reaction which can be triggered by foods, insect stings, medications, inhaling dust, pollens or other substances.
- Exercise may also trigger anaphylaxis
- Athletes with asthma have a higher risk of anaphylaxis
- Anaphylaxis may occur in someone who has never had asthma or an allergic reaction

SYMPTOMS

Anaphylaxis may include any or all of these:

- Flushed appearance, itchy skin, hives
- Swelling of eyelids, tongue and/or lips
- Nausea, vomiting, abdominal cramps, diarrhea
- Runny nose
- Fainting or feeling faint
- Difficulty breathing, wheezing, cough, chest tightness
- Blue or grey discoloration of extremities or around the mouth/lips
- Hoarseness or stridor (harsh, high pitched sound when breathing in)
- Respiratory arrest (breathing stops)

MANAGEMENT

If you suspect anaphylaxis, giving epinephrine (EpiPen) immediately is critical.

- Activate EMS by calling 911
- Monitor breathing until EMS arrives
- If triggered by environmental factor, remove athlete from the area
- If the athlete has trouble breathing, allow them to sit up and assume a “position of comfort”.
- Lay them down only if they are losing consciousness.
- Administer epinephrine autoinjector (Epi-Pen) if available

(Please read the instructions on autoinjector. See link below for example of instructions)

- EpiPen can be given through clothing
- Give a 2nd dose of EpiPen in 5 minutes if athlete is not improving and EMS has not arrived

(all athletes and school personnel carrying EpiPen’s should always have two).

PREVENTION

It is the responsibility of the athlete/legal guardian to notify his or her coach/school if they have been diagnosed with any of these conditions at any time

- Athletes who have had anaphylaxis in the past or have severe allergies must have an anaphylaxis action plan and should always carry an epinephrine autoinjector (EpiPen). They should wear a medical alert bracelet with information about their diagnosis.
- Teens with epinephrine autoinjectors should know how and when to use them but coaches must understand the when anaphylaxis strikes the athlete may be too panicked or symptomatic to be able to give the EpiPen themselves and will need someone else to give it.

ALLERGIC REACTION (ANAPHYLAXIS) PROTOCOL (Cont.)

RESOURCES

Instructions for EpiPen:
https://www.epipen.com/-/media/files/epipen/howtouseepipenautoinjector.pdf
Video showing use of EpiPen
https://www.youtube.com/watch?v=egxkvpgX544

REFERENCES

Giannetti MP Exercise-induced anaphylaxis: literature review and recent updates. Curr Allergy Asthma Rep 2018 Oct 26;18(12):72
Sicherer SH, et al. Epinephrine for first-aid management of anaphylaxis. Pediatrics 2017 Mar;139(3)
Wang J, et al. Guidance on completing a written allergy and anaphylaxis emergency plan. Pediatrics 2017 Mar;139(3)

ASTHMA/EXERCISE INDUCED WHEEZING PROTOCOL

DEFINITIONS

- Asthma is a chronic lung condition which causes obstruction of the airways (breathing tubes) due to inflammation (irritation and swelling) of the lining of the airways and tightening of the airways
- Athletes with asthma can have worsening symptoms due to exercise
- Some people without asthma can have wheezing with exercise, which is when exercise and exposure to cold dry air or pollutants causes breathing difficulty due to narrowing of the airways

SYMPTOMS

- Coughing
- Wheezing (noise when breathing out)
- Difficulty breathing
- Chest tightness
- Fast breathing
- Have trouble speaking
- Blue color of lips or skin
- Retractions (skin above the collar bones or between the ribs gets sucked in with each breath)

MANAGEMENT

- Stop exercise
- Remove the athlete from area if something in the environment seems to have caused the attack (see air quality section)
- Have the athlete use their inhaler (albuterol). They should be using a "spacer" device that goes on the end of the inhaler and take 2-4 puffs. If there is no improvement after the initial 2-4 puffs, consider transporting via EMS.
- Help them try to relax and control breathing, but do not delay medication to do this.
- Activate EMS by calling 911 if the athlete is confused, loses consciousness, turning blue, or has severe difficulty breathing which does not respond to the inhaler.

PREVENTION

It is the responsibility of the athlete/legal guardian to notify his or her coach/school if they have been diagnosed with one of these conditions at any time.

- Coaches must know if the athlete has a history of asthma or wheezing with exercise
- Using an inhaler before exercise may help prevent breathing difficulty. This should be done at the direction of the athlete's medical provider
- Regular exercise may help decrease asthma and breathing related problems
- Proper warm up may help decrease asthma attacks
- Athletes who are known to have asthma should not exercise in extreme temperatures or if there are high levels of pollution in the air (including smoke and pollens)
- All athletes with asthma should see their medical provider regularly to manage their disease.

ASTHMA/EXERCISE INDUCED WHEEZING (Cont.)

RESOURCES

CDC podcast don't let asthma keep you out of the game
https://tools.cdc.gov/medialibrary/index.aspx#/media/id/304108

CDC videos on how to use your inhaler
https://www.cdc.gov/asthma/inhaler_video/default.htm

Korey Stringer Institute
https://ksi.uconn.edu/emergency-conditions/asthma/#

Colorado Air Quality
https://airnow.gov/index.cfm?action=airnow.local_state&stateid=6

REFERENCES

Aggarwal B, et al. Exercise-induced bronchoconstriction: prevalence, pathophysiology patient impact, diagnosis and management. NPJ Prim Care Respir Med. 2018 Aug 14;28(1):31

Miller MG, et al. National Athletic Trainers' Association Position Statement: Management of asthma in athletes. J Athl Train. 2005;40(3):224-245

ATHLETE HYGIENE AND EQUIPMENT/FACILITY CLEANING RECOMMENDATIONS

GENERAL GUIDELINES FOR SPORTS HYGIENE, SKIN INFECTIONS AND COMMUNICABLE DISEASES

Proper precautions are needed to minimize the potential risk of the spread of communicable disease and skin infections during athletic competition. These conditions include skin infections that occur due to skin contact with competitors and equipment. The transmission of infections such as Methicillin-Resistant Staphylococcus aureus (MRSA) and Herpes Gladiatorum, blood-borne pathogens such as HIV and Hepatitis B, and other infectious diseases such as Influenza can often be greatly reduced through proper hygiene.

UNIVERSAL HYGIENE PROTOCOL FOR ALL SPORTS

- Shower immediately after every competition and practice, using liquid soap and not a shared bar soap.
- Wash all workout clothing after each practice, washing in hot water and drying on a high heat setting.
- Clean and/or wash all personal gear (knee pads, head gear, braces, etc.) and gym bags at least weekly.
- Do not share towels or personal hygiene products (razors) with others.
- Refrain from full body and/or cosmetic shaving of head, chest, arms, legs, abdomen and groin.

INFECTIOUS SKIN DISEASES

Strategies for reducing the potential exposure to these infectious agents include:

- Athletes must notify a parent/guardian and coach of any skin lesion (red bumps or sores) prior to any competition or practice. An appropriate health-care professional shall evaluate all skin lesion before returning to practices or competition.
- If an outbreak occurs on a team, especially in a contact sport, all team members should be evaluated to help prevent the potential spread of the infection. All shared equipment shall be properly cleaned/disinfected prior to use.
- Coaches, officials, and appropriate health-care professionals must follow NFHS or state/local guidelines on “time until return to competition.” Participation with a covered lesion may be considered if in accordance with NFHS, state or local guidelines and the lesion is no longer contagious.

BLOOD-BORNE INFECTIOUS DISEASES

Strategies for reducing the potential exposure to these agents include:

- Always use gloves when caring for bleeding or open wounds, or when exposed to any body fluids
- An athlete who is bleeding, has an open wound, has any amount of blood on his/her uniform, or has blood on his/her person, shall be directed to leave the activity (game or practice) until the bleeding is stopped, the wound is covered, the uniform and/or body is appropriately cleaned, and/or the uniform is changed before returning to activity.
- In the event of a blood or body fluid-splash, immediately wash contaminated skin with soap and water and mucous membranes with water.
- Clean all contaminated surfaces and equipment with disinfectant before returning to competition. Be sure to use gloves when cleaning.
- Any blood exposure or bites to the skin that break the surface must be reported and immediately evaluated by an appropriate health-care professional.

ATHLETE HYGIENE AND EQUIPMENT/FACILITY CLEANING RECOMMENDATIONS (Cont.)

RESOURCES

NWCA Skin Infection Webinar - http://www.nwcaskinprevention.com/webinar/
USA Wrestling - http://content.themat.com/SkinGuide.pdf
NFHS Medical Release Form for Wrestler to Participate with Skin Lesion(s)

REFERENCES

NFHS Sports Medicine Position Statements and Guidelines – **http://www.nfhs.org/sports-resource-content/nfhs-sports-medicine-position-statements-and-guidelines/**

BLOODBORNE INFECTIOUS DISEASES

DEFINITIONS

- Bloodborne pathogens are microorganisms that are present in the blood and other body fluids that can cause infectious diseases in humans. The most common bloodborne pathogens are Hepatitis B, Hepatitis C and HIV.
- Hepatitis B and Hepatitis C viruses cause liver inflammation. Some infected individuals become carriers and suffer long-term health problems.
- HIV is the virus that causes Acquired Immunodeficiency Syndrome (AIDS). AIDS weakens the immune system, making a person susceptible to infections that it would normally fight off. There is no known cure for AIDS.
- The risk of transmission of bloodborne pathogens in the athletic setting is extremely low. However, standard precautions should be followed by anyone providing care for injured or bleeding athletes.

PREPARATION

- All necessary equipment and supplies for treating the bleeding athlete should be readily available in advance. This includes equipment for managing open wounds and contaminated playing surface.
    - PPE including gloves, goggles, mask and fluid-resistant gowns
    - Antiseptic solutions for cleaning wounds
    - Antimicrobial wipes
    - Bandages and dressings
    - Antiseptic cleaning solutions for contaminated surfaces
    - Towels or cloths for cleaning contaminated surfaces
    - Appropriate disposal surfaces
    - Appropriate disposal container for needles, syringes and scalpels
    - Waste receptacles for soiled equipment, uniforms, or towels

MANAGEMENT

- Athletic trainers or personnel managing blood exposure or tending to contaminated surfaces should follow standard precautions, including use of gloves or other personal protective equipment (PPE) as necessary.
- Athletes with active bleeding should be removed from competition immediately. Bleeding should be controlled, wounds cleansed with soap and water and exposed mucous membranes flushed with water.
- Wounds should be properly dressed and covered prior to the athlete returning to competition.
- Uniforms saturated with blood must be changed before returning to competition.
- Blood or body fluids transferred from an injured athlete to the intact skin of another participant should be cleaned with antimicrobial wipes or soap and water. If exposure involves mucous membranes or non-intact skin, athletes should undergo medical evaluation so that standard post-exposure procedures can be initiated.

BLOODBORNE INFECTIOUS DISEASES (CONT.)

- Playing surfaces and equipment with blood or body fluids should be decontaminated with an EPA-approved chemical germicide or a freshly prepared, diluted (1:100) bleach solution prior to resuming play.
- Contaminated towels and cloths should be appropriately disposed of in waste or biohazard receptacles.

PREVENTION

- Conduct that may lead to exposure to blood or body fluids, such as biting, scratching, spitting, punching or other unsportsmanlike conduct should not be tolerated and rules forbidding this type of behavior enforced.
- Immunization against Hepatitis B is highly effective and strongly recommended to those participating in sports with a relatively higher risk for transmission of bloodborne pathogens.

RESOURCES

AMSSM Position Statement- Bloodborne Pathogens in Context of Sports Participation
https://journals.lww.com/cjsportsmed/Fulltext/2020/07000/AMSSM_Position_Statement_Update__Blood_Borne.1.aspx

NFHS Sports Medicine Position Statement and Guideline-
https://www.nfhs.org/media/1016457/general-guidelines-for-skin-infections-final-october-2018.pdf

REFERENCES

UpToDate- Bloodborne Pathogens and Sports
https://www.uptodate.com/contents/bloodborne-pathogens-and-sports

COLD WEATHER PROTOCOLS

DEFINITIONS

- Cold weather is defined as any temperature that can negatively affect the body's regulatory system. It is important to remember that temperatures do not have to be freezing to have this effect. The combined effects of cold, wet, and wind increase the chance of cold injury.
- The Wind Chill is the temperature your body feels when the air temperature is combined with the wind speed. It is based on the rate of heat loss from exposed skin caused by the effects of the wind and cold. As the speed of the wind increases, it can carry heat away from your body much more quickly, causing skin temperature to drop.
- Athletes engaged in sports activities in cold, wet or windy conditions are at risk for environmental cold injuries

HYPOTHERMIA: Body Core Temperature below 95 deg. F. Occurs when heat loss exceeds the body's heat production.

SYMPTOMS

- Shivering
- Sleepy or difficult to arouse
- Clumsiness (impaired motor control)
- Pale, cold face and extremities
- Decreased heart rate
- Slurred speech
- Confusion (Impaired mental function/amnesia)

MANAGEMENT

- Activate EMS by calling 911
- Transfer to warm/dry environment as quickly and gently as possible
- Remove wet clothing
- Warm chest and abdomen with dry insulating blankets (avoid warming extremities initially)
- Cover/warm the head
- If alert, provide warm beverages
- Continue to monitor until EMS arrives

FROSTNIP/FROSTBITE: Frostnip is cooling of body tissues but not freezing of the exposed skin. In contrast frostbite is actual freezing of body tissues. Most susceptible are fingers, toes, earlobes and nose.

SYMPTOMS

- Dry, waxy skin
- Swelling
- Burning, tingling
- Limited movement
- White/blue/gray patches
- Aching, throbbing, shooting pain

MANAGEMENT

- Rewarm slowly in warm water (avoid hot)
- Warming should be continued until the skin is red/purple and soft to touch
- Avoid friction/rubbing tissue

COLD WEATHER PROTOCOLS (Cont.)

PREVENTION

Competition/Practice Modifications

- Coaches should be vigilant and monitor players' physical condition and alertness in cold conditions. Allow for frequent cold checks. Consider a buddy system.
- Consider abbreviated warm-ups; extended half-times to allow for rewarming.
- Adjust for changing conditions and provide access to a warm building.

Clothing

- Wear appropriate type of clothing in layers to protect from cold exposure.
- Dry clothing is essential.
- Wear several layers around the core of the body (esp. those not as active)
- The first layer should wick the moisture away from the body (synthetic instead of cotton).
- The top layer should trap heat and block the wind (fleece, wind block)
- The outside layer should be water resistant/waterproof

Head/Feet

- Head should be covered with a hat or helmet to protect ears/break wind
- Face should be protected in severe cold
- Feet need moisture wicking socks (preferably wool blend)

Table 3. Prevention and Risk Management Process for the Certified Athletic Trainer

1. Before event
   - Encourage proper hydration and nutrition, and discourage alcohol and drug use.
   - Ensure that athletes and coaches know the signs and symptoms of cold injury.
   - Identify participants at a high risk of cold injury. Risk factors include the following:
     - Lean body composition
     - Females
     - Older age
     - Black race
     - Lower fitness level
     - Presence of comorbidity (eg, cardiac disease, anorexia, Raynaud syndrome, exercise-induced bronchospasm)
   - Encourage proper conditioning and appropriate equipment and clothing choices.
2. Environmental assessment
   - Evaluate immediate and projected weather information, including air temperature, wind, chance of precipitation or water immersion, and altitude.
   - Identify activity intensity requirements and clothing requirements for each individual.
   - Have alternate plans in place for deteriorating conditions and activities that must be adjusted or cancelled.
   - The following guidelines can be used in planning activity depending on the wind-chill temperature. Conditions should be constantly reevaluated for change in risk, including the presence of precipitation:
     - 30°F (−1.11°C) and below: Be aware of the potential for cold injury and notify appropriate personnel of the potential.
     - 25°F (−3.89°C) and below: Provide additional protective clothing, cover as much exposed skin as practical, and provide opportunities and facilities for rewarming.
     - 15°F (−9.44°C) and below: Consider modifying activity to limit exposure or to allow more frequent chances to rewarm.
     - 0°F (−17.78°C) and below: Consider terminating or rescheduling activity.
3. Coaches' and athletes' roles
   - Coordinate a schedule of hydration and/or feeding.
   - Coordinate a schedule of rewarming or clothing changes as needed.
   - Identify possible activity modifications as conditions change (eg, change activity times, allow more frequent chances to rewarm, allow changes to clothing or equipment).
   - Become educated about the prevention and recognition of cold injuries.
   - Develop a schedule for monitoring athletes to allow early recognition of potential injury.
4. Event management
   - Provide food and fluids.
   - Provide warming facilities.
   - Provide additional clothing and equipment for varying conditions.
   - Implement exposure control and rewarming schedules as needed.
   - Monitor environmental conditions and athletes regularly.
5. Treatment preparations
   - Ensure medical staff is prepared to identify the signs and symptoms of cold injury.
   - Ensure medical staff has proper equipment and skills to assess cold injury, including assessment of low core temperatures.
   - Prepare an emergency action plan in the event that rapid transport is necessary.
   - Prepare active rewarming equipment (eg, whirlpool, hot packs, towels, blankets, dry clothing).
   - Identify warm, dry areas for athletes to passively rewarm, recover, or receive treatment.
   - Provide direct on-site (ie, sideline) means of passive rewarming (eg, additional clothing, space heaters).

COLD WEATHER PROTOCOLS (Cont.)

SUMMARY OF COLD WEATHER GUIDELINES BASED ON TEMPERATURE

TEMPERATURE	GUIDELINE*
30° F (-1° C) and below	Be aware and plan for cold exposure and the potential for injury; notify appropriate personnel and participants of the conditions and risks.
25°F (-4°C) and below	Provide additional protective clothing; cover as much exposed skin as practical; provide opportunities and facilities for rewarming
15°F (-9° C) and below	Consider modifying athletic activity to limit cold exposure and/or to allow more frequent rewarming opportunities
0° F (-17° C) and below	Consider terminating or rescheduling activity

* The guidelines are adapted from National Athletic Trainer's Association Position Statement: Environmental Cold Injuries. These are guidelines only. Decisions need to be made in the context of your school setting with input from the Sports Medicine and Administrative teams. Guidelines should be used to plan, modify, or reschedule activities while taking in to consideration the wind-chill and temperature. Conditions can change rapidly in Colorado and the conditions (including the presence of precipitation) need to be continuously reevaluated and plans adjusted accordingly to protect athletes from cold injury.

MONITORING COLD WEATHER

- Wind and moisture (rain) dramatically increase heat loss from the body
- Weather should be monitored by designated athletic department personnel and an advisory should be issued to school coaching staff when applicable
- Temperature, wind speed and wind chill will need to be monitored

The wind chill index considers effects of temperature and wind speed (see below)
The chart is available

- https://www.weather.gov/safety/cold-wind-chill-chart
- Based on information from the National Weather Service, local weather stations and local/on-site Cold Index measurements, determine the risk of potential danger to participants.

RESOURCES

http://www.nata.org/news-publications/pressroom/statements/position;
http://www.nws.noaa.gov/om/winter/windchill.shtml Provided by the National Weather Service
https://natajournals.org/doi/pdf/10.4085/1062-6050-43.6.640

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DIABETIC EMERGENCY PROTOCOL

DEFINITIONS

- Diabetes is a condition in which the pancreas does not produce insulin, a hormone needed to get energy from food. Many diabetics must take insulin by injection to live.
- Exercise is important to the health and well-being of diabetics, but exercise can also cause unexpected increases or decreases in blood sugar, which can be an emergency.
- Hypoglycemia (low blood sugar) is a potentially life-threatening condition in which too little glucose is in the blood.
- Hyperglycemia (high blood sugar) is a condition in which too much glucose (sugar) is present in the blood.

HYPOGLYCEMIA (LOW BLOOD SUGAR)

SYMPTOMS

- Athlete tells you they feel "low" (some can feel low blood sugar)
- Irritability, anxiety
- Lightheaded
- Trembling, shaky
- Weakness
- Pale and sweaty
- Rapid heartbeat/rapid breathing
- Confusion
- Loss of consciousness
- Seizure

MANAGEMENT OF HYPOGLYCEMIA (LOW BLOOD SUGAR)

- Activate EMS by calling 911 if athlete is disoriented, loses consciousness or does not improve within 10 minutes of treatment
- Stop all exercise
- If athlete is alert and cooperative, give sugar; for example, 6 ounces of fruit juice, 6 ounces of **non-diet soda** or 1 tablespoon of honey or table sugar, repeat in 10-15 minutes if needed
- Check blood sugar with glucometer if athlete is able to do so
- Contact parent/guardian
- Notify parent/guardian of low blood sugar and symptoms immediately

HYPERGLYCEMIA (HIGH BLOOD SUGAR)

SYMPTOMS

- Dry, hot skin
- Breath has a "fruity" odor
- Nausea, vomiting and/or abdominal pain
- Dry mouth, dehydration
- Excessive thirst and frequent urination
- Unusual fatigue, sleepiness, inattention
- Rapid deep breathing
- Loss of consciousness or confusion

DIABETIC EMERGENCY PROTOCOL (Cont.)

MANAGEMENT OF HYPERGLYCEMIA (HIGH BLOOD SUGAR)

- Active EMS by calling 911 if athlete is confused, responds inappropriately or unconscious
- Stop all exercise
- If athlete is alert and cooperative, hydrate with water
- Have the athlete measure their blood sugar if possible
- If athlete is alert and cooperative, have them administer their insulin
- Notify parent/guardian of high blood sugar and symptoms immediately

PREVENTION

It is the responsibility of the athlete/legal guardian to notify his or her coach/school/athletic trainer if they have been diagnosed with one of these conditions at any time.

- Coaches should know if their athlete has diabetes.
- Diabetics should wear a medical alert bracelet with details of their diagnosis
- Diabetes should always have a source of sugar with them at every practice/game in case of low blood sugar and must carry snacks and meals when traveling.
- Diabetics in whom the disease is poorly controlled, or whose blood sugar is high (>180 mg/dl) or low (<70 mg/dl) should not exercise until they have improved blood sugar control.
- Diabetic athletes must have a diabetes care plan from their medical provider which includes guidance on measuring blood glucose levels before, during and after exercise and how to adjust food and insulin doses in response to blood sugar levels and exercise.
- Most athletes with diabetes require a snack of complex carbohydrate prior to any exercise, with additional snack for every hour of exercise. Give the athlete breaks for hydration, snacks and blood sugar checks.
- Condition gradually at the start of the season
- Warm up for exercise
- Limit exercise in extreme heat or cold

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EMERGENCY PROTOCOLS

VEAP (VENUE SPECIFIC EMERGENCY ACTION PLAN)

A VEAP is a written document to effectively facilitate athletic emergencies. It is imperative that a venue specific VEAP is developed for each location in which athletic events are held.

GUIDELINES

- An EAP should be developed for each athletic venue and included in the school district's policies and procedures manual.
- It is encouraged that VEAPs be practiced with the appropriate personnel (athletic trainers, stadium managers, EMTs and physicians) prior to the beginning of each academic year.
- VEAPs should include logistics (access to the field by Emergency Medical Services) for expedited removal of athletes from the venue. Having the appropriate keys to unlock entry gates to the field of play is a necessity.
- VEAPs should include an effective communication system, training of personnel in CPR and AEDs, presence of necessary emergency equipment, chain of command and a coordinated response plan.
- Assign personnel (school administrator/Athletic Director/school staff/police officer/stadium managers) for crowd control if needed.
- Emergency cards should be easily accessible, and parents of athlete should be contacted ASAP.

PREVENTION

A well-developed emergency action plan and proper training will result in fewer and less severe athletic injuries. A poorly prepared plan will likely lead to a disorganized evacuation or emergency response, resulting in confusion and increased severity of injury.

CPR (CARDIOPULMONARY RESUSCITATION)

CPR is a lifesaving technique useful in many emergencies, including heart attack or near drowning, in which someone's breathing or heart has stopped. The American Heart Association recommends that everyone, including untrained bystanders and medical personnel alike, begin CPR with chest compressions. (Hand's – Only CPR).

MANAGEMENT

- Check to make sure CPR can be performed in a safe environment.
- Check for responsiveness with vocal and physical stimuli.
- Determine if athlete is unconscious, not breathing normally or there is absence of a pulse.
- AHA recommends no pulse check for layperson, just start CPR if no breathing or only gasping.
- Call 911
- After EMS is enacted, position the athlete on their back, and deliver high quality chest compressions.
- Hands-Only CPR is now recommended for all non-CPR trained individuals, for teen and adult patients.
- If an AED is present, stop chest compression only for rhythm analysis and shock delivery.
- Restart CPR after shock is delivered.
- Continue CPR until EMS arrives and takes over or athlete regains a pulse, is adequately breathing, and regains consciousness.
- Alternate personnel every 2 minutes for chest compressions to prevent fatigue.

EMERGENCY PROTOCOLS (Cont.)

PREVENTION

It's far better to do something than to do nothing at all if you're fearful that your knowledge or abilities aren't complete. Remember, the difference between doing something and doing nothing could mean someone's life.

AED (AUTOMATED ELECTRONIC DEFIBRILLATOR)

An AED is a portable electronic device that automatically diagnoses the life-threatening cardiac rhythms in a patient. The device stops the arrhythmia through defibrillation, allowing the heart to reestablish an effective rhythm.

GUIDELINES

- An AED is used to treat athletes who experience sudden cardiac arrest.
- The AED should be used only after calling 911.
- An AED is only applicable to athletes who are unconscious, not breathing normally and have absence of or very weak pulse.
- The AED pads should be placed on the athlete's chest as directed by pictures included with the AED unit.
- Pads should be placed directly onto the athlete's skin and the AED should be turned on.
- Do not place pads over pacemaker.
- All medicine patches should be removed.
- The AED will analyze the heart rhythm and advise the operator if a shockable rhythm is detected.
- If a shockable rhythm is detected, the AED will charge to the appropriate energy level and advise the operator to deliver a shock.
- It is okay to use the AED in a wet environment. Athletes should be removed from standing water like a puddle or pool.
- All personnel should be clear of the athlete when the shock is being delivered.
- **CPR should continue immediately after the shock is delivered.**

PREVENTION

After approximately 3-5 minutes in cardiac arrest, irreversible brain/tissue damage may begin to occur. For every minute that a person in cardiac arrest goes without being successfully treated (by an AED), the chance of survival decreases by 7 percent per minute in the first 3 minutes and decreases by 10 percent per minute beyond 3 minutes. The effective use of an AED can significantly increase the chances of survival and decrease risk of long term complications.

EMERGENCY PROTOCOLS (Cont.)

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American College of Sports Medicine; American Heart Association. American College of Sports Medicine and American Heart Association joint position statement: automated external defibrillators in health/fitness facilities. Med Sci Sports Exerc. 2002 Mar;34(3):561-4

Siebert DM, Drezner JA. Sudden cardiac arrest on the field of play: turning tragedy into a survivable event. Neth Heart J. 2018 Mar;26(3):115-119

American Heart Association – Get With the Guidelines: https://www.heart.org/en/professional/quality-improvement/get-with-the-guidelines/get-with-the-guidelines-resuscitation/get-with-the-guidelines-resuscitation-overview

EXERCISE INDUCED LARYNGEAL OBSTRUCTION (EILO) PROTOCOL

DEFINITIONS

- Exercise induced laryngeal obstruction (EILO) is also known as vocal cord dysfunction (VCD)
- It is caused by inappropriate partial closing of the upper airway (breathing tube) and vocal cords, often during high-intensity exercise causing the athlete to breathe through a narrowed airway, which causes breathing difficulty.
- It occurs more often in highly-motivated teen athletes, sometimes with perfectionistic tendencies.
- It is sometimes confused with asthma because the symptoms may be similar, but asthma medications do not help EILO.

SYMPTOMS

- Severe shortness of breath that feels "scary" to the athlete
- The feeling that one is "breathing through a straw"
- The athlete looks like they are having trouble breathing
- Stridor: a high-pitched gasping sound when the athlete breaths in (might also happen when the athlete breaths out if it is severe)
- Throat or chest tightness
- Fast breathing
- Feeling dizzy, lightheaded, nauseous, numbness or tingling in hands or feet resulting from hyperventilation (fast breathing)
- Coughing

TREATMENT OF EILO EPISODE

- Calmly reassure the athlete and have them focus on controlled breathing and relaxation
- Athletes who have been diagnosed with this condition have likely been taught breathing techniques to decrease symptoms. Encourage them to use their techniques. This helps open the breathing tube.
- Try not to bring attention to the athlete with teammates or parents during an attack because this can worsen the problem
- Activate EMS by calling 911 if the athlete is confused, loses consciousness or is turning blue

LONG TERM TREATMENT/PREVENTION

- Athletes with breathing difficulty must have a medical evaluation to determine the cause
- If they are diagnosed with EILO they will require respiratory retraining therapy which is directed by a speech therapist and/or pulmonologist (lung specialist) who specializes in this area.
- Regular exercise is encouraged.
- With proper treatment athletes with EILO will be able to exercise without breathing difficulty

RESOURCES

National Jewish Hospital: Dr. Tod Olin
https://www.nationaljewish.org/about/news/press-releases/2017/breathing-techniques-at-njh-help-athletes-with-vcd

AAAAI vocal cord dysfunction
https://www.aaaai.org/conditions-and-treatments/related-conditions/vocal-cord-dysfunction

HEAD TRAUMA & CONCUSSIONS

DEFINITIONS

- A concussion is a type of traumatic brain injury (TBI), caused by a bump, blow, or jolt to the head or body that can change the way your brain normally works.
- Concussions can also occur from a blow to the body that causes the head to move rapidly back and forth, without direct hit to the head.
- What was previously referred to as a "ding," "getting your bell rung," is actually a concussion. What seems to be mild bump or blow to the head can be serious.
- A concussion cannot be seen on a CT scan or on an MRI.
- Most athletes do not have loss of consciousness (knocked out) with a concussion.
- Signs and symptoms of concussion can be in four areas: Physical, Cognitive/Thinking, Emotions/Mood and Energy/Sleep.
- In rare occasions athletes with head trauma may have a potentially life-threatening head injury such as bleeding, bruising, or swelling of the brain or fracture of the skull.

SIGNS AND SYMPTOMS OF CONCUSSION

PHYSICAL		**COGNITIVE**
Headache	Nausea/Vomiting	Disorientation and/or confusion
Blurred Vision	Numbness/Tingling	Feeling mentally "foggy" or "slowed down"
Dizziness	Sensitivity to light	Memory loss or difficulty remembering
Poor balance	Sensitivity to noise	Difficulty concentrating, feeling easily distracted
Seeing "stars"	Ringing in ears	Slowed and/or slurred speech
Neck pain	Vacant stare/Glassy eyed	
EMOTIONAL		**SLEEP/ENERGY**
Irritability	Feeling anxious/nervous	Drowsiness Increased sleep
Personality change	Sadness	Fatigue Trouble falling or staying asleep
Feeling more emotional	Inappropriate emotions	

ASSESSMENT/PROCEDURE

There may be a concussion if there is a jolt/hit to body or head and there is even 1 sign or 1 symptom.

- **Call 911 to activate EMS if any one of the following occurs: These may indicate severe injury.**
  - **Loss of consciousness**
  - **Persistent vomiting (more than one episode of vomiting)**
  - **Deteriorating mental alertness**
  - **Amnesia or confusion that lasts for more than 10 minutes**
  - **Any seizure activity**
  - **Bruising under the eyes or behind the ears**
  - **Concerns for cervical spine injury (see neck injury protocol).**
- Remove athlete from participation if there are signs and/or symptoms of concussion
- Do not return the athlete to participation until cleared by a medical professional (Bylaw 1780.21)
- Do not allow athlete to drive her/himself home.
- Observe the injured athlete until turned over to the parent/guardian.
- Don't allow the athlete to sit alone (i.e. sideline, bus or in the locker room)

WHEN IN DOUBT, SIT THEM OUT

HEAD TRAUMA & CONCUSSIONS (Cont.)

• Speak directly with parent/guardian about the suspected injury. Tell them how the injury happened and what signs/symptoms the athlete has. Instruct them to observe for worsening signs/symptoms, seek medical care and clearance for the concussion.
• Know your school district concussion protocol. Notify your school's concussion "point person" so that the athlete can be removed from PE and receive academic adjustments during recovery.

MANAGEMENT

• Students may need to stay home from school for a few days, returning within 2-3 days when symptoms calm down.
• Activities of daily living and being up and about can be resumed as soon as tolerated. Strict bed rest or mandatory "cocooning" is not recommended.
• School should have an internal process for academic adjustments. School staff should communicate and work closely together to support recovery.
• For more information on details of concussion management and recovery go to:
  o https://rockymountainhospitalforchildren.com/util/documents/Concussion-Roadmap.pdf
  o https://view.joomag.com/concussion-comeback-plan-ortho-130994-2017-05-concussion-program-comeback-b/0270426001499872301

The Role of the Student Athlete

• It is the student athlete's responsibility to report all injuries and symptoms to their parent(s) and/or guardian(s), coach and athletic trainer.
• The student athlete is responsible for reporting possible teammate's injuries to the coach and/or athletic trainer for the good of their teammate.

The Role of the Parent

• Seek medical attention when a concussion is suspected
• Must report a suspected or diagnosed concussion to school personnel regardless of where and how it happened

The Role of the Coach

1620.5 BYLAW: "All athletic coaches must annually complete one of the following: The online NFHS Concussion Course or a school organized sports medicine review that includes a head trauma/concussion component and emergency evacuation procedures."

• If you suspect that an athlete has a concussion, the athlete must be removed from all athletic participation.
• Inform the athlete's parents/guardian about a suspected concussion and recommend evaluation by a health care provider experienced in evaluating concussion.
• Do not allow return to athletic participation until the athlete has a written release from an appropriate medical provider per state law/CHSAA bylaw 1780.21

The Role of the Official

• The contest official can look for signs, symptoms and conditions of head trauma and if observed shall send the player to the sideline for assessment by school personnel and/or a licensed practitioner.
• At that time the role of the contest official ceases.

HEAD TRAUMA & CONCUSSIONS (Cont.)

The Role of the Licensed Practitioner

- If at any time during participation, a student-athlete is removed from participation due to concerns for concussion, the student-athlete must obtain a written release from a licensed practitioner (as defined in the CHSAA By-law 1780.21) before participating again.
- The athlete may then begin a graduated return-to-sport process as directed by the school's athletic trainer
- If the school does not have an athletic trainer, the return-to-sport process must be directed by the clearing licensed medical professional.

The Role of the Licensed Athletic Trainer

- Assist in removing athlete(s) from athletic participation and coordinating further evaluation, and follow up if a concussion is suspected
- Once cleared from a concussion by a licensed medical professional, the athletic trainer may help the athlete complete a graduated return-to-sport process

Colorado's Concussion Law (Senate Bill 11-040)

1. Requires coaches of public, private, middle, high school, recreational and club leagues (ages 11-18 years) participate in an annual concussion recognition course.
2. Coaches must remove athlete from play for "suspicion" of concussion.
3. If an athlete has been removed from play for signs and symptoms not readily explained by a condition other than concussion athlete cannot return to play until receiving written clearance from a: Doctor of Medicine (MD), Doctor of Osteopathic Medicine (DO), Licensed Nurse Practitioner (NP), Licensed physician assistant (PA) or Licensed Doctor of Psychology with training in Neuropsychology or concussion evaluation and management or licensed physical therapist with training in Pediatric Neurology or concussion evaluation and management. A doctor with chiropractic training may only clear an athlete who is part of the US Olympic Training Program.

After a concussed athlete has been evaluated and received clearance to return to play from one of the approved health care providers, a registered athletic trainer with specific knowledge of the athlete's condition may manage the athlete's graduated return-to-sport.

To see the full Senate Bill:
https://www.cde.state.co.us/sites/default/files/documents/healthandwellness/download/brain%20injury/sb11-040.pdf

RETURN TO SPORT

- A student should be symptom-free and back to normal function at home and in the classroom before starting return to sport.
- Once a student has received clearance from a qualified medical provider they should be progressed through the return-to-sport protocol per the International Guidelines on Concussion in Sport. https://bjsm.bmj.com/content/51/11/838
- Returning a student to sports participation who is still symptomatic increases the risk of reinjury at a time when the brain is still vulnerable.
- Reinjury before concussion is fully resolved may increase the risk of longer recovery, long-term or permanent symptoms and very rarely "Second Impact Syndrome" (SIS). SIS is the rare phenomenon in which an athlete still suffering from a concussion has severe brain swelling from a second injury, typically resulting in severe disability or death.

HEAD TRAUMA & CONCUSSIONS (Cont.)

RESOURCES

CDC concussion heads up for coaches
https://www.cdc.gov/headsup/pdfs/youthsports/coaches_engl.pdf

NATA Concussion Infographic
https://www.nata.org/sites/default/files/concussion-infographic-handout.pdf

NATA Parent/Guardian's Guide to Concussion
https://www.nfhs.org/media/1014739/parents_guardians_guide_to_concussion_final_2016.pdf

REFERENCES

Sport-Related Concussion in Children and Adolescents, American Academy of Pediatrics Council on Sports Medicine and Fitness
http://pediatrics.aappublications.org/content/pediatrics/126/3/597.full.pdf

National Athletic Trainers Association Position Statement: Management of Sport Concussion
http://natajournals.org/doi/pdf/10.4085/1062-6050-49.1.07

Centers for Disease Control and Prevention Guideline on the Diagnosis and Management of Mild Traumatic Brain Injury Among Children
https://jamanetwork.com/journals/jamapediatrics/article-abstract/2698456

HEAT ACCLIMATIZATION AND SAFETY PRIORITIES

(Information below provided by NFHS)

- Exertional Heatstroke (EHS) is the leading preventable cause of death among high school athletes.
- Have a formal pre-season heat acclimatization plan for all sports and activities
- Have a specific hydration plan, keeping your athletes well-hydrated, and encouraging and providing ample opportunities for regular fluid replacement.
- Appropriately modify activities in relation to the environmental heat stress and contributing individual risk factors (e.g., illness, obesity, sickle cell trait) to keep your athletes safe and performing well.
- All members of the coaching staff should closely monitor all athletes during practice and training in the heat and recognize the signs and symptoms of developing heat illnesses.
- Establish an emergency action plan and promptly implement it in case of suspected Exertional Heatstroke (EHS) or other medical emergencies.

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 level 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.

HEAT ACCLIMATIZATION AND SAFETY PRIORITIES (Cont.)

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 games sites.

HEAT ACCLIMATIZATION AND SAFETY PRIORITIES (Cont.)

REFERENCES

American Academy of Pediatrics. Policy Statement-Climatic Heat Stress and Exercising Children and Adolescents. Pediatrics. 2011:128(3): e741-7.

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Casa DJ, et al. National Athletic Trainers' Association Position Statement: Preventing Sudden Death in Sports. Journal of Athletic Training 2012:47(1):96-118.

Casa DJ, Csillan D. Inter-Association Task Force for preseason Secondary School Athletics. Preseason Heat-acclimatization Guidelines for Secondary School Athletics Journal of Athletic Training. 2009:44:332-3.

HEAT ILLNESS

DEFINITIONS

- Heat illness occurs in athletes exposed to excessive environmental heat. Heat illness can present as heat cramps, heat exhaustion or heat stroke.
- Heat cramps: A form of heat-illness characterized by intense muscle spasms after prolonged, intense exercise in the heat. The cause of the cramps is unclear, but they are thought to result from fluid and/or electrolyte loss from sweating and fatigue of the muscle.
- Heat exhaustion: The athlete will perceive discomfort as body temperature rises and the athlete may have progressive symptoms that require medical attention.
- Heat Stroke: Severe heat illness with elevated core temperature and changes in mental alertness. Heat stroke represents a medical emergency that requires immediate action. Heat stroke can lead to permanent disability or death if left untreated. Heat stroke is the 2nd leading cause of death in athletes, only behind cardiac death in athletes. **However, unlike many causes of cardiac death, heat stroke is 100% preventable.**

RISK FACTORS FOR HEAT ILLNESS

- Hot/humid weather
- Inadequate athlete preparation (e.g. athletes with poor fitness level and/or insufficient acclimatization to the heat)
- Excessive physical exertion
- Dehydration
- Overweight
- Heavy clothing/uniforms/equipment
- Sickle Cell Trait/Disease

HEAT CRAMPS

SYMPTOMS

- Intense muscle pain, without a history of muscle strain
- Persistent involuntary muscle contractions

MANAGEMENT

- Remove athlete from heat
- Sports drinks may help replace fluid and electrolyte losses. Provide water if no sports drinks are available
- Light stretching and massage of the affected muscles may help alleviate cramping

HEAT EXHAUSTION

SYMPTOMS

- Elevated core temperature
- Fatigue
- Headache/lightheadedness
- Weakness/loss of coordination
- Profuse sweating
- Nausea, vomiting, stomach cramps

MANAGEMENT

- Move the athlete to the shade/inside
- Remove extra clothing and equipment

HEAT ILLNESS (Cont.)

- Cool the athlete rapidly with cold water, cold towels, and fans
- Encourage fluids if the athlete is alert and not nauseated
- Monitor the athlete closely for signs of worsening
- Continue cooling the athlete until they can be removed from the environment
- Make plans to transport the athlete if the symptoms progress or if there is a slow response to the above management
- Even if athlete does not need transport, they should not return to play the same day

HEAT STROKE

SYMPTOMS

- Heat stroke can occur abruptly
- Elevated core body temperature
- Progressive headache, dehydration, weakness, fatigue, and nausea
- Key feature is the central nervous system dysfunction, such as altered consciousness, decreased mental focus, seizures, confusion, emotional instability, and irrational/combative behavior
- Increased heart rate
- Rapid breathing

MANAGEMENT

- Initiate the Emergency Action Plan (EAP); Call 911
- "Cool first, transport second"
- Move the athlete out of the heat
- Remove extra clothing/equipment
- Quickly begin aggressive whole-body cooling. Immersion in a cold tub is best, but if this not available, use cold water towels, ice, and fans to rapidly bring body temperature down
- When EMS arrives, transport to emergency medical facility after appropriately cooled
- Delaying cooling can result in permanent injury. When an athlete collapses in the heat, there should be no delay in initiating the emergency action plan and cooling the athlete.

PREVENTION

1. Have a venue specific emergency action plan (VEAP) in place, know it and practice it at the start of every season. This allows for seamless, life-saving management in the setting of an actual emergency.
2. Monitor environment regarding heat and humidity.
3. Adjust workload/equipment in high-risk conditions.
4. Conduct warm-ups in the shade. Allow for breaks in shade.
5. All coaches need to closely monitor athletes for signs and symptoms of heat illness when training in the heat.
6. Acclimate athletes gradually to the heat. Reference Heat Acclimatization section.
7. Mandate scheduled rest/breaks/hydration during practices in the heat.
8. Teach and practice appropriate hydration methods.
9. Ensure that personnel and facilities are equipped to handle heat stroke emergency. Be prepared to rapidly lower core body temperature.

HEAT ILLNESS (Cont.)

MONITORING ENVIRONMENT
Colorado is a Category 1 state

WBGT MONITORING

Wet Bulb Globe Temperature (WBGT) is an evaluation of heat stress used to measure the effect of temperature, humidity, wind speed, sun angle and cloud cover on athletes. This differs from the heat index, which takes into consideration only temperature and humidity.

A WBGT monitoring device can be used or the National Weather Service website: https://www.weather.gov/tsa/wbgt. At the top of the webpage, click on the top map, zoom in and click on your event location, then the WBGT will be available in green text on the right side of the map. Refer to the WBGT chart for guidelines on athletic activities within the State of Colorado.

WBGT	Activity Guidelines
< 76.1°F	Normal Activities – Provide at least three separate rest breaks each hour with a minimum duration of 3 min each during the workout.
76.3 - 81.0°F	Use discretion for intense or prolonged exercise; Provide at least three separate rest breaks each hour with a minimum duration of 4 min each.
81.1 - 84.0°F	Maximum practice time is 2 h. For Football: players are restricted to helmet, shoulder pads, and shorts during practice. If the WBGT rises to this level during practice, players may continue to work out wearing football pants without changing to shorts. For All Sports: Provide at least four separate rest breaks each hour with a minimum duration of 4 min each.
84.2 - 86.0°F	Maximum practice time is 1 h. For Football: No protective equipment may be worn during practice, and there may be no conditioning activities. For All Sports: There must be 20 min of rest breaks distributed throughout the hour of practice.
≥ 86.2°F	No outdoor workouts. Delay practice until a cooler WBGT is reached.

- HOW are you going to monitor the heat?
- HOW are you going to modify the work-outs in the heat?
- HOW are you going to maintain the hydration strategy?
- HOW are you going to cool the athlete?
- ICE BATH VS ICE BAGS
- HOW are you going to activate EMS?

RESOURCES

NATA beat the heat
https://www.nata.org/sites/default/files/hydration_heat_illness_handout.pdf

Parent and Coaches guide to heat illness NATA
https://www.nata.org/sites/default/files/heat-illness-parent-coach-guide.pdf

HEAT ILLNESS (Cont.)

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Rogers et al. Exertional Heat Illness Among Secondary School Athletes: Statewide Policy Implications. The Journal of School Nursing 2018 34(2): 156-164.

Sylvester et al. Exertional Heat Stroke and American Football: What the Team Physician Needs to Know. AmJOrthopedics 2016 ;45(6):340-348.

Casa et al. National Athletic Trainers'Association Position Statement: Exertional Heat Illness. Journal of Athletic Training 2015. 50(9):986-1000.

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HYDRATION/DEHYDRATION

DEFINITION OF DEHYDRATION

- A mismatch between water intake and body water loss
- A MAJOR problem in athletes, most athletes do not voluntarily drink adequate volumes to maintain hydration in practices/games
- Dehydration is impacted by the intensity of exercise, environmental and availability of fluids.
- Predisposes to heat illness
- Significantly impairs performance
- Knowledge does not always translate into behavior
- Thirst is not a reliable indicator of dehydration

SYMPTOMS OF DEHYDRATION

- Thirst
- Irritability
- Cramps
- Headache
- Nausea/Vomiting
- Fatigue/Weakness/Dizziness
- Decreased performance

MANAGEMENT OF DEHYDRATION

- Assess level of distress/symptoms, consider removing from activity depending on the level of symptoms.
- Rest the athlete and establish a rehydration plan to replenish lost fluids
- Water or sports drink may both be utilized to rehydrate the athlete

PREVENTION OF DEHYDRATION

- Develop a hydration strategy: drink before, during and after exercise. Hydration plans need to be individualized.
- Daily hydration habits are important for overall hydration status.
- Monitor hydration by evaluating urine color-a light color like lemonade indicates adequate hydration and a darker color like apple juice indicates dehydration.
- Fluid volumes needed to maintain hydration vary by size of the athlete, the athlete's sweat rate, and the intensity of exercise.

AVERAGE FLUID VOLUMES FOR ADOLESCENTS

Time	Fluids Consumed
4 hours before	16 fluid ounces of water (about 1 water bottle)
10-15 minutes before	8 fluid ounces of water
Every 15 minutes when exercising for < 1 hour	4 fluid ounces of water (2-3 large gulps)
Every 15 minutes when exercising vigorously for > 1 hour	4 fluid ounces of sports drink (2-3 large gulps)
Do not drink > 1 quart per hour during exercise	
Young athletes should continue to hydrate 2-3 hours after event	
Consume 20-24 fluid ounces (1 to 1 ½ water bottles) of water or sports drink for every pound lost during exercise	

HYDRATION/DEHYDRATION (Cont.)

COACH RESPONSIBILITY

- Educate athlete's regarding the importance of hydration for safety and performance
- Allow easy access to fluids and schedule water breaks especially in the heat
- Monitor hydration status and player status when exercising in the heat

INFORMATION ON OTHER DRINKS/SUPPLEMENTS

SPORTS DRINKS

- Sports drinks, which contain carbohydrates, minerals, electrolytes and flavoring, are intended to replace water and electrolytes lost through sweating during exercise.
- Sports drinks can be helpful for young athletes engaged in prolonged, vigorous physical activities (>60 min), but in most cases they are unnecessary on the sports field or the school lunchroom.

ENERGY DRINKS

Energy drinks are distinct from sports drinks, with many containing stimulants such as caffeine, guarana and taurine. Caffeine consumption carries a risk of significant side effects. At toxic doses, caffeine can be lethal. Energy drinks are never appropriate for children or adolescents.

- The supplement industry is not regulated by the FDA
- Marketing promotes youth consumption
- 30% of 12-17 year olds are regular consumers of these products
- Typically energy drinks contain significant amount of caffeine (same amount as 2-5 sodas)
- Energy drinks are America's #1 stimulant drug by far
- Most contain a significant amount of simple sugars with high calories per serving
- The American Academy of Pediatrics recommends no use in kids < 18 yrs. old
- Side effects include: Jitters, Anxiety, Increased Heart Rate, Insomnia and GI distress

SUPPLEMENTS

While each state is slightly different, the 2 websites below will delineate illegal/prohibited substances

- https://www.usada.org/substances/prohibited-list/
- http://www.ncaa.org/2018-19-ncaa-banned-drugs-list

RESOURCES

Korey Stringer hydration
https://ksi.uconn.edu/prevention/hydration/
NATA healthy hydration for young athletes
https://www.nata.org/sites/default/files/healthy-hydration-for-young-athletes.pdf
NCAA Hydration Fact Sheets
http://www.ncaa.org/sites/default/files/Performance%20Hydration%20Fact%20Sheet.pdf
http://www.ncaa.org/sites/default/files/Assess%2BYour%2BHydration%2BStatus.pdf

REFERENCES

Position Statement and Recommendations for Maintaining Hydration to Optimize Performance and Minimize the Risk for Exertional Heat Illness. National Federation of State High School Association (NFHS)

LIGHTNING AND TORNADO POLICY AND PROCEDURES

DEFINITION

LIGHTNING

In the United States, an average of 300 people are struck by lightning each year. Of those struck, there are approximately 40 fatalities from lightning each year. Approximately 50-60% of lightning casualties occur during organized sports or recreational activities according to the National Weather Service. Most of these fatalities can be prevented.

Weather Apps

- It is strongly recommended that an independent and objectively verified weather app (such as the Perry Weather App, SparkTM App, Storm by Weather Underground, or the National Weather Service app) be available at all outdoor activities, including practices and contests. This should be part of your venue-specific emergency action plan.
- Acceptable alternatives to the verified weather apps include but are not limited to: immediate contact with the local weather services, local television or radio. Access to these sources can be through the Internet, cellular telephone and/or any other means that provides the information needed for real time decisions to be made.

GUIDELINES/PROCEDURES

In your venue-specific emergency action plan, you must:

1. Assign a staff member to monitor local weather conditions before and during practices and contests. This staff member is designated to make the final call on suspending and resuming the game.
2. Develop an evacuation plan, including identification of appropriate nearby safer areas and determine the amount of time needed to get everyone to a designated safer area:
   a. Utilize announcements/public address announcer to help guide teams and fans to the appropriate shelter and identifying safe places as noted below.
   b. Safe locations need to be identified and shared with teams, spectators and workers prior to the start of the activity or athletic event.
   c. A designated safer place is a substantial building with plumbing and wiring where people live or work, such as a school, gymnasium, locker rooms or buses/cars. An alternate safer place from the threat of lightning is a fully enclosed (not convertible or soft top) metal car or school bus.
   d. Unsafe locations include but are not limited to: Picnic areas, parks, open sided shelters (dugouts), storage sheds, open garages, tents, press boxes, areas close to open water, tall objects such as trees, poles, towers, and elevated areas.
3. When a thunderstorm seems imminent, lightning is seen or heard, or the weather app indicates that lightning is within 8-10 miles, the outdoor venue (small or large) needs to be evacuated. Proceed to a lighting safe area.
4. Activities shall be suspended, and all personnel are directed to move to safe locations. The call to suspend activity due to close lightning should be based on how fast the storm is approaching and the amount of time it will take for event participants to take appropriate safe shelter. At a minimum, by the time the lightning storm has reached 8 miles away from the location of the outdoor activity, all individuals should have left the outdoor athletic site and reached a safe location. Weather monitoring subscriptions should be set at an 8-10 mile radius from the center of the sporting event (venue specific).
5. Criteria for suspension and resumption of play:

LIGHTNING AND TORNADO POLICY AND PROCEDURES (Cont.)

a. When thunder is heard or lightning is seen*, the leading edge of the thunderstorm is close enough to strike your location with lightning. Suspend play for at least 30 minutes and vacate the outdoor activity to the previously designated safer location immediately.
b. 30-minute rule. Once play has been suspended, wait at least 30 minutes after the last thunder is heard or lightning is witnessed* prior to resuming play.
c. Any subsequent thunder or lightning* after the beginning of the 30-minute count will reset the clock and another 30-minute count should begin.
d. When lightning-detection devices or mobile phone apps are available, this technology could be used to assist in making a decision to suspend play if a lightning strike is noted to be within 10 miles of the event location. However, you should never depend on the reliability of these devices and, thus, hearing thunder or seeing lightning* should always take precedence over information from a mobile app or lightning- detection device.

*** – PER NFHS** At night, under certain atmospheric conditions, lightning flashes may be seen from distant storms. In these cases, it may be safe to continue an event. If no thunder can be heard and the flashes are low on the horizon, the storm may not pose a threat. Independently verified lightning detection information would help eliminate any uncertainty.

6. Review the lightning safety policy annually with all administrators, coaches and game personnel and train all personnel.
7. Inform student-athletes and their parents of the lightning policy at start of the season in your pre-season meeting.

No App or Technology Available

When a weather app is not available, the default NFHS policy that appears in the Rules Book of each sport shall be followed. In brief, that policy requires suspension of all activity when cloud-to-ground lightning is observed, or thunder is heard. If thunder is heard, lightning is assumed to be striking within 10 miles. Implement the Thirty Minute Rule as noted in the NFHS Policy.
When activities are suspended, the following individuals shall be responsible for the safety of personnel:

- The head coach for players and other team personnel.
- Game management guiding spectators and personnel to safe areas
- The senior official for the officiating crew.
- All game management personnel, administrators, coaches and officials must be thoroughly familiar with the NFHS default policy as well as this policy.

MANAGEMENT

People who have been struck by lightning do not carry an electrical charge and are safe to be touched by others.

- Call 911
- If possible, an injured person should be moved to a safer location before starting CPR.
- Start cardiopulmonary resuscitation (CPR).
- Lightning-strike victims with signs of cardiac or respiratory arrest need immediate emergency help.
- Activate the local emergency management system and utilize an AED if available. Prompt, effective CPR has been highly successful for the survival of lightning strike victims.

LIGHTNING AND TORNADO POLICY AND PROCEDURES (Cont.)

DEFINITIONS

TORNADO

- Tornado Watch - indicates tornadoes are possible
- Tornado Warning - tornado siren sounds signaling tornado sighted or tornado indicated by radar

GUIDELINES/PROCEDURES

- Develop a tornado specific EAP for each venue or event.
- Designated weather watcher (above) notifies site or athletic director of approaching storm and communicates direction and speed of storm.
- If a tornado warning is initiated, immediate event delay should be implemented, and all participants, spectators and athletic staff should SEEK SHELTER IMMEDIATELY. Once inside a secure location, tune to local weather alert radio to be informed of storm location, path and duration of tornado warning.
- Warning may be extended, or a new warning issued at any time, so continued monitoring is needed. During tornado warning, sirens will sound for 3 minutes at a time. Depending on duration of warning, sirens may re-sound multiple times.
- Safe shelter from tornado = inside lowest building level, away from exterior walls/windows, with windows closed. If outside, lie flat in a ditch or depression and cover head with hands or stay in a car with seatbelt on. Be aware of potential flooding. DO NOT take cover under an overpass or bridge. Never try to outrun a tornado in urban or congested areas. Be aware of flying debris.

All clear - tornado warning will expire after duration specified by National Weather Service and weather watcher notifies site director that warning has ended and event can resume.

REFERENCES

Walsh KM, Cooper MA, Holle R, Rakov VA, Roeder WP, Ryan M; National Athletic Trainers' Association. National Athletic Trainers' Association position statement: lightning safety for athletics and recreation. J Athl Train. 2013 Mar-Apr;48(2):258-70

National Weather Service Lightning Safety Tips and Resources: https://www.weather.gov/safety/lightning
National Federation of State High Schools Association's Guidelines on Handling Practices and Contests During Lightning or Thunder Disturbances: http://www.nfhs.org/media/1014153/guidelines_on_handling_practices_contests_during_lightning_thunder_disturbances_march_2018.pdf
National Oceanic and Atmospheric Administration: http://www.noaa.gov

MENTAL HEALTH

DEFINITIONS

Mental health is a person's psychological and emotional well-being. Many of our student-athletes experience life challenges on a daily basis such as pressure at school, transitions at home, coping with injuries, and expectations about achieving for the team. Good mental health is equally as important as physical health for our student-athletes. We may often find ourselves in positions of support for athletes suffering from depression, anxiety, and other mental health issues. Depression is arguably the most significant of these, since untreated or unrecognized depression could lead to suicide.

SYMPTOMS

All individuals may not exhibit every symptom
These symptoms may indicate depression, particularly when lasting for more than two weeks:

- Poor performance in school
- Withdrawal from friends and activities
- Sadness and hopelessness
- Lack of enthusiasm, energy, or motivation
- Loss of interest in activities they used to enjoy
- Anger and rage
- Overreaction to criticism
- Feelings of being unable to satisfy ideals
- Poor self-esteem or guilt
- Indecision, lack of concentration or forgetfulness
- Restlessness or agitation
- Changes in eating or sleeping patterns
- Substance abuse
- Sexual promiscuity
- Risk-taking behaviors
- Problems with authority
- Suicidal thoughts or actions

*****Teen Suicide Warning Signs*****

Suicide attempts among young people may be based on long-standing problems triggered by a specific event. Feelings of anger and resentment combined with exaggerated guilt can lead to impulsive, self-destructive acts.

- Suicide threats (direct and indirect)
- Obsession with death
- Poems, essays, or drawings that refer to death
- Giving away belongings
- A sense of "hopelessness" and/or no future vision
- Dramatic change in personality or appearance
- Irrational, bizarre behavior
- Overwhelming sense of guilt, shame, or rejection
- Significantly changed eating patterns - including drastic weight gains or losses
- Significantly changed sleeping patterns - especially contributing to school truancy
- Severe drop in school performance or social interest

MENTAL HEALTH (Cont.)

MANAGEMENT

1. Offer help and listen!
   - Express concern about what you are observing in their behaviors in a safe, confidential place
   - Encourage depressed teens to talk about their feelings
   - Listen.....don't lecture

2. Trust your instincts
   - If the situation seems serious, seek prompt help (CALL 9-1-1)
   - You MUST break confidence and get a professional involved if there is the possibility of harm to self (suicide) or harm to others (homicide)
   - You can disclose concern to parents but if there is imminent danger to the student, you should alert a mental health professional immediately or take them to the nearest Emergency Room – should be treated just as seriously as an adult is having a heart attack or stroke
     - Make sure that parents have firearms, alcohol, and medications stored under lock & key

3. Seek professional help
   - Encourage the student-athlete to call the 988 Suicide & Crisis Lifeline at 988 or text the Crisis Text Line – text HOME to 741741 or Safe 2 Tell – 1-877-542-7233
   - Seek expert advice from a mental health professional, preferably one who has experience helping depressed teens
   - Alert key adults in the teen's life—family, coaches, ATCs, counselors, and teachers

4. Continue to monitor and follow-up with the athlete
   - Show them that you care!
   - Remind them not to expect immediate results if they are undergoing treatment
   - Routine exercise is helpful in treating depression – encourage the student-athlete to stick with their sport and continue exercising

Coping with Suicide

Suicide is a rare occurrence and is difficult for most of us to understand. We often want to understand the causes so we can protect ourselves, and our student-athletes, from a similar fate. Suicide is a complex act that is always related to a variety of causes. It is important not to make judgments or assumptions about a particular death. Give yourself a little time to let the news settle. Expect shock to mix with sadness and helplessness. If your student-athlete(s) knew the deceased well, their grief should be your first priority. Grief in childhood looks different and often appears in short bursts. Start by expressing your own sadness and confusion about the death and ask them to share their own reactions.

Because children often imitate the behavior of peers, you should underscore the dangerous consequences of the deceased's behavior. If they hear any of their friends talking about copying the behavior of the deceased, they need to tell an adult immediately! Emphasize that nothing in life is ever so terrible or devastating that suicide is the way to handle it. Ask your student-athlete to whom she or he would turn to for help with a serious problem. If the list is short or non-existent, make some suggestions. Good choices can include adult family members, older siblings, close friends, teachers, counselors, coaches, athletic trainers, or the school nurse, clergy or youth ministers, a friend's parent, or even neighbors.

MENTAL HEALTH (Cont.)

RESOURCES

https://suicidepreventionlifeline.org - National Suicide Prevention Lifeline at 800-273-TALK (8255)
https://www.crisistextline.org/textline/ - Crisis Text Line – text CONNECT to 741741
http://www.sptsusa.org/parents/when-a-childs-friend-dies-by-suicide/
https://journals.lww.com/acsm-msse/fulltext/2017/05000/Psychological_Issues_Related_to_Illness_and_Injury.23.aspx
https://bjsm.bmj.com/content/50/3/145
https://www.sidelinedusa.org/
https://www.nata.org/sites/default/files/mental_health_eap_guidelines.pdf
https://icisf.org/
https://www.nata.org/sites/default/files/critical_incident_stress_mgmt_handout.pdf
https://www.nata.org/practice-patient-care/infographic-handouts

REFERENCES

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

Wolanin A, Gross M, Hong E. Depression in athletes: prevalence and risk factors. Curr Sports Med Rep. 2015;14(1):56-60.

Simon GE, Specht C, Doederlein A. Coping With Suicidal Thoughts: A Survey of Personal Experience. Psychiatr Serv. 2016;67(9):1026-9.
Gould MS, Munfakh JL, Kleinman M, Lake AM. National suicide prevention lifeline: enhancing mental health care for suicidal individuals and other people in crisis. Suicide Life Threat Behav. 2012;42(1):22-35.

PREPARTICIPATION PHYSICAL EVALUATION/PPE/SPORTS PHYSICAL

DEFINITION

- The Preparticipation Physical Evaluation, often referred to as the PPE or the yearly sports physical, is an important component of routine care for youth.
- Athletes are not permitted to participate in school sports unless they have completed the sports physical.
- The PPE is not a substitute for routine health care. Athletes still need to have regular wellness visits with their primary care provider.

OBJECTIVES OF THE PPE

- The PPE is a tool to screen athletes for injuries, illness or factors that may put them or others at risk.
- For most parents and coaches, they are most concerned about potentially life-threatening conditions that affect the athlete, but most issues detected on a PPE will be relatively innocent and treatable.

SETTING OF THE PPE:

- The ideal setting for the PPE is the primary care physician's office.
- When the PPE is performed in the medical home, this affords the opportunity to address chronic problems, screen for high-risk behaviors, and provide essential preventive care (such as vaccines).

TIMING OF THE PPE

- Ideally the PPE is done at least 6 weeks prior to the sports season to allow for further evaluation or rehabilitation of abnormal findings.
- The sports physical is required yearly for participation in scholastic sports.

METHODS OF SCREENING

- The PPE should be done in as standard a fashion as allowable for the health care setting. The American Academy of Pediatrics (AAP) has created a guide (monograph) to serve as a practical and effective tool for health care providers. https://www.aap.org/en-us/about-the-aap/Councils/Council-on-Sports-Medicine-and-Fitness/Pages/Preparticipation-Physical-Evaluation.aspx
- The responsibility of the parent and athlete is to provide accurate and complete information to the provider who will be providing the medical clearance.
- These completed clearance forms will serve to meet the administrative requirements of the school for sports participation. [See FORMS below]

DETERMINING CLEARANCE FOR SPORTS

- Rarely, athletes will need to be restricted from participation.
- Most commonly, athletes can be referred for further evaluation by a specialist who may provide recommendations for treatment to allow for safe participation in athletics.

COACH'S RESPONSIBILITY

- Coaches are not permitted to allow athletes to play without written medical clearance.
- For schools with a certified athletic trainer, the medical clearance information is appropriately recorded in the sports medicine department. For schools without an athletic trainer, a member of the athletic department will keep a record of the medical clearance for each athlete.
- For the safety of the athlete, coaches need to be aware if athletes have health conditions that could affect their participation. For example, if an athlete has asthma, they will need to be allowed to use their inhaler or rest for breathing difficulty.

PREPARTICIPATION PHYSICAL EVALUATION/ PPE/SPORTS PHYSICAL (Cont.)

RESOURCE

EXAMPLE – Type of information that a coach will need for each athlete, especially on travel days

CHSAA Coach Emergency Card	CHSAA Coach Emergency Card
Athlete's Name: **Emergency Contacts:** **1.** **2.** **Medical Conditions:** **Medications:**	**Sport(s):** **Phone #s:** **1.** **2.** **Allergies:** **Medical Devices:**

REFERENCE

American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American College of Sports Medicine (ACSM), American Medical Society for Sports Medicine (AMSSM), American Orthopaedic Society for Sports Medicine (AOMMS), and American Osteopathic Academy of Sports Medicine (AOASM). The preparticipation physical evaluation. 4th edition. American Academy of Pediatrics, ; 2010: 1–155

FORMS

RESOURCES

History Form

https://www.aap.org/en-us/Documents/PPE-History-Form-%28English%29.pdf

Athletes with Disabilities Supplemental Form

https://www.aap.org/en-us/Documents/PPE-Athletes-with-Disabilities-Form.pdf

Physical Examination Form

https://www.aap.org/en-us/Documents/PPE-Physical-Examination-Form.pdf

Clearance Form

https://www.aap.org/en-us/Documents/PPE-Medical-Eligibility-Form.pdf

SEIZURE PROTOCOL

DEFINITION

A disorder of brain function characterized by sudden, brief attacks of altered conscious, motor activity, sensory phenomena or inappropriate behavior caused by an uncontrolled electrical disturbance in the brain.

SYMPTOMS

Recognition of seizures can include any or all of the following symptoms:

- Blank stare, dazed, unresponsive
- Unaware of surroundings
- Rapid blinking or chewing movements
- Clumsy
- Rigidity, followed by muscle jerks
- Shallow breathing
- Possible loss of bladder or bowel control
- Generalized shaking of entire body

MANAGEMENT

- Protect patient from further injury, especially the head
- Do not forcibly restrain
- Roll patient to the side to avoid choking on vomit, “rescue position”
- **Do not put anything in the mouth, including your finger**
- Activate EMS by calling 911

Once seizure has subsided:

- Check for injuries
- Referral to medical care immediately

PREVENTION

- Youth with seizure disorders are more likely than their peers to have a sedentary lifestyle and to develop obesity and other medical problems. Regular participation in physical activity can improve both physical and psychosocial outcomes for young athletes with seizure disorders.
- Athletes who have a seizure should not participate in high risk sports (swimming, contacts sports, or high velocity sports such as biking) until cleared by a medical provider.

REFERENCES

Guidry A, Crutchfield K. Athletes with neurologic disease. Handb Clin Neurol. 2018;158:445-462

Manuel C, Feinstein R. Sports participation for young athletes with medical conditions: Seizure disorder, infections and single organs. Curr Probl Pediatr Adolesc Health Care. 2018 May;48(5-6):161-171

Knowles BD, Pleacher MD. Athletes with seizure disorders. Curr Sports Med Rep. 2012 Jan-Feb;11(1):16-20

Epilepsy Foundation: https://www.epilepsy.com/living-epilepsy/parents-and-caregivers/about-kids/playing-sports-and-other-activities

SICKLE CELL TRAIT PROTOCOL

DEFINITION

Sickle Cell Trait (SCT) is a genetic condition that occurs when a person inherits one sickle cell gene and one normal gene. SCT generally does not present problems with daily activities. The majority of athletes with the SCT compete without complications or symptoms. During periods of intense or prolonged exertion or with low oxygen levels (high altitude), the blood cells can change shape (sickle), causing a blockage of blood vessels and a rapid breakdown of muscle. When this occurs, the athlete may collapse and in rare cases fatality can occur. Schools need to be particularly careful when acclimatizing students during preseason conditioning and sports activities especially during the warmer months. SCT should not preclude an individual from participating in sports. It is important for the athlete/parent/guardian to notify or disclose presence of SCT to the appropriate school personnel/coach.

Basic precautions can greatly reduce the risk of a sickling crisis. Signs and symptoms of sickling must be recognized early by the athlete, coaches or medical staff to prevent complications. Asthma, viral illness, dehydration, and heat stress can predispose an athlete with SCT into a sickling crisis during intense physical exertion. Though caution must be taken with these athletes, they should always be allowed to compete in all sports.

SYMPTOMS

- Appears dazed or confused
- Appears weak
- Not keeping up with other teammates
- Difficulty breathing
- Muscle pain, weakness or cramping
- Pain or discomfort with mild to moderate exercise

MANAGEMENT

- Set own pace
- Athlete should avoid exercise is extreme heat or cold conditions
- Stay well hydrated with more frequent breaks than most athletes
- Adequate rest and recovery between intense drills
- Slow and gradual preseason conditioning regimen
- Athlete should not run timed, sustained 100-yard sprints or timed, sustained shuttle runs
- Rest breaks MUST be given between sprints or sustained maximal efforts

SKIN INFECTIONS

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

Ringworm, Tinea Corporis

DEFINITION

These fungal lesions are due to dermatophytes and they are easily transmissible.

Symptoms and Presentation:

- Pink or red, raised annular patches with scaly borders
- Patches may be clear in the center
- Typically Itchy

Guidelines for Management:

- Athlete should be removed from practice and competition and treated.
- 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.
- Scalp involvement requires 14 days of oral antifungal medication before return to practice and competition. Continue with treatment until scalp lesions are gone.

Impetigo, Folliculitis, Carbuncle and Furuncle

DEFINITION

These infections are secondary to a variety of bacteria, including staph and strep. Methicillin-resistant Staphylococcus aureus (MRSA) infections are of greatest concern.

Symptoms:

Individual and/or clusters of red, raised lesions

- May develop a honey-colored crust
- May look like a pimple

Guidelines for Management:

- The athlete should be removed from practice and competition and treated with antibiotics.
- For non-MRSA infections, return to contact practices and competition may occur after 72 hours of treatment, provided the infection is not actively draining.
- After minimum treatment time, the involved site may be covered with a bio-occlusive dressing. If there is spontaneous drainage or incision and drainage, then may return to practice and competition after 72 hours of treatment.
- If MRSA is present, abscess incision and drainage is recommended for return to practice and competition may be considered after 72 hours of treatment, provided there is no further drainage or new abscess formation.
- 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.

SKIN INFECTIONS (Cont.)

Herpes Gladiatorum, Cold Sores, Shingles

DEFINITION

This skin infection is caused by the herpes virus.

This virus is spread via skin-to-skin contact and the majority of the outbreaks develop on the head, face and neck, reflecting the typical wrestling lock-up position.

Symptoms:

- Characterized by a raised rash with groupings of 6-10 vesicles (blisters).
- Initial outbreak may include sore throat, fever, fatigue and swollen cervical lymph nodes.

Management:

- The infected individual must be immediately removed from contact (practices and contests) and seek appropriate care and treatment.
- For a primary infection, wrestlers should be treated and not allowed to practice or compete for a minimum of 10 days.
- If general body signs and symptoms like fever and swollen lymph nodes are present, that minimum period of treatment should be extended to 14 days.
- If antivirals are not used, the infected participant may return to full contact wrestling only after all lesions are well-healed with well-adhered scabs, there has been no new vesicle formation in the preceding 72 hours, and there are no swollen lymph nodes near the affected area.
- Return to contact is permissible only after all lesions are healed with well-adherent scabs, no new vesicles have formed, and no swollen lymph nodes remain near the affected area.
- Oral antiviral medications should be started and can expedite the clearing of an outbreak. Careful consideration should be given to prophylactic oral antivirals for the remainder of the season and each subsequent season.
- Recurrent outbreaks usually involve a smaller area of skin, milder systemic illness and a shorter duration of symptoms.
- Treatment should include oral antiviral medications. If antiviral therapy is initiated, the participant must be held from contact sports for a minimum of 120 hours.
- Even greater consideration should be given to preventive antiviral medication for the remainder of the season.
- As the herpes virus may spread prior to vesicle formation, anyone in contact with the infected individual during the three days prior to the outbreak must be isolated from any contact activity for eight days and be examined daily by a knowledgeable coach or appropriate health-care professional for suspicious skin lesions.

Molluscum

DEFINITION

This skin infection is caused by a virus and spread via skin-to-skin contact or fomites (towels, equipment).

Symptoms:

- Clusters of small, pink, dome-shaped papules.

Management:

- Scraping and treatment with a topical medication and/or cautery.
- Participation allowed immediately after treatment, provided sites are covered with a bio-occlusive dressing.

SKIN INFECTIONS (Cont.)

Warts

DEFINITION

This skin infection is caused by a virus but is not considered highly contagious.

Symptoms:

- Groups or singular round, raised, rough lesions may appear anywhere on skin.

Management:

- Require no treatment or restrictions but should be covered if prone to bleeding when abraded.

RESOURCES

NWCA Skin Infection Webinar- http://www.nwcaskinprevention.com/webinar/

USA Wrestling- http://content.themat.com/SkinGuide.pdf

CHSAA Wrestling Skin Lesion Form

SPINE INJURY

The purpose of this statement is to provide coaches and emergency responders with recommendations and considerations for initial management of suspected spinal cord injuries/spine injuries.

DEFINITIONS

Spine Injury: In contact sports, a spine injury almost always refers to an injury to the neck, however back and low back injuries may occur.

Recognizing a potential spinal cord injury requires having a high level of suspicion for this type of injury.

Spinal injuries can have devastating effects. Sport participation constitutes the 4th most common cause of these injuries overall but is the 2nd most common cause for those younger than 30 years of age.

MANAGEMENT

- Immediately Stabilize the Cervical spine
- If a helmet is present it should not be removed except in the conditions below.
- Removal of the Helmet and shoulder pads in a suspected cervical spine injury remains controversial:
    - If helmet and shoulder pads are in place and properly fitted securing the head and neck in neutral alignment, then the helmet and shoulder pads should remain in place until an athletic trainer or experienced medical team (3 or more personnel with proper training in equipment removal) arrives. They may be removed as a unit by this experienced medical team prior to being transported to the local emergency department by ambulance.
- If helmet remains in place, the athletic trainer or EMS should remove the facemask using the appropriate tools while maintaining the head and neck in a neutral position. Removing the facemask allows access to the airway.
- Stabilization of the neck in a neutral position is performed by grasping the behind the ears (mastoid processes) and cupping the back of the head (occiput) and simply supporting the head, preventing side to side, forward or backward motion or rotation of the neck.
- Under no circumstances should traction be applied to the athlete's head or neck.
- If the athlete is in a sport without protective gear or protective gear has been removed, a cervical collar should be placed by ATC. Cervical collar alone is not enough to protect the neck, continue to hold stabilization.
- The athlete's head should be moved into the neutral position unless moving the athlete's head/neck causes increased pain, muscle spasm, loss of neurological function or restriction in range of motion.
    - A player found in the prone position (on stomach/facedown) must be returned to the supine position (on back/faceup) for evaluation.
    - The proper technique for transitioning the prone patient to supine is the "prone log roll technique"
        - This means that the body, arms, legs and head, with 4-6 people helping, are all rolled together as a unit at the same speed.
- Emergency cards should be easily accessible, and parents of athlete should be contacted ASAP.
- It is the responsibility of the school to contact their local EMS services and to have a protocol in place for management of suspected spine injuries. This is a vital part of EAP and training.
- Once EMS arrives, they will assume responsibility of the situation and may add or remove equipment as they see necessary. There should continue to be teamwork between ATC, on-field staff and EMS.

***When a student athlete is injured on the field/Court and no AT and/or EMS personnel are available carry out the following steps:

- Ensure scene is safe
- Do not move the athlete
- If unconscious and/or suspected head/neck injury - stabilize cervical spine and call 911
- Assess respiratory status (if in cardiac arrest initiate CPR/AED)

SPINE INJURY (Cont.)

- Notify family and appropriate school administration
- Document/record your actions – athlete injury/incident report

Prevention:
Proper technique in tackling (e.g. No spear tackling) and in other contact sports is paramount. Emphasis on prevention is key.

REFERENCES
NCAA Sport Science Institute (downloaded 12/12/18 - http://www.ncaa.org/sport-science-institute/field-evaluation-injured-athlete

Weir, Tristan et al. "On-Field Evaluation and Transport of the Injured Athlete." Spine Injuries in Athletes. 1st ed. American Academy of Orthopedic Surgeons, 2017. 32-39. Print.

National Spinal Cord Injury Statistical Center: Fact Sheet: Recent Trends in Causes of SCI. Birmingham, AL, University of Alabama at Birmingham, 2012.

Mayo Clinic American Heart Association National Athletic Trainers Association

SPORTS MEDICINE FIRST-AID KIT

SUGGESTED FIRST-AID SUPPLIES

- Adhesive white tape (1", 1 ½", 2") ---------- 8 rolls
- Alcohol pads ---------- 1 box
- Antiseptic spray ---------- 1 canister
- Adhesive band aids ---------- assorted sizes
- Cotton tip applicators ---------- 1 box
- Crutches ---------- 1 pair (adult)
- Disinfectant spray ---------- 1 canister
- Elastic tape (1", 2", 3") ---------- 1 each
- Elastic wraps (2", 4", 6") ---------- 1 each
- Elastic wrap (double length 6", 4") ---------- 1 each
- Emergency Identification Forms/Cards

Venue Specific Emergency Action Plan (VEAP) document
Important Emergency Contact #'s
(i.e. Principal, AD, Ems, Asst. Coaches,
weather app. – Athlete Injury Report/Incident form)

- Eye wash ---------- 1 bottle
- Face mask cutters ---------- 1
- Gauze pads (3x3, 4x4) sterile and non-sterile ---------- 1 box each
- Ice bags ---------- 1 box Ziploc gallon size
- Lite Flex Tape ---------- 4 rolls 2"
- Mirror ---------- 1 small
- Moleskin ---------- 1 sheet 6 x 10"
- Penlight ---------- 1
- Pen and paper (injury report forms) ---------- multiple copies
- Pocket Mask (CPR) ---------- 1
- Non-latex gloves ---------- 4 pair
- Shoulder Sling ---------- 1
- Skin Lubricant ---------- 1 tube
- Splints ---------- 1 SAM splint
- Tape Adherent (Tuf Skin) ---------- 1 canister
- Tape cutters ---------- 1 pair
- Telfa Pads (non-adherent) ---------- 1 box
- Thermometer ---------- 1
- Triple Antibiotic Ointment ---------- 1 tube
- Tongue Depressors ---------- 12
- Towels ---------- 2
- Under-wrap/Pro Flex ---------- 2 rolls each
- Waste container/bag (blood-stained items) ---------- 1

*Emergency Identification Card (Ziploc) ---------- 1 per athlete
**Cell Phone and/or laminated 3x5 card with important contact #'s
- i.e. Principal, AD, EMS, asst. coaches, weather app.

***Documentation Forms of Actions taken:
- Athlete Injury Report/Incident form

SUDDEN CARDIAC ARREST (SCA) /SUDDEN CARDIAC DEATH (SCD) PROTOCOL

DEFINITION

- Sudden cardiac death (SCD) is the most common cause of death in exercising youth athletes. Most SCD's are caused due to an undetected structural heart condition. It can also be caused by a direct blow to the chest over the heart (Commotio Cordis).
- Sudden cardiac arrest (SCA) is when an athlete's heart suddenly stops function. Sudden cardiac death is due to sudden cardiac arrest.
- Sudden cardiac arrest is fatal if steps to revive the athlete are not taken immediately. For every 1-minute delay in giving a shock to the heart, survival decreases by 10%. You don't have time to wait for EMS. **You need to start CPR and use your AED right away.**

SYMPTOMS AND PRESENTATION

- Cardiac arrest is the sudden loss of heart function. The athlete suddenly becomes unresponsive (unconscious). Brief jerking that looks like seizure and gasping breathing may occur, in which case the SCA protocol should still be followed.
- Warning signs: THERE ARE USUALLY NO WARNING SIGNS. Most athletes are high functioning athletes who do not display warning signs or symptoms before they collapse. However, cardiac symptoms during exercise need to be taken very seriously. An athlete who has pain in the chest, ear, neck or shoulder, severe headache, extreme shortness of breath, feeling overly fatigued, dizziness, palpitations (sense of irregular heartbeat), heartburn, is breaking into cold sweat or fainting with exercise must stop all athletic participation until they have a medical evaluation.
- SCA can occur in any sport but 75% of cases occur in basketball, football, track/cross country or soccer.

MANAGEMENT

- Have a venue specific emergency action plan (VEAP) in place, know it and practice it at the start of every season.
- Know and post clearly where the AEDs are on your school campus and inquire where they are located when you are traveling with your team.
- If an athlete collapses and becomes unresponsive with abnormal or no breathing, start CPR right away and have a bystander call 911. **Send someone to get the AED (automated external defibrillator).**
- Coaches must be trained on CPR
- A bystander who has no CPR training should do "hands only CPR", pushing hard and fast on the chest.
- Coaches who have been trained should start CPR with chest compressions and breaths.
- One person must continue CPR while another turns the AED on and follows the voice prompts (remove clothing from chest, attach pads to chest, plug in connector)
- Only stop CPR when the AED tells you to stop (while it analyses the heart rhythm.)
- If shock advised, everyone must "stand clear", stop touching the athlete and push the shock button
- As soon as shock has been delivered or if the AED does not recommend shock immediately restart CPR
- Continue CPR until the athlete becomes responsive, the AED tells you it's time to analyze the rhythm, or EMS arrives to take over
- It is okay to use the AED in a wet environment. However, you should dry off a wet chest before applying pads or move the athlete if they are in a puddle or on a metal surface. (i.e. the bleachers)

SUDDEN CARDIAC ARREST (SCA) /SUDDEN CARDIAC DEATH (SCD) PROTOCOL (Cont.)

PREVENTION

- All high school athletes must have a yearly pre-participation exam (PPE) on file. Current guidelines will only detect a small percentage of possible heart conditions. We cannot rely on screening to identify the majority of heart conditions.
- As a general rule, athletes should train with a gradual increase in activity, not with sudden strenuous exercise
- All sporting venues should have an automated external defibrillator (AED) as close to areas of exercise as possible, with the ability to get the AED to the athlete within 3 minutes.
- Coaches must be trained in CPR and the use of the AED and must practice their venue specific emergency action plan before the start of the season.

LINKS

Sudden Cardiac Arrest Association
http://www.suddencardiacarrest.org/aws/SCAA/pt/sp/home_page

American Heart Association
https://www.heart.org/en/health-topics/cardiac-arrest

Korey Stringer Institute
https://ksi.uconn.edu/emergency-conditions/cardiac-conditions/sudden-cardiac-death/
https://ksi.uconn.edu/prevention/automated-external-defibrillators/

American Red Cross: Basic Life Support Training
https://www.redcross.org/take-a-class/bls

American Heart Association Annual Resuscitation Updates
https://eccguidelines.heart.org/index.php/circulation/cpr-ecc-guidelines-2/

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Drezner JA, et al. Inter-Association Task Force recommendations on emergency preparedness and management of sudden cardiac arrest in high school and college athletic programs: a consensus statement. J Athl Train. 2007;42(1)143-158

Drezner JA, et al. Survival after exercise-related sudden cardiac arrest in young athletes: Can we do better? Sports Health 2018 Sep 11:1941738118799084.

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VENUE SPECIFIC EMERGENCY ACTION PLAN (AFTER SCHOOL) CHECKLIST

* This checklist should be used to create a Venue Specific Emergency Action Plan (VEAP) for every venue utilized by your school for practice and/or games*

- **CRITICAL/REQUIRED ELEMENTS**
  - Venue specific information
    - Name
    - Address
    - Phone number
    - Nearest hospital
  - Event specific information
    - Date
    - Time
    - Previous issues
    - *Anticipated attendance*
      - While not a priority of this EAP checklist, anticipated attendance should be discussed with on-site personnel
  - Emergency personnel contact information and number of personnel
    - Ambulance
    - Fire
    - Police
    - Third-party security
    - Supervisors
    - First aid
    - Athletic trainer
    - Physician
  - Venue specific personnel contact information
    - Coaches
    - Administrators
    - Facility director(s)
    - Other team staff
  - Roles of emergency personnel when plan is activated
  - Roles of venue specific personnel when plan is activated
  - Internal & External site map
    - Identify:
      - Facility access points for emergency personnel
      - Parking for emergency services
      - Medical/first aid center inside facility
      - AED locations

- Chain of command (include at least three personnel)

- Emergency procedures
  - Who is responsible for:
    - Assessing the scene?
    - Leading the response?
    - Immediate care?
    - Calling 911?
    - Directing emergency personnel to the scene?
    - Securing the area?
    - Controlling crowd?
    - Retrieving supplies?

- Equipment and supplies
  - Identify any and all equipment and supplies that may need to be on-site
  - Identify the location within venue of all equipment and supplies

- Designate an individual to complete all post EAP documentation

- Rehearsal information
  - Who is responsible?
  - How often?
  - How will it take place?

- Table of contents for plan to ease use during activation

- Plan log
  - Document changes
  - Document plan rehearsals

See athletic director for venue specific emergency action plan (VEAP) template on CHSAA Digital Platform