# UHSAA Sports Medicine Handbook

**Updated: August 2023**

# Physical Examination

**SECTION 13: Physical Examination Required**

No studentshall be eligible to compete in any athletic contest sponsored by this Association unless such student has a physician's certificate stating that he/she is physically able to compete in inter-school athletic contests.

**Interps & Guidelines 1.13.1: HEALTH EXAMINATION POLICY**

A. A health examination must be performedand the student athlete cleared for participation in a sport before any student may compete in athletic activities sponsored by this Association. It is recommended that the 4th edition PPE forms from the American Academy of Pediatrics, or an equivalent, be used as the appropriate assessment for student athletes.

B. To better maintain an efficient and accurate accounting of student athlete pre-participation physical exams (PPE's) in Register My Athlete,it is proposed that pre-participation physical exams have a common expiration date, so as to facilitate the current medical status of the student athlete. It is proposed that the pre-participation physical exam date should be performedon or after MARCH 10th to be valid for the following school YEAR through July15th of that year. (EXAMPLE: MARCH 10, 2022 IS GOOD THRU JULY 15, 2023).

C. A properly completed and signed Pre-Participation Athletic Health Examination Form indicating the student's clearance to participate plus a properly completed Disclosure and Consent Form must be on file at the school.The health examination should be completed and the form signed by a qualified medical professional, operating within the legal scope of their practice. Forms may be obtained on the UHSAA Website. These are minimum requirements.

**Interps & Guidelines 1.13.2: COLD WATER IMMERSION**

If exertional heat stroke is suspected, onsite cooling using cold water immersion before transport to the hospital. Cold water immersion tubs are available for onsite cooling.

Cold water immersion (usually understood as circulating, ice-water immersion) is considered the most effective strategy for rapid treatment of exertional heat stroke.The goal in any exertional heat stroke case should be to cool the athlete down to 102 degrees Fahrenheit within the first 30 minutes after collapse, prior to Emergency Medical Services (EMS) transport.

Accurate temperature measurement, via rectal thermometry, (PERFORMED BY HEALTH CARE PERSONNEL) is recommended.Exertional heat stroke is suspected if body temperature is higher than 105 degrees Fahrenheit and signs of central nervous system dysfunction are present (i.e. disorientation, confusion, dizziness, irritability, headache, inability to walk, loss of balance or muscle function, vomiting, diarrhea, loss of consciousness).

Working with EMS personnel toward a policy of "cool first, transport second" is the standard for suspected exertional heat stroke.Cooling an athlete via cold water immersion, if performed immediately, (HAS BEEN PROVEN TO) provides a 100% survival rate.

**Interps & Guidelines 1.13.3:EMERGENCY ACTION PLAN**

As part of each school's Emergency Action Plan (EAP), automated external defibrillators (AEDs) are accessible at (TO) each venue for early defibrillation by trained personnel for suspected sudden cardiac arrest (SCA).

Prompt recognition of SCA, immediate activation of the EMS system, early CPR, and immediate retrieval and application of the AED should be the initial steps of a comprehensive and thoughtful EAP.First responder programs, such as Anyone Can Save A Life (anyonecansavealife.org) and public access to AEDs are strongly encouraged.

Consensus guidelines and several public-access defibrillation studies uniformly support access to early defibrillation, targeting a time interval of less than 3 to 5 minutes from collapse to first shock.The EAP also should identify the individual(s) responsible for documentation of personnel training, equipment maintenance, actions taken during an emergency, and the post-event evaluation of the emergency responce.

# Sudden Cardiac Arrest

Each year, prior to a season, the following information should be presented to all coaches and athletes with the presented information made available to parents and community. Please click on link below for video:

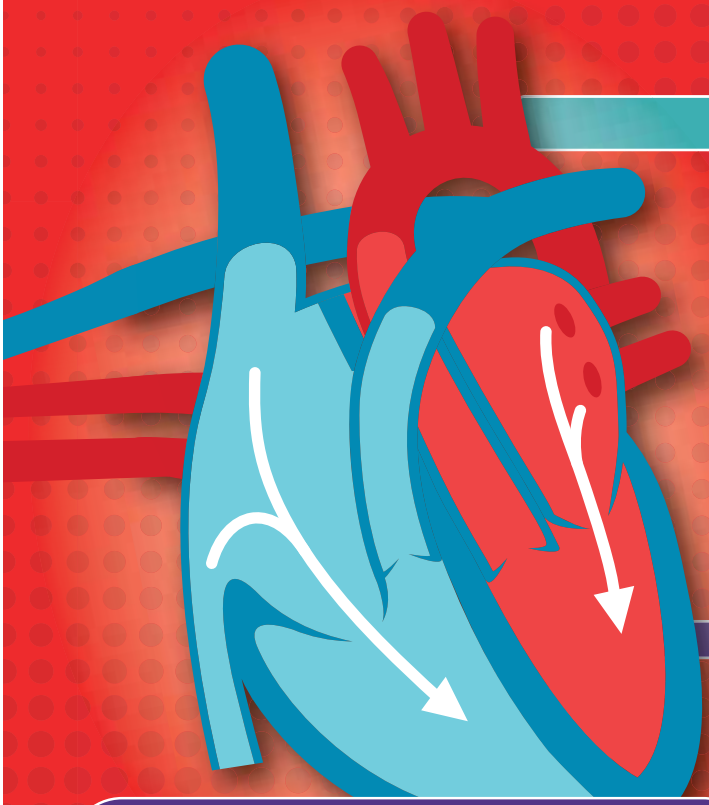
Sudden Cardiac Arrest - How to Save a Life

Additional Information Can Be Found on the Following Two Pages

# SUDDEN CARDIAC ARREST CHECKLIST

## What to Know About Sudden Cardiac Arrest

- Sudden cardiac arrest (SCA) is a life-threatening emergency that occurs when the heart suddenly stops beating.
- According to the Centers for Disease Control and Prevention, more than 300,000 SCA incidents occur outside of hospitals each year in the United States alone.
- SCA is NOT a heart attack – someone who suffers a heart attack can still be responsive and breathe, while someone experiencing SCA is unresponsive and their heart has stopped beating



## PREVENTION

- Review your state SCA prevention acts.
  - Get in touch with your government affairs chair if there aren't any yet.
- Review and practice your emergency action plan (EAP).
- Ensure facilities are equipped with an automated external defibrillator (AED) and staff is trained in CPR and AED use.
  - Check the batteries in the AED regularly.
  - An AED can cover about five football fields, but you should consider obstacles that reduce the effective area an AED can cover.
  - Clearly identify the location of all emergency equipment in all EAPs so everyone knows where the closest AED is.
- Consider common factors that put athletes at risk for SCA, such as family history, heart murmur or Marfan syndrome.
- Educate all coaching staff on SCA signs and symptoms.

## IN THE MOMENT

- Recognize SCA.
- Activate EAP and start CPR.
- Remove restrictive clothing and apply AED.
  - Identify who's in command; a health care professional, such as an athletic trainer, should handle the situation.
  - Anticipate next steps in EAP and offer to help.
  - Stay calm.

## SIGNS AND SYMPTOMS

| | |
|---|---|
| Chest, ear or neck pain | Center chest pain that comes and goes |
| Severe headache | Lightheadedness |
| Excessive breathlessness | Shortness of breath with or without discomfort |
| Vague discomfort | Pressure, squeezing, fullness |
| Dizziness, palpitations | Nausea, vomitting |
| Abnormal fatigue | Cold sweat |
| Indigestion, heartburn | Pain or discomfort in arms, back, neck, jaw or stomach |
| Agonal breathing seizure | |

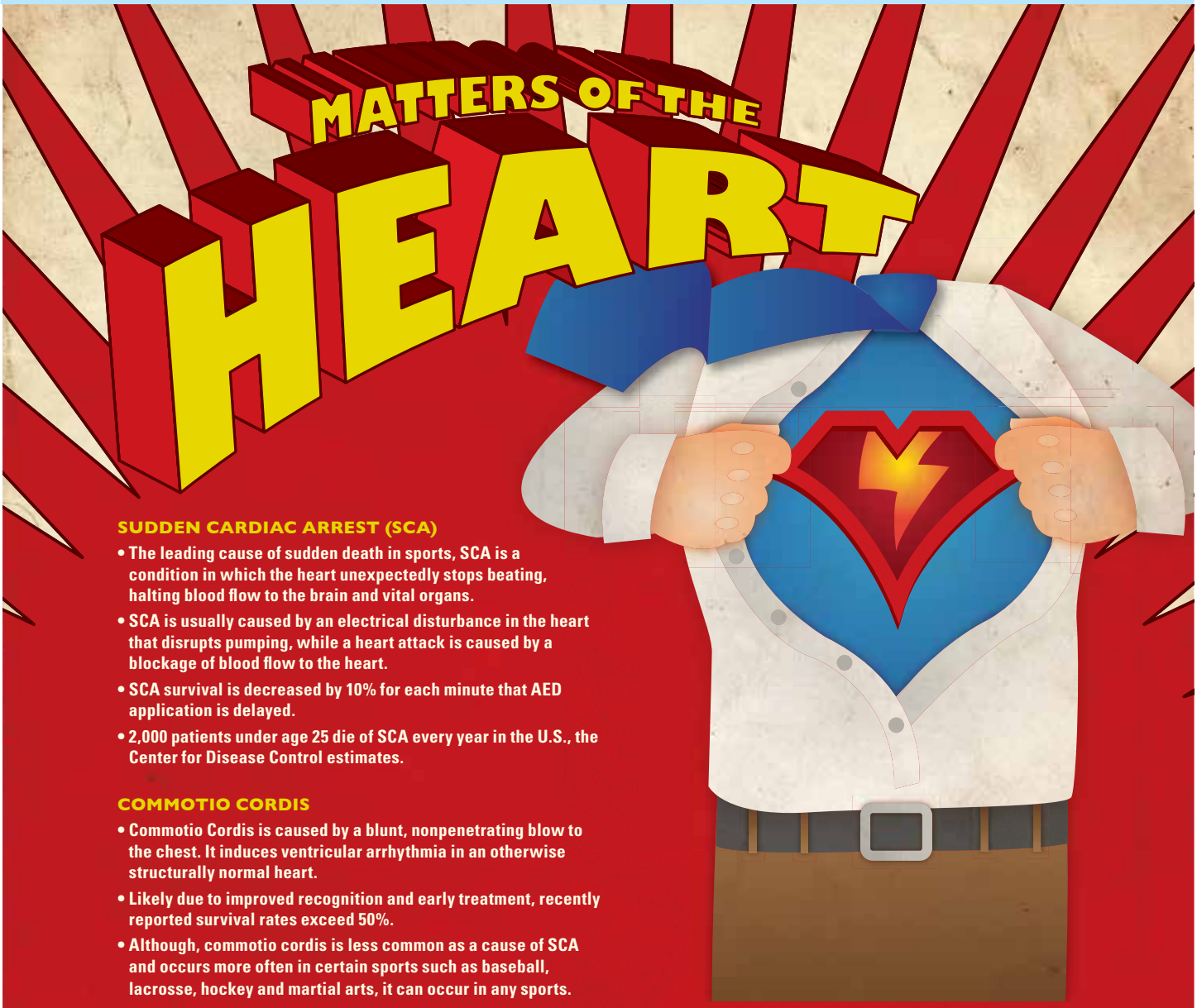
## RETURN TO PLAY

- Patient should obtain written clearance from a qualified medical professional, such ascardiologist, primary care physician and/or athletic trainer.
- Gradually increase activity, under the guidance of your health care provider.
- Continue to monitor athlete for any recurring signs or symptoms of SCA.

SOURCES: CDC, Korey Stringer Institute, National Athletic Trainers' Association, Sudden Cardiac Arrest Foundation, University of Washington Medicine Center for Sports Cardiology

Infographic handout provided by National Athletic Trainers' Association (Updated 2023)

# Sudden Cardiac Arrest




## SUDDEN CARDIAC ARREST (SCA)

- The leading cause of sudden death in sports, SCA is a condition in which the heart unexpectedly stops beating, halting blood flow to the brain and vital organs.
- SCA is usually caused by an electrical disturbance in the heart that disrupts pumping, while a heart attack is caused by a blockage of blood flow to the heart.
- SCA survival is decreased by 10% for each minute that AED application is delayed.
- 2,000 patients under age 25 die of SCA every year in the U.S., the Center for Disease Control estimates.

## COMMOTIO CORDIS

- Commotio Cordis is caused by a blunt, nonpenetrating blow to the chest. It induces ventricular arrhythmia in an otherwise structurally normal heart.
- Likely due to improved recognition and early treatment, recently reported survival rates exceed 50%.
- Although, commotio cordis is less common as a cause of SCA and occurs more often in certain sports such as baseball, lacrosse, hockey and martial arts, it can occur in any sports.

## PREPARING FOR CARDIAC EMERGENCIES

- Schools, clubs and sports facilities should have venue-specific emergency action plans and policies and procedures for SCA events.
- Schools, clubs and sports facilities should have someone on staff trained in CPR and AED use, including an athletic trainer and coaching staff.
- When CPR is provided and an AED shock is administered within the first 3 to 5 minutes after a collapse, reported survival rates from cardiac arrest are as high as 74%.

## SCREENING ATHLETES FOR CARDIOVASCULAR ISSUES

- Athletes should undergo cardiovascular screening before athletic participation.
- A minimum standard of cardiovascular screening should include a comprehensive medical history, family history and physical exam.

## SIGNS AND SYMPTOMS OF CARDIAC ARREST IN ATHLETES

| | |
|---|---|
| Chest, ear or neck pain | Center chest pain that comes and goes |
| Severe headache | Lightheadedness |
| Excessive breathlessness | Shortness of breath with or without discomfort |
| Vague discomfort | Pressure, squeezing, fullness |
| Dizziness, palpitations | Nausea, vomiting |
| Abnormal fatigue | Cold sweat |
| Indigestion, heartburn | Pain or discomfort in arms, back, neck, jaw or stomach |

**NOTE: Many young cardiac arrest victims have no symptoms until the cardiac arrest occurs.**

*Sources: National Athletic Trainers' Association, Korey Stringer Institute, American Heart Association, National Center for Catastrophic Sport Injury Research, National Library of Medicine*

*Infographic provided by the National Athletic Trainers' Association (Updated 2023)*

# Practice Limitations

**Interps & Guidelines 2.2.5: PRACTICE LIMITATIONS**

A 20-hour practice limit is in effect for all UHSAA sponsored sports from August 1 to June 1, and for all UHSAA sponsored activities (music, speech/debate, theater/drama) from September 1 to June 1. The practice limit includes one (1) day off each week (Monday-Sunday). Competition days, including travel, will count as three (3) hours. Practice limitations include anytime a team is together which includes, but is not limited to: team practice, team dinners, film time, weight training, individual instruction, etc. Restrictions include any meeting of the team and/or individual sport-related contact with the coach.

***Q&A: Practice Limitations***

Q1. If a team has to travel six (6) hours to a location on the day of the tournament, and then competesin the tournament, which could be eight (8) hours, does that mean theteam has used 14 hoursin one day?
A1. No. Thecompetitionday is three (3) hours total, whichincludes travel time.
Q2. If a team travels 5 (five) hours the day before a contest, and they stop to do a one (1) hour walk through/practice, does that count for 6 (six) hours?
A2. No. The travel is part of the competition day(3 hours), but the walk through/practice wouldbe included in the 20 hours.
Q3. Does time during an athletic period or the watching of film during the school day (including lunch time) counttowards the 20-hour practice limitation?
A3. Yes. Anytime the team meets counts towards the 20-hour practice limitation. An exception is time used for study hall, if the focus of the study hall is academics, and the majority ofthe student athletes are using the time as a study hall.
Q4. Does a weight lifting class count towards the 20 hours?
A4. If the weight lifting class is not open to all students, then the time spent in class would count. If the majority of the class belongs to one specific team, but other students have the opportunity to be in the class as well, the time does not count.
Q5. If a team meets at the home of a team member for a "team night"(with our without the coach), does this count towards the 20-hour practice limitation?
A5. Yes. Anytime the team gets together for team meetings, team dinners, team film, etc.(with our with out the coach)it counts towards the 20-hour practice limitation.
Q6. If an individual meets with the coach to go through skill development or talk X's and O's, does that count towards the 20-hour practice limitation?
A6. Yes. Anytime a student-athlete meets with a coach for individual instruction related to the sport, it counts towards the 20-hour practice limitation.
Q7. Does participation in an assembly count towards the 20 hours?
A7. No. Participation in assemblies does not count towards the 20 hours.
Q8. If students are participating in a fundraiser, does the time spent on the fundraiser count towards the 20 hours?
A8. If revenue is for a specific team account, the time spent at the fundraiser would count towards the 20 hours. If the revenue raised is going towards an individual's account, the time would not count. Any time a fundraiser is required, the timemust be counted.
Q9. If actors in a school play rehearse for three hours and the band rehearses for seven hoursand the school choir for two hours. how is this calculated?
A9. Hours spent rehearsing for a school play is a school or district decision.

# Coaches' Certification

**SECTION 1: Coaches' Certification**

All coaches (paid or nonpaid) shall be certified prior to coaching. The responsibility for verifying the certification of the coaches lies with the schools, districts or governing boards of charter or private high schools.

**Interps & Guidelines 5.1.1: COACHES' CERTIFICATION**

A. The Utah High School Activities Association (UHSAA) and the Utah State Board of Education (USBE) requires that all individuals employed or acting as coaches meet specific training and certification requirements outlined by the UHSAAand USBE.

B. Coaches' certification includes eightcomponentsand shall be completed prior to the start of any coaching.The eight (8) components are: Background Check;First Aid Training;CPR Training; yearlyConcussion Training;yearly Child Sexual Abuse Prevention Training;yearly Bullying, Cyber-bullying, Hazing, Harassment, and Retaliation Training;theNFHS"Fundamentals of Coaching" course;and to meet a set of professional standards that are consistent with the Utah Educator Professional Standards as described in USBE Rule R277-515. The training must be completed through an approved or recognized program which complies withUSBErequirements.First Aid and CPR components require current certification through an approved or recognized program which complies with USBErequirements. Yearly concussion training requires successful completion of theNFHS Concussion Course.

C. School districts must verify compliance with all eightcomponentsrequired forcoaches' certification. (To confirm a coach has completed the NFHS Fundamentals of Coaching and the yearly NFHS Concussions course, go to nfhslearn.comand click on "User Lookup" in the top right hand corner.

D. The "Fundamentalsof Coaching" course shall be completed prior to coaching. Head coaches and paid assistant coaches with a major, minor or endorsement in physical education or dance and/or a minor in coaching are not required to take the "Fundamentals of Coaching" course.

E. Head coaches are required to attend the live UHSAA Rules clinic, ortake the online UHSAA rules clinic applicable to his/her sport. Failure to complete the UHSAA sport-specific rules clinic will be a fine of $50.Head coaches will be given a new deadline to complete the online clinic. If the clinic is not completed by thesecond deadline, schools will be fined an additional $100

**SECTION 2: Supervision of Students**

A licensed faculty member or full-time faculty member must accompany his/her teams or students to all UHSAA state tournaments, meets or festivals for which they have qualified to participate unless arrangements are made with the Executive Director in advance for students to be under the supervision of a licensed or full time faculty member from another school. Teams or individuals without a licensed or full-time faculty representative will be barred from the activity.

# Drugs, Alcohol, Tobacco and Vaping

## BY-LAWS ARTICLE 10: DRUGS, ALCOHOL, TOBACCO and VAPING

### SECTION 1: UHSAA Drugs, Alcohol, Tobacco and Vaping Policies

A. The UHSAA supports the U.S.Supreme Court rulings regarding education. First, to prepare students to be good citizens and second, to teach them to be self-reliant and self-sufficient. Activities of the UHSAA contribute to both of these goals. The use of alcohol, tobacco products, vaping products or other drugs in almost every instance deters the realization of these goals. Every effort shall be made at the local, region and state levels of participation to eradicate the promotion, use or abuse of alcohol, drugs, tobacco and vaping products with regard to participation in high school sports and activities. Limitation for participation of students in Utah high school activities regarding the use of alcohol, tobacco, vaping products and other drugs during a sports season, as defined in the Utah Code are:

1. **First offense:** Suspensiion from two consecutive games, meets, matches, competitions or performances at the same level of play (and any intervening levels as well). Practice maybe continued following a personal assessment of the student by a licensed substance abuse intervention or treatment program and/or participation in a district, governing board of a charter or private schoolapproved intervention program.
2. **Second offense:** A six-week suspension from games, meets, matches, competitions or performances. Student participation in an assessment by a licensed substance abuse intervention or treatment program with prescribed follow-up is required. Practice may continue only after the assessment has been completed and positive participation in the prescribed follow-up is occurring.
3. **Third offense:** An eighteen-week suspension from all games, meets, matches, competitions, performances and practices. Reinstatement of eligibility at the end of the eighteen-week suspension is predicated upon successful completion of a formal assessment, intervention and treatment program. In all of the foregoing offenses, local school and/or district requirements which deal with discipline, suspension, corrective measures, parent/guardian involvement rehabilitation and so forth, must be met.

### Interps & Guidelines10.1.1: DRUGS, ALCOHOL , TOBACCO and VAPING

A. Conditions of this policy include:
   1. The use of electronic cigarettes or vapor products are prohibited.

B. Implementation of Policy
   1. Violations carry over year to year and sport/activity to sport/activityin a participant's career (there is no "fresh start" each year).
   2. Violations must occur and be discovered during a sport/activity season.
   3. Any penalties for violation follow the student to any school to which he/she transfers.
   4. Any violation beyond the thirdoffense carries the same penalty as the third offense.

### SECTION 2: Local School or District Requirements

Local school or district requirements may exceed those set forth in By-Laws Article 10

# Bloodborne Pathogens

**Blood Pathogens & Communicable Disease Precautions**

A player or coach who is bleeding, who has an open wound or who has blood on his/her uniform shall be prohibited from participating further in the game until appropriate treatment has been administered. If medical care or treatment can be administered in a reasonableamount of time, the individual willnot have to leave the game. The length of time that is considered reasonable is up to the judgment of the referee/umpire.

# Heat Acclimatization

## Heat Acclimatization

Before participating in the preseason practice period, all student-athletes should undergo apre-participation medical examination administered by a qualified medical professional. The examinationcan identify predisposing factors related to a number of safety concerns, including the identification of youths at particular risk for exertional heatillness.

The heat-acclimatization period is defined as the initial 14 consecutive days of preseason practice for all student athletes. The goal of the acclimatization period is to enhance exercise heat tolerance and the ability to exercise safely and effectively in warm to hot conditions. This period should begin on the first day of practice or conditioning before the regular season. Any practices or conditioning conducted before this time should not be considered part of the heat-acclimatization period.

Regardless of the conditioning program and conditioning status leading up to the first formal practice, all student athletes (including those who arrive at preseason practice after the first day of practice) should follow the 14-day heat-acclimatization plan. During the preseason heat acclimatization period, if practice occurs on 6 consecutive days, student-athletes should have 1 day of complete rest (no conditioning, walk-throughs, practices, etc).

Days on which athletes do not practice due to a scheduledrest day, injury, or illness do not count toward the heat-acclimatization period. For example, an athlete who sits out the third and fourth days of practice during this time (e.g., Wednesday and Thursday) will resume practice as if on day 3 of the heat-acclimatization period when returning to play on Friday.

## Definitions

A ***practice*** is defined as the period of time a participant engages in a coach-supervised, school approved, sport or coaching related physical activity. Each individual practice should last no more than three (3) hours. Warm-up, stretching, and cool down activities are part of the 3-hour practice time. Regardless of ambient temperature conditions, all conditioning and weight-room activities should be considered part of practice.

A ***walk-through*** is defined as a teaching opportunity with the athletes not wearing protective equipment (e.g., helmets, shoulder pads, catcher's gear, shin guards) or using other sport-related equipment (e.g., footballs, blocking sleds, pitching machines, soccer balls,marker cones). The walk-through is not part of the 3-hour practice period, can last no more than 1 hour per day, and does not include conditioning or weight-room activities.

A ***recovery period*** is defined as the time between the end of 1 practice or walk-through and the beginning of the next practice or walk-through. During this time, athletes should rest in a cool environment, with no sport or conditioning related activity permitted (e.g., speed or agility drills, strength training, conditioning, or walk-through). Treatment with the athletic trainer is permissible.

## Cold Water Immersion

If exertional heat stroke is suspected, onsite cooling using cold water immersion before transport to the hospital. Cold water immersion tubs are required for onsite cooling.

Cold water immersion (usually understood as circulating, ice-water immersion) is considered the most effetive strategy for rapid treatment of exertional heat stroke. The goal in any exertional heat stroke case should be to cool the athlete down to 102 degrees Fahrenheit within the first 30 minutes after collapse, prior to Emergency Medical Services (EMS) transport.

Accurate temperature measurement, via rectal thermometry, (PERFORMED BY HEALTH CARE PERSONNEL) is best practice and recommended. Exertional heat stroke is suspected if body temperature is higher than 105 degrees Fahrenheit and signs of central nervous system dysfunction are present (i.e. disorientation, confusion, dizziness, irritability, headache, inability to walk, loss of balance or muscle function, vomiting, diarrhea, loss of consciousness).

Working with EMS personnel toward a policy of "cool first, transport second" is the standard for suspected exertional heat stroke. Cooling an athlete via cold water immersion, if performed immediately, (HAS BEEN PROVEN TO) provides a 100% survival rate.

# Heat Acclimatization

**Requirements**

A. Days 1 through 5 of the heat-acclimatization period consist of the first 5 days of formal practice. During this time, athletes may notparticipate in more than one (1) practice per day.

B. If a practice is interrupted by inclement weather or heat restrictions, the practice should recommence once conditions are deemed safe. Total practice time should not exceed 3 hours in any one (1) day.

C. A1-hour maximum walk-through is permitted duringdays 1–5 of the heat-acclimatization period; how ever, a 3-hour recovery period should be inserted between the practice and walk-through (or vice versa).

D. During days 1–2 of the heat-acclimatization period, insports requiring helmets or shoulder pads, a helmet is to be the only protective equipment permitted. During days 3–5, helmets and shoulder pads are permitted. Beginning on day 6, all protective equipment may be worn and full contact may begin;
   i. On days 3–5, contact with blocking sleds and tackling dummies may be initiated.
   ii. Full-contact sports: 100% live contact drills should begin no earlier than day 6.

E. A minimum of 1 rest day shall occur following 6 consecutive practice days.

F. Beginning no earlier than day 6 and continuing through day 14, double-practice days must be followed by a single-practice day. On single-practice days, 1 walk-through is permitted, separated from the practice by at least 3 hours of continuous rest. When a double-practice day is followed by a rest day, another double-practice dayis permitted after the rest day.

G. On a double-practice day, neither practice shall exceed 3 hours in duration, nor shall student-athletes participate in more than 5 total hours of practice. Warm-up, stretching, cool-down, walk through, conditioning, and weight-room activities are included as part of the practice time. The two practices should be separated by at least 3 continuous hours in a cool environment.

Because the risk of exertional heat illnesses during the preseason heat-acclimatization period is high, it is strongly recommended that an athletic trainer be on site before, during, and after all practices.

Schools offering football have received Wet Bulb Globes (WBGT) from the NFHS/UHSAA and must be used to measure heat stress during hot weather in all outdoor activities. The UHSAA encourages all schools to have a WBGT for student safety. The WBGT device takes into account ambient temperature, humidity, wind speed, sun angle, direct sunlight and cloud cover. WBGT provides vital information for schools to use in helping administrators to determine if conditions are appropriate to hold activity programs during hot weather.

This link: WBGT/NFHS will give your school the information you need to comply with the WBGT effort.

This link: WBGT/Video is a video from the NFHS showing how-to information for your Kestrel 5400 Heat Stress Tracker.

***Please refer to the WBTG chart on the next page for Activity Guidlines.***

# Heat Acclimaization - Wet Bulb Info

| Cat 3 | Cat 2 | Cat 1 | Activity Guidelines |
|---|---|---|---|
| <82.0°F<br><27.8°C | <79.7°F<br><26.5°C | <76.1°F<br><24.5°C | Normal Activities – Provide at least three separate rest breaks each hour with a minimum duration of 3 min each during the workout. |
| 82.2°-86.9°F<br>27.9°-30.5°C | 79.9°-84.6°F<br>26.6°-29.2°C | 76.3°-81.0°F<br>24.6°-27.2°C | Use discretion for intense or prolonged exercise; Provide at least three separate rest breaks each hour with a minimum duration of 4 min each. |
| 87.1°-90.0°F<br>30.6°-32.2°C | 84.7°-87.6°F<br>29.3°-30.9°C | 81.1°-84.0°F<br>27.3°-28.9°C | 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 minumum duratition of 4 min each. |
| 90.1°-91.9°F<br>32.2°-33.3°C | 87.8°-89.6°F<br>31.0°-32.0°C | 84.2°-86.0°F<br>29.0°-30.0°C | Maximum practive time is 1 h. **For Football:** No protective equipment may be worn during practive, and there may be no conditioning activites. **For All Sports:** There must be 20 min of rest breaks distributed throughout the hour of practice. |
| ≥92.1°F<br>≥33.4°C | ≥89.8°F<br>≥32.1°C | ≥76.3°-81.0°F<br>≥24.6°-27.2°C | No outdoor workouts. Delay proactice until a cooler WBGT is reached. |

## Reminders

- Be sure to know what category your venue is in.
- Set up the WBGT 15-30 minutes prior to the activity at a height of 3 to 5 feet
- Place in a sunny location at the field/venue on the playing surface away from structures the may block wind. The can impact the WBGT reading.
- Check WBGT reading no more than 30 minutes apart.
- Activity guideline are linted on the color code chart. Acativity guidelines should be adjusted accordingly, if WBGT reading moves into a higher risk catagory for greater than 10 minutes.
- Discontinue all outdoor activities if any WBGT reading reaches ≥ 89.8°F or ≥ 32.1°C in Category 2, ≥ 86.2°F or ≥ or 30.1°C in Category 1 (Black).
- Check the National Weather Service predicted WBGT for the next prectice and plan ahead.

***For more information go to uata.org***

Korey Stringer Institute
UNIVERSITY OF CONNECTICUT
Preventing sudden death in sport

UHSAA

UATA

# Lightning

At all UHSAA sanctioned events that are held in outdoor venues the host school shall designate an individual to monitor weather. This individual shall meet with the head official for the event prior to the contest. At that meeting the following will be discussed:

A. The Guidelines on Handling Contests During Lightning Disturbanceswhich appears in all NFHS Rules Books.

B. Responsibilities of the individual charged with monitoring the weather and those of the head official relative to possible weather disturbances.

C. Contingencies regarding
possible suspensions of play due to lightning.

The head official in consultation with the individual assigned to monitor weather will affect any suspension due to lightning

# Air Quality

All questions regarding air quality policies should be directed to your local school district or the governing body for your school for the appropiate polices and procedures.

National Federation of State High School Associations

Utah High School Activities Association

## POSITION STATEMENT ON PHYSICAL ACTIVITY, AIR QUALITY AND WILDFIRES

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

**Background**

Air pollution is due to a mixture of solid particles and gases that may result from a variety of sources including wildfires, internal combustion engines, and industrial emissions. In people without lung disease, the immediate effects, and long-term consequences of air pollution upon athletic performance are not well understood. There is some evidence to indicate that chronic exposure may adversely affect blood vessels throughout the body, but more studies are needed before making definitive statements. However, air pollution has long been known to worsen the symptoms of respiratory diseases such as asthma. When compared to adults, children may be more susceptible to having problems while exercising in polluted air.

There are two key components of air pollution that cause respiratory problems, especially in people with underlying respiratory problems: ozone and particulate matter. Ozone is found in smog and is often at its worst in the late afternoon and early evening on hot summer days. It forms through a variety of complex chemical interactions, all of which require sunlight as a catalyst. Ozone can travel significant distances and, contrary to conventional wisdom, is more predominantly a rural pollutant.

The particulate matter found in air pollution can be a hazard at any time of the year, especially when the air is still. Particle pollutants can be high near busy roads and factories, and at times when there is smoke in the air from wood stoves, fireplaces, or wildfires. Other potentially harmful air pollutants include carbon monoxide, nitrogen oxides and sulfur dioxide. Smoke from late summer forest and grass fires has very high levels of particulate matter and is of special concern in the western U.S., often causing severe air pollution coinciding with the beginning of the fall sports season.

It is important to realize air pollution may also occur indoors. Potential sources include tobacco smoke in any situation, dust in indoor rodeo arenas, and exhaust fumes from ice resurfacing equipment in ice arenas. Consequently, athletes with asthma should always have their medication available and be especially cautious in these venues.

**Recognition and Management**

The Air Quality Index (AQI) is a system developed by the US Environmental Protection Agency that describes the general health effects associated with different pollution levels, as well as whatever precautionary steps may need to be taken if air pollution levels rise into an unhealthy range. During times of suspected high air pollution, the AQI should be checked prior to all practices and contests. A particular location's AQI can be found at https://www.airnow.gov/ https://www2.purpleair.com/ https://air.utah.gov/forecast.php

# Air Quality

The AQI takes into consideration the five major determinants of air pollution: ozone, particulate matter, carbon monoxide, nitrogen dioxide, and sulfur dioxide. The measured pollutant concentrations are then converted into a number on a scale of O to 500. Higher numbers correlate to a greater level of air pollution. Under the Clean Air Act, the National Ambient Air Quality Standard is 100. An AQI level greater than 100 indicates that a pollutant is in the unhealthful range. As specific public health department recommendations may vary, it is critical that state associations and schools consult local or state health departments for guidelines on when outdoor activities should be modified or cancelled.

Many western states have additional online resources to track air quality. These websites may use the AQI or a PM2.5 concentration. The PM2.5 describes fine inhalable particulate matter with diameters that are generally less than 2.5 micrometers. As a frame of reference, PM1O is less than the width of a single human hair and is small enough to get into the lungs while matter that is PM2.5 can only be seen with an electron microscope. Because it is so light and small, these tend to stay in the air longer than heavier particles and can penetrate deep into the lung tissue.

Both the AQI and the PM2.5 are reported by a color-coded chart which remains consistent across these different tools. A red "unhealthy" day will be the same whether it is reported as an AQI or a PM2.5 value. The state or local health department is available to serve as a resource to learn more about how this data is reported.

School personnel should locate the air monitors closest to practice and competition venues at https://www.airnow.gov/ https://www2.purpleair.com/ https://air.utah.gov/forecast.php Not all schools and venues will have a nearby monitor, and weather variation (wind) and geographic features (hills and valleys) can account for large differences between relatively close locations. Therefore, anyone assessing air quality must be familiar with the 5-3-1 Visibility Index Method. Based on previous air pollution research, we know that there is a correlation between air quality and visibility.

The 5-3-1 Visibility Index Method is a simple way to use visibility to estimate air quality and health effects and is particularly useful with rapidly changing weather conditions, like smoke from wildfires. The key to successful use is preparation, as it requires knowledge of large landmarks visible from the venue. Using an online satellite map, locate three landmarks that can be seen from a specific venue. The landmarks you choose should be 1 mile away, 3 miles away and 5 miles away. If you use multiple venues, you will need to do this for each separate location. Standing with the sun behind you, look at the three objects and when the outline of the landmark can no longer be seen, then the visibility range is less than the distance marker. When the air is smoky and hazy, monitoring the AQI or the Visibility Index should be done at least hourly during competitions and practices as conditions can change quickly.

Some students may be more susceptible to the health effects of poor air quality. The Preparticipation Physical Examination helps to identify those students with underlying ailments that make them more affected by poor air quality. Conditions that put students at risk include asthma, recent respiratory infection, and chronic heart or lung disease.

**All schools must have an Emergency Action Plan (EAP)** in place for every practice and competition venue in case of respiratory or other medical emergencies. Students diagnosed with asthma should have an Asthma Action Plan that they follow if symptoms occur during or after exercise. If poor air quality persists over several days, at risk students will have symptoms triggered more easily than those without pre-existing conditions.

If the health effect category is in a zone where your state or local health department discourages outdoor activity, all practices and contests should be moved indoors or cancelled. If activities are moved indoors, you must check with the maintenance staff to ensure existing HVAC systems provide properly filtered indoor air. If the HVAC system cannot appropriately manage the burden of pollutants in the air, indoor air quality **MAY BE WORSE** than the outdoor air and it is not appropriate to practice or workout indoors. Furthermore, when moving indoors, Heat and Hydration Guidelines must be followed as temperatures may be hotter inside a gymnasium on a hot summer day than outside. If indoor practices are not an option, practice may be held earlier in the day to avoid warmer temperatures or moved to a location with better air quality.

Please note that all of the above principles are not limited to athletic events and should also be followed for physical education classes and other outdoor activities involving physical activity in order to protect both students and staff.

**References**

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Qin F, Yang Y, Wang ST, Dong YN, Xu MX, Wang ZW, Zhao JX. Exercise and air pollutants exposure: A systematic review and meta-analysis. Life Sci. 2019 Feb 1;218:153-164.

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DISCLAIMER - NFHS Position Statements and Guidelines

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UHSAA SMAC Air Quality Recommendations

Air Quality Index (AQI) is a system developed by the US Environmental Protection Agency that describes the general health effects associated with different pollution levels, as well as recommendations and accommodations that may need to be taken if the air pollution levels rise into an unhealthy range.

| Air Quality Index (AQI) Values | Levels of Health Concern | Colors |
|---|---|---|
| *When the AQI is in this range:* | *..air quality conditions are:* | *...as symbolized by this color:* |
| 0 to 50 | Good | Green |
| 51 to 100 | Moderate | Yellow |
| 101 to 150 | Unhealthy for Sensitive Groups | Orange |
| 151 to 200 | Unhealthy | Red |
| 201 to 300 | Very Unhealthy | Purple |
| 301 to 500 | Hazardous | Maroon |

*Note: Values above 500 are considered Beyond the AQI. Follow recommendations for the Hazardous category. Additional information on reducing exposure to extremely high levels of particle pollution is available here*

All schools must have an Emergency Action Plan (EAP) in place for every practice and competition venue in case of respiratory or other medical emergencies. When making decisions regarding air quality, high school administrators, athletic directors, coaches, and athletic trainers should use local monitoring systems (i.e. Purple Air, etc.).

Students and adults with respiratory issues, such as asthma, heart and lung disease, are at greater risk from the effects of poor air quality and are considered to be in a 'Sensitive Group.' The following recommendations are provided to assist High School administrators, athletic directors, coaches, event management staff, athletic trainers and team physicians with regards to improving safety in training, practice and competitions when air quality is compromised:

AQI > 100: "Unhealthy for Sensitive Groups" - Athletic training staff and coaches should consult with athletes who have respiratory issues and modify their practice and competition.

AQI > 150: “Unhealthy” - Athletic training staff and coaches should consult with all athletes and modify their practice and competition.

AQI > 200: “Very Unhealthy” - Athletic training staff and coaches should postpone or cancel outdoor practice and competition, or consider relocating to an area with a lower AQI.

As specific public health department recommendations may vary, state associations and schools should consult local and state health departments for guidelines on when outdoor activities should be modified or cancelled.

Resources:

Purple Air: https://www.purpleair.com

Air Now: https://www.airnow.gov

# Example of Response Grid

| | |
|---|---|
| **Good**<br><br>AQI 0 - 50 | · If air quality has or is forecasted to deteriorate significantly, athletics department staff and medical staff should review and familiarize themselves with these guidelines and the institutional air quality monitoring protocol. |
| **Moderate**<br><br>AQI 51-100 | · Medical /athletic training staff and coaches should know which athletes have respiratory issues.<br>· If air quality has or is forecasted to deteriorate significantly, a designated member of the athletic department staff should implement air quality protocol and begin work on a communications plan.<br>· Athletics department staff and/or medical staff should regularly monitor air quality, with localized and/or venue specific data (when available). |

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| **Unhealthy for Sensitive Groups**<br><br>AQI 101 – 150 | · Medical /athletic training staff and coaches should consult with athletes who fall into the sensitive groups about participation in practice or competition.<br>· Limit outdoor activity for sensitive groups and have athletics medical/athletic training staff in attendance, as able, to monitor athletic performance for respiratory compromise.<br>· Notify visiting teams of air quality conditions.<br>· If air quality has or is forecasted to deteriorate significantly, athletics and medical/athletic training staff should discuss the Air Quality Guidelines, the institutions Air Quality Monitoring Protocol, and the possibility of postponements and cancellations with school school and district administration.<br>· Reduce heavy and/or prolonged exertion in athletes with a pre-existing pulmonary or cardiac condition. |
| **Unhealthy**<br><br>AQI 151 – 200 | · Medical/athletic training staff and coaches should closely monitor the health of all athletes in practice or competition.<br>· Athletics department staff should work with medical staff to move indoors (to facilities with better air quality than outdoors), relocating practice to an area with better air quality, postponing practice to a time when air quality is expected to be better, modifying practice to avoid activities that increase minute ventilation (e.g., intense (duration or speed) running, strenuous aerobic activity, etc.).<br>· Outdoor activity and exertion levels should be minimized for athletes with a pre-existing pulmonary or cardiac condition.<br>· Implement air quality messaging and communications plan. |
| **Very Unhealthy**<br><br>AQI > 200 | · Use localized and venue specific data (when available) to determine the time period when the air quality is anticipated or projected to be above AQI 200.<br>· Athletics department staff should work with medical staff to either move indoors (based on facility availability), relocate practice to an area with better air quality(Requests for transporting a team out of the area will be handled on a case by case basis and upon approval by the Director of Athletics), postponing practice until a time when air quality is expected to be better, **or cancel practice.**<br>· Special consideration should be given to athletes with a pre-existing pulmonary or cardiac condition and outdoor activities should be avoided for those individuals.<br>· If there is substantive evidence that the AQI will remain consistently above 200 for the majority of a competition, that competition should be postponed, canceled, rescheduled or relocated. |