

2025-26



MEDICAL POLICIES AND PROCEDURES

WISCONSIN INTERSCHOLASTIC ATHLETIC ASSOCIATION

INTRODUCTION

Policies and Procedures

The first section of this booklet contains WIAA approved administrative policies and/or procedures for member schools' athletic events. These policies and procedures have been reviewed by the WIAA Medical Advisory Committee, which is comprised of physicians, an athletic trainer and dietician.

You will note that some of the items are identified as "policy" while other items are recommendations. All items included have been developed with the best interest of athletes in mind. Member school administrators are urged to know, understand and use all of the outlined policies and procedures.

Keep in mind there are WIAA regulations that have medical implications that do not appear in this booklet, e.g., baseball pitching regulations. Such regulations can be found in the various sections of the WIAA HANDBOOK. Athletic directors and coaches should be thoroughly familiar with all such regulations.

There are National rules in several sports which deal with health and safety. Examples are the football player that must leave the game for at least one play following injury and that any athlete is prohibited from continuing without a physician's written approval if they have been rendered unconscious. Each coach and game official should be thoroughly familiar with all such rules for their sport.

Medical Information

The second section of this booklet contains information the Medical Advisory Committee feels should be made available to member schools. We would appreciate it if athletic directors would share this information with their coaches. Some of it is information they should be aware of themselves, while other items would be appropriate for distribution to athletes. School personnel may photocopy pages as needed for distribution to coaches or athletes.

The information in this manual is written as guidelines except where noted and identified as a pre-requisite and/or requirement for participation. They are intended for educational purposes for coaches, athletic directors and school medical personnel. It is a consensus of the WIAA Medical Advisory Committee and should not be construed as a standard of care.

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Visit WIAA website for additional information and links or to download additional copies of this manual.

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*Revised
8/2025*

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POLICIES AND PROCEDURES

I. MEDICAL EXAMINATION PROCEDURES

A. General Requirement

The Rules of Eligibility of the WIAA, Article VII – Health and Behavior – state the following:

A student may not practice for or participate in interscholastic athletics until the school has written evidence on file in its office attesting to:

1. Parental permission each school year including an acknowledgement of receiving the school athletic code,
2. Acknowledgement of receiving the WIAA Rules of Eligibility,
3. Athletic Emergency Form,
4. Current physical fitness to participate in sports.
 - a. A preparticipation physical fitness form attesting to current physical fitness to participate in sports as determined by a licensed physician, Physician's Assistant (PA) or Advanced Practice Nurse Prescriber (APNP) no less than every other school year with April 1 the earliest date of examination (chiropractors are not accepted). School policy determines when an athlete may return to competition following an injury, except where rule book or WIAA tournament policies apply.
 - b. Physical examination taken April 1 and thereafter is valid for the following two school years; physical examination taken before April 1 is valid only for remainder of that school year and following school year. In the year when an examination is not required, an Alternate Year Athletic Permit Card must be signed by a parent or guardian and be on file.

Note: It is recommended that a student also have dental fitness attested by a licensed dentist.

B. Guide for Athletic Participation and Restriction/Disqualification

A provider examining junior and senior high school student-athletes must use good judgment in deciding whether to limit or restrict a student from participation.

Some concepts to consider:

- Is participation medically safe for the athlete? Could this condition become aggravated by participation?
- Is there a disease, illness, injury, or condition which prevents the athlete from competing fairly with others?
- Does the participation of this athlete endanger any teammates or opponents?

All student-athletes should have a Preparticipation Physical Evaluation and signed Clearance card. Review of the Medical Problems in Sport section will provide insight on specific conditions that may limit or restrict participation.

The decision to return an athlete to participation should be made in accordance with state law (ex: concussion), WIAA and existing school policies. Ideally, decisions should be made with all stakeholders (athlete, parents/guardians, athletic trainer, treating physician/provider, and potentially the athletic director and/or coaches if needed) at the table. The safety and well-being of the student-athlete is the primary focus. The ultimate decision should be left to the school after input from the above parties.

WIAA recommends that each school establish a protocol for allowing injured or restricted athletes back to participation.

- Medical clearance prior to returning should be expected, but does this need to be a written note (like concussion)?
- Can medical clearance come from the school athletic trainer, or does it need to be a physician or advanced practice provider?
- If the family seeks out a second or third medical opinion, how are conflicting notes and clearance handled? Ideally, the school should reach out to the primary care physician to see if they provide a unified approach by all physicians.
- Does the school sports medicine team (athletic trainer or team physician) have the ability to overrule an outside doctor's note?
- To reduce disagreements, informing parents of this pathway during preseason meetings is important.

C. Physical Exam Cards

1. Card For Year Of Full Medical Exam (Physical Examination Card)

See form on website www.wiaawi.org/Portals/0/PDF/Forms/PPE-form.pdf

2. Card For Alternate Years (Alternate Year Athletic Permit Card)

WISCONSIN INTERSCHOLASTIC ATHLETIC ASSOCIATION ALTERNATE YEAR ATHLETIC PERMIT CARD

Physical Date _____ SCHOOL YEAR 20____ - 20____

NAME _____ GRADE _____ DATE OF BIRTH _____
Last First Middle Initial

Present Address _____ Telephone _____

Parents' Place of Employment _____

Family Physician _____ Family Dentist _____

Name of Private Insurance Carrier _____ Telephone _____

Subscriber Member Name (Primary Insured) _____

1. I hereby give my permission for the above named student to practice and compete and represent the school in WIAA approved sports.
2. I also attest to the fact that the above named student has had no injury or illness serious enough to warrant a medical evaluation prior to participating this school year.
3. Pursuant to the requirements of the Health Insurance Portability and Accountability Act of 1996 and the regulations promulgated thereunder (collectively known as "HIPAA"), I authorize health care providers of the student named above, including emergency medical personnel and other similarly trained professionals that may be attending an interscholastic event or practice, to disclose/exchange essential medical information regarding the injury and treatment of this student to appropriate school district personnel such as but not limited to: Principal, Athletic Director, Athletic Trainer, Team Physician, Team Coach, Administrative Assistant to the Athletic Director and/or other professional health care providers, for purposes of treatment, emergency care and injury record-keeping.
4. It is recommended that information regarding your child's allergies and prescribed medication be made available.
PARENT: If there is any question that this student may not be qualified for athletic competition without, at least, a partial re-evaluation, contact your medical advisor before signing card.

SIGNATURE OF PARENT _____ DATE _____

ALL STUDENTS PARTICIPATING IN INTERSCHOLASTIC ATHLETICS MUST HAVE THIS ALTERNATE YEAR CARD ON FILE AT THEIR SCHOOL PRIOR TO PRACTICE OR PARTICIPATION

II. REGULATIONS REGARDING MEDICAL COVERAGE AT ATHLETIC CONTESTS

- A. For all games and practices, emergency procedures should be in place as per DPI and Wisconsin Statute 121.02(1)(g) Emergency Nursing Service.

These should include, but are not limited to, such things as:

1. A physician available by phone or on location
 2. Phone location and phone numbers available for contacting physician and/or EMS.
 3. Coverage may be obtained from athletic trainers, Nurse Practitioners, Physicians Assistants, or others with adequate training.
- B. Schools are required to conduct a pre-contest meeting (Pre-event Emergency Action Plan Meeting) that shall include event management, the head official and medical personnel present at the event, to discuss the Emergency Action Plan.

III. QUALIFICATIONS OF PHYSICIANS

Providers covering WIAA athletic events should have an active Wisconsin state license. They should be current with Basic Life Saving (BLS) certification - CPR and AED use. Providers should be able to handle medical (ex: collapse, anaphylaxis, etc.) and musculoskeletal (ex: neck injury, dislocations, etc.) issues. They should also feel comfortable making return-to-play decisions to reduce the likelihood of an athlete returning to participation and worsening their injury / illness. There are many resources available to help providers become more comfortable as a junior or senior high school team or sideline physician, but here are three recent recommendations:

The Youth Athlete: A Practitioner's Guide to Performing Comprehensive Sports Medicine Care. Editors: Krabak BJ, Brooks MA. Publisher: Elsevier. 2023.

Preparticipation Physical Evaluation Monograph, 5th edition. Publisher: American Academy of Pediatrics. 2019.

Pediatric Orthopaedics and Sports Injuries, 3rd edition. Editors: Sawark JF, LaBella CR. Publisher: American Academy of Pediatrics. 2021.

IV. MEDICAL AUTHORITY AT WIAA TOURNAMENTS

A. When No Physician and/or LAT is Present

The host school athletic director should assume responsibility for the following items. In some situations, the athletic director may wish to have each head coach assume this responsibility for their home contests.

1. TELEPHONE

- a. Be certain a telephone is accessible or have a cell phone on location.
- b. Have the following numbers easily accessible:
 - (1) Local EMS.
 - (2) Physician (if agreed upon in advance).
 - (3) Police Department.
 - (4) Hospital.
- c. Post all numbers at telephones.
- d. Give all numbers to:
 - (1) Announcer.
 - (2) Coaches (visiting and home).
 - (3) Managers and trainers.

2. EMERGENCY FACILITY AND SERVICE

- a. Alert local medical services to the fact that you are conducting an event.
 - (1) Hospital emergency room.
 - (2) Ambulance service.
 - (3) Rescue squad.
 - (4) Prior to season, alert physicians to schedule and possible need for assistance.

3. WHEN AN EMERGENCY OCCURS

- a. Be prepared in the event that you must transport an athlete without the services of an emergency vehicle.
 - (1) Have a plan for method of transportation of an athlete that requires non-emergency medical care. Designate an adult to transport. See page 10-11.

4. IMMEDIATE CARE

- a. Know who will administer first aid or immediate care if needed.
 - (1) Coach or designated medical provider covering event.
- b. Alert all individuals involved in the contest as to who will administer first aid and where they can be found.
- c. No athlete shall return to play or practice on the same day of being diagnosed with a concussion. Any athlete suspected of having a concussion must be evaluated by an appropriate health-care professional that day. Any athlete with a concussion must be medically cleared by an appropriate health-care professional prior to resuming participation in any practice or competition. Return to play must follow a step-wise protocol which includes provisions for delaying return to play based upon the return of any signs or symptoms. Any athlete deemed unconscious must have medical evaluation and clearance before being allowed to return to participation.

5. DETERMINING WHETHER OR NOT ATHLETE MAY RETURN TO COMPETITION

- a. Coach has basic responsibility; however, official can rule athlete may not continue.

6. EQUIPMENT

- a. Have all emergency equipment on hand and readily available.
 - (1) Have close at hand and well-labeled.
 - (2) Alert all to its location.
 - (3) Be sure it is in working order.
 - (4) Be certain someone present knows how to use it.

7. NOTIFICATION

- a. Have a procedure set for notifying parent or legal guardian of an injured athlete.
 - (1) Have telephone numbers available (home, work, other).

8. FOLLOW-UP REPORTS

- a. File a report on each incident in the student's personal file. Use a standardized accident/injury report form, or give at least the following information:
 - (1) The name of the individual involved.
 - (2) Date of the incident.
 - (3) Type of injury.
 - (4) Mechanism of the injury.
 - (5) First aid given.
 - (6) Where the individual was sent, i.e., home, hospital, physician's office.
 - (7) Who was notified of the injury.
 - (8) Notation regarding any instructions given to the injured party regarding follow-up.

B. When Licensed Physician (M.D. or D.O.) Is Present

The designated tournament manager should assume responsibility for the following items:

1. SEND THE TOURNAMENT PHYSICIAN THE FOLLOWING ITEMS AND INFORMATION PRIOR TO THE EVENT

- a. Tickets or information as to where they can be picked up.
- b. Parking information and pass, if necessary. Reserve a space for physician.
- c. Specifically where and to whom to report upon arrival at contest site.
- d. Reminder to bring along normal emergency materials.
- e. Copy of WIAA policies regarding tournament physicians.
- f. Make hospitality room available to tournament physician and guest.

2. UPON THE PHYSICIAN'S ARRIVAL

- a. Familiarize him/her with the facilities including:
 - (1) Where he/she will be seated.
 - (2) Location of training room, if one is available.
 - (3) Location of telephone
 - (4) Where the tournament manager will be located.
- b. Provide him/her with:
 - (1) Normal procedures for calling an emergency vehicle.
 - (2) A pad of paper on which to make notations regarding injuries attended to during the course of the event, instructions for an athlete, a coach, a parent, a legal guardian, second tournament official, etc.
- c. Introduce him/her to:
 - (1) Licensed athletic trainer, if one is available.
 - (2) Participating coaches.
 - (3) Physicians traveling with the competing teams, if any.

3. FAMILIARIZE YOURSELF AND THE TOURNAMENT PHYSICIAN WITH THE FOLLOWING WIAA POLICIES

- a. The tournament physician's relationship to:
 - (1) Licensed athletic trainers – The tournament physician's opinion shall always supersede that of a licensed athletic trainer. **(Be certain all on-site medical staff/EMT's have been introduced, pre-game)**
 - (2) Physician traveling with a competing team.
 - (a) If the coach wishes, he/she may have such a "team physician" attend to his/her player. Such a "team physician" must be seated on the team bench if he/she is to do the initial examination of an injured athlete.
 - (b) If such a "team physician" is seated elsewhere, the tournament physician shall be the first responder with the athlete, and then at an appropriate and convenient time, turned over to the "team physician."
 - (c) Teams should be alerted to the requirement that any "team physician" they bring with them must be identified and introduced to the tournament manager, tournament physician and contest officials.

- (d) To avoid creating any situation in which the tournament physician and “team physician” might be in disagreement as to whether or not an athlete can continue to compete, the decision will be made by the tournament physician.
- (3) Forms provided by the WIAA are to be used to ensure that an athlete does not continue in competition until he/she has followed all instructions given him/her by the attending physician and/or licensed athletic trainer.
- b. Tournament physician’s responsibility and authority:
 - (1) Basic purpose of having a tournament physician in attendance is to:
 - (a) Render medical assistance.
 - (b) Render medical judgments regarding whether or not athletes should be allowed to continue to participate.
 - (c) Neither the coach nor official can deny a licensed athletic trainer or physician an opportunity to examine the athlete.
 - (2) In some cases, it may be necessary to defer final judgment regarding further participation for a given athlete to the next attending tournament physician whether it be in another session of the same tournament or in a subsequent tournament.

Note: It is imperative that the tournament physician notify the tournament manager and/or the WIAA staff member in attendance of the need for future physician examination of an athlete before continued participation. It is highly desirable that details be provided any subsequent tournament physician in writing by the original tournament physician.
 - (3) Before leaving a tournament, or an individual tournament session, a tournament physician should notify the WIAA personnel on hand and/or tournament manager of any significant injuries he/she has attended to. Written records of such injuries should be kept and should include the following information:
 - (a) Number and/or name of injured athlete and school.
 - (b) Nature of the injury.
 - (c) Treatment given.
 - (d) Instructions given and to whom:
 - 1) Coach
 - 2) Athlete
 - 3) Parent
 - 4) Legal guardian
 - (4) It should be understood by all that the tournament physician has the authority and would be expected to proceed onto the area of play even though action may be continuing because the game officials are unaware of an injured participant. The team of the injured athlete should not be assessed a time out or any other penalty for such action by the tournament physician.
 - (5) Tournament managers might wish to provide visiting schools with emergency telephone numbers and/or physicians’ names for use during off hours in the event they find themselves in need of medical attention, prescription medicines, etc.

V. MEDICAL ATTENTION IN THE ABSENCE OF PARENTS

Schools are required to have written evidence on file in its office attesting to parental permission as well as an Athletic Emergency Form. Every two years each athlete is required to have on file a physical examination card filled out and signed by a physician and a parent. That card carries a statement granting permission for emergency medical care to be given to the athlete. It is recommended that schools carry these cards or photocopies of them, and a copy of the Athletic Emergency Form granting parental permission for emergency care of the athlete.

VI. RETURN TO COMPETITION FOLLOWING INJURY OR ILLNESS

A. Regular Season Same Contest And/Or Day

- 1. Licensed Athletic Trainer And/Or Physician Present
 - a. Official stops contest because of injury or illness.
 - b. Official instructs scoring bench to start clock if appropriate.

e.g., Injury time, or recovery time.
 - c. Official beckons coach to examine athlete.
 - d. If deemed necessary by official or coach, either shall beckon licensed athletic trainer and/or physician to examine athlete. (Neither coach nor official can deny licensed athletic trainer and/or physician an opportunity to examine the athlete.)
 - e. If only a licensed athletic trainer or physician is present, he/she will determine whether or not the athlete can continue.
 - f. If licensed athletic trainer and physician confer, and there is a difference of opinion, the physician's decision is final.
 - g. Licensed athletic trainer and/or physician notify the following individuals in the order listed:
 - (1) Official

Note: The official may overrule a coach, licensed athletic trainer, or physician that decides to allow an athlete to continue. He may not, however, overrule a coach, licensed athletic trainer, or physician that decides an athlete should not continue.
 - (2) Coach
 - (3) Athlete
 - h. Official notify the following in order listed:
 - (1) Opponent and his/her coach.
 - (2) Scoring table and/or contest management.

2. No Licensed Athletic Trainer And/Or Physician Present
 - a. Official stops contest because of injury or illness.
 - b. Official instructs scoring bench to start clock if appropriate.
e.g., Injury time, or recovery time.
 - c. Official beckons coach to examine athlete.
 - d. Coaches decides whether or not athlete can continue.
Note: The official may overrule a coach that has decided to allow an athlete to continue. He may not, however, overrule a coach that has decided an athlete should not continue.
 - e. If athlete will not continue, official notifies the following in the order listed:
 - (1) Coach.
 - (2) Athlete.
 - (3) Opponent and his/her coach.
 - (4) Scoring table and/or contest management.

B. Following One Or More Days Absence

School policy determines when an athlete may return to competition following an injury, except where rule book or WIAA tournament policies apply.

VII. MINIMUM DAYS OF PRACTICE BEFORE COMPETITION

The minimum days of practice required before first competition are as follows:

Baseball	7 days
Basketball (boys and girls)	7 days
Cross Country	7 days
Football	14 days
Golf (boys and girls)	3 days
Gymnastics	20 days
Hockey (boys and girls)	10 days
Lacrosse (boys and girls)	7 days
Soccer (boys and girls)	7 days
Softball	7 days
Swimming and Diving (boys and girls)	7 days
Tennis (boys and girls)	4 days
Track & Field	7 days
Volleyball	7 days
Wrestling	10 days

VIII. UNCONSCIOUS PARTICIPANT

The following general statement appears in the WIAA Season Regulations for all sports.

"Any athlete deemed unconscious must have medical evaluation and clearance before being allowed to return to participation."

IX. OXYGEN/IV FLUIDS

Oxygen administered by mechanical means for recuperative purposes is not permitted.

Fluids provided intravenously is considered an invasive procedure used only in emergency situations. An athlete may not return to competition the same day.

X. COACHES DISPENSING SUBSTANCES

COACHES CANNOT DISPENSE MEDICATION OR SUPPLEMENTS. They should not sell or provide these to athletes outside of practice as well.

The administration of medications to students is addressed in Wis. Stat. sec. 118.29, which became effective December 9, 2011.

Administration of Medications in Wisconsin Schools:

https://dpi.wi.gov/sites/default/files/imce/sspw/pdf/Administration_of_Medications_in_Wisconsin_Schools.pdf

A complete copy of the above statute is included in the Medication Training section of the DPI Website:

<https://dpi.wi.gov/sspw/pupil-services/school-nurse/training/medication>

XI. EMERGENCY ACTION PLANNING

While interscholastic sports promote health, competition and teamwork, the risks of catastrophic injury and sudden death exist during both practice and competition. The potential for a medical emergency is ever present. The purpose of the Emergency Action Plan (EAP) is to facilitate a prompt, efficient, coordinated response in the case of a medical emergency. Planning, preparation, and practice are the keys to achieving success in the case of an actual emergency.

The EAP is the blueprint for response to a medical emergency and activation of the emergency medical system (EMS). It should be developed by school administrators in collaboration with school medical personnel and coordinated with the local EMS. An EAP should be established for each

separate venue and should be in effect at all practices and competitions. A modified EAP should be developed for away contests in all sports. A proper plan establishes accountability, should be comprehensive, yet flexible, practical, and easily understood. The written EAP should be revised, approved, distributed, and rehearsed regularly before each athletic season.

Components of the Emergency Action Plan:

1. Communication: Establish an efficient communication system to activate EMS by:
 - a. Designate nearest telecommunication devices to each venue and a list of emergency phone numbers.
 - b. Plan to alert onsite responders and identify location of emergency.
 - c. Plan to notify parents or guardians.
 - d. Plan to collect Information which should be provided to EMS or medical providers.
2. Personnel: Define the responsibilities of each member of the response team including but not limited to:
 - a. Calling EMS.
 - b. Stay with and provide care to injured individual.
 - c. Meet EMS to facilitate access to injured individual.
 - d. Call parents/guardians.
 - e. Fill out necessary documents.
3. Equipment: Specify availability and location of equipment which might be needed in the event of an emergency:
 - a. Location of automated external defibrillator (AED), splints, crutches, ice and bags, and any other available equipment.
 - b. Plan to strategically locate AEDs to provide immediate retrieval and use within 3 minutes.
 - c. Plan to regularly check and maintain emergency equipment per manufacturer's instructions.

Emergency Action Plan Check List: High School

Venue: _____

Location of Telephone: _____

Location of Defibrillator: _____

Emergency Telephone Numbers

EMS: 911

First Responder/Athletic Trainer: _____

Hospital/ER: _____

When Placing A Call Be Prepared To:

1. Give your Name, Location & Description of the injury.
2. Give detailed directions where the ambulance should go, including location of entrance.
3. DO NOT HANG UP UNTIL THE PERSON RECEIVING THE CALL TELLS YOU TO!

Designate Persons To Do The Following:

- ✓ Stay with the Injured athlete at all times
- ✓ Make the call to EMS
- ✓ Meet EMS and assist them getting to the Injured Individual
- ✓ Call Parents/Guardians
- ✓ Fill out accident report immediately following.

Athletic Training Room Location

Location: _____

****Stocked with Ice, Ice Bags, Wraps, Band-Aids, Gauze, Crutches****

XII. EMERGENCY FIRST-AID CHECK LIST



WISCONSIN INTERSCHOLASTIC ATHLETIC ASSOCIATION
5516 Vern Holmes Drive, Stevens Point 54482-8833

EMERGENCY FIRST-AID CHECK LIST

Complete This Form And Carry It With You For All Practices And Games

School _____

Coach _____

Sport/Venue _____

Location of Telephone(s): Nearest practice site _____ Phone # at site _____

Nearest game site _____ Phone # at site _____

Location of AED: Nearest practice site _____

Nearest game site _____

EMERGENCY TELEPHONE NUMBERS

EMS Vehicle _____ Physician _____ Hospital/ER _____

HAVE A PLAN which **TELLS** the people **WHAT TO DO**.

Call 911 Team

- Find nearest phone & call 911
- Meet the Ambulance
- Call Contacts

CPR/AED Team

- Start CPR
- When AED arrives
- Turn It On and Follow Voice Prompts

AED Team

- Get the AED
- Get the Athletic Trainer

When placing call please be prepared to:

1. Give your name, location, and description of emergency.
2. Give detailed directions for EMS including location of the entrance.
3. Do not hang up until you are told to do so by person receiving your call.

Be certain:

1. Gates and doors for EMS access are unlocked.
2. Have a cell phone available.
3. Review current locations of AEDs on your school campus or at the venue.
4. You have keys, if needed for access to telephone or locked gates.

When transporting an athlete for emergency care:

1. A responsible adult should accompany an athlete being transported for emergency care.
2. Send emergency treatment information and permission forms.
3. Contact parents.

EMERGENCY EQUIPMENT

ITEM

LOCATION

Stretcher _____

Ice _____

AED _____

Other _____

Training room location: _____ Phone: _____

XIII. BLOOD-BORNE/BODY FLUID PATHOGENS OUTLINE OF RESPONSIBILITIES AND PROCEDURES

- A. The OSHA/DILHR/DPI guidelines all require each school to have an exposure control plan that includes:
 - 1. Training of total staff.
 - 2. Protection of staff.
 - 3. Protection of students.
 - a. Have trained person available.
 - b. Be prepared to handle bleeding situations.
 - c. Get student safely back into school programs.
- B. Officials determine who must leave contest by enforcement of National rule.
 - 1. Because of bleeding and/or open wound.
 - 2. Because of excessive blood on uniform.
- C. School personnel handles blood related situations in accordance with OSHA/DILHR/DPI regulations.

XIV. WRESTLING 7% RULE

- A. Schools are required to follow the provisions of the weight certification program established by the Association for all wrestlers in grades 9-12.

The establishment of a minimum wrestling weight based on 7% body fat for males and 12% for females will be mandatory for all senior high school wrestlers. The WIAA does not advocate that a wrestler's established minimum weight is the athlete's best weight, but simply the minimum weight at which the athlete will be allowed to compete.

- 1. Establishing Minimum Weights
 - a. Skinfold measurements will be utilized to determine each wrestler's body fat percentage.
 - (1) Each wrestler must pass a test to substantiate that they are at an acceptable level of hydration before they can have skinfold measurements taken. Details regarding the specific test to be used, the testing protocol, etc. will be provided to each wrestling school prior to the earliest date for measurements. Once a wrestler has reported for hydration testing they may not be withdrawn.
Note: Use of IV to hydrate for skinfolds is not allowed.
 - (2) Only measurements taken by health care professionals who have successfully completed the WIAA Skinfold Measurement Workshop will be accepted. Schools will receive a list of approved measurers. It is the responsibility of the school to contact a skinfold measurer from this list, and arrange a time to have the wrestling squad measured.
 - (3) Measurements may not be taken after practice, or a workout. **If the measurer has reason to believe any of the wrestlers are in a dehydrated state, they shall refuse to measure such wrestler(s).**
 - (4) No senior high wrestler may compete or participate in pre-meet activities until the athlete has had a minimum weight determined, **and the school has received a printout from the WIAA online program so indicating.**
 - b. The lowest weight class a wrestler may compete at will be determined as follows:
 - (1) If the predicted weight, at 7% body fat, is exactly that of one of the weight classes that shall be the wrestler's minimum weight class.
 - (2) If the predicted weight, at 7% body fat, falls between two weight classes, they must wrestle at the higher weight class.
 - (3) With documented (see Note below) parental permission, the wrestler may wrestle at the weight class in which their 7% predicted weight, less 2% of that weight, places them. **The deadline for parental permission is February 1.**
Note: The official parental permission form provided by the WIAA office must be used. The school must have the completed form on file before the wrestler is allowed to compete at that weight.

For complete details regarding time periods for measurement, appeals process, growth allowance and hydrostatic weighing refer to WIAA Winter Season Regulations.

XV. WRESTLING MINIMUM WEIGHT PROGRAM TEST FOR HYDRATION

Testing to determine a wrestler's hydration status as part of a minimum competitive weight certification process has been increasingly embraced by the sports medicine community, as well as sport governing bodies (NFHS, NCAA), coaches and various other athletic associations in recent years.

In part, due to the physical developmental stage of adolescent wrestlers, along with both the immediate and life-long benefits of healthful nutrition habits, hydration testing is a key component in helping wrestlers, parents, coaches and administrators determine a safe and healthy minimum weight for high school wrestlers.

Please read the Wrestling Season Regulations, included in the WIAA Winter Season Regulations booklet (pages 41-47) for more complete information on WIAA wrestling rules.

Testing Hydration Status

NOTE: Hydration testing **MUST** be done immediately prior to the actual taking of skinfold measurements and **at the same site where the measurements will be taken.**

Dehydration will concentrate urine and thereby increase the urine's specific gravity. Accurate determination of minimum wrestling weight from skinfolds, requires the wrestler to be properly hydrated. The specific gravity of water is 1.000. The specific gravity of a hydrated individual will be 1.020 or lower. If the wrestler is dehydrated (i.e., specific gravity of the urine is over 1.020), skinfold measurements are **NOT** to be taken. Testing must be rescheduled for a different time when the wrestler is properly hydrated. **NO SOONER THAN 48 HOURS.**

Volunteers To Do The Testing

1. **Make arrangements for extra help** to facilitate this process.
2. It is recommended this person be a nurse, medical technician, athletic trainer, or person with similar training. Your school nurse or a biology or health teacher can also do these tests.
3. Coaches are not to do these tests.
4. Skinfold measures **MAY** agree to test one or two athletes on a follow-up visit to your school or if an athlete goes to a clinic to be measured. Skinfold measurers are **NOT** to be expected to do hydration testing of your entire squad.

Obtaining A Secure Urine Sample

It is a priority to assure an appropriate urine sample has been collected the following procedures are required.

AREA – A bathroom with toilet or urinal can be used by the wrestler to provide the urine sample. The determination of specific gravity can be completed in another area, but a means of appropriate disposal of the urine must be available.

SAFETY – Use gloves when measuring the urine and appropriately dispose of the urine in toilet. Place cup in hazard collection system.

COLLECTION CONTAINER – Paper cups of sufficient size to provide a 20-30 ml urine sample can be used by the wrestler to collect the sample.

COLLECTING THE URINE SAMPLE – School personnel must insure that the wrestler has provided a sample of their own urine. Reasonable supervision is key. Normally one to three wrestlers can be supervised at one time in an open area. After collection of the urine by the wrestler, personnel should insure that the urine is warm by feel in the collection container. If the urine is cold, reject that sample and require the wrestler to provide another sample under close supervision.

To further insure a secure sample is collected water faucets may be shut off. Blue or red dye may be added to toilet bowls.

Testing The Sample

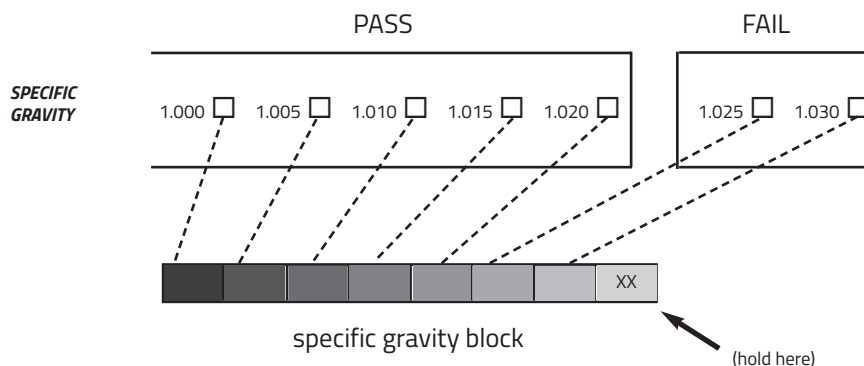
It is acceptable to use either Reagent Strips, a Refractometer or Hydrometer for testing purposes. Which ever instrument is chosen, carefully follow directions for its use, to insure an accurate reading.

NOTE: A Refractometer must be accurately calibrated prior to use.

Using Reagent Strips

Purchase sufficient multistix strips to conduct the specific gravity urine test.

- A. The AMES, Multistix 10SG Reagent Strips for Urinalysis (2304A) is one strip that can be used. However, any urine dip stick for testing urine specific gravity may be used. Your local hospital or clinic can give you a source. One source we know you can order them from is Shoreline Sport Medicine Supply, Inc., 2615 Segwun Ave., Lowell, MI 49331, (616) 897-6505, or FAX (616) 897-5361 to FAX a purchase order. Orders may also be placed online at www.shorelinesms.com. Strips are available in bottles of 100.
 - B. You may contact a local physician's office for the name of a supplier in your area. Some physicians may be willing to donate enough strips for your team.
 - C. Multistix strips do have a shelf life, check the expiration date printed on the container. (If given to athletes for experimentation they must be kept in a clean, sealed container.)
 - D. Order your strips early so you are certain to have them by the time you plan to have measurements done.
- * Mix urine well in cup by swirling urine.
 - * Remove one strip from bottle and replace cap. Completely immerse Reagent areas of the strip in FRESH urine and **remove immediately** to avoid dissolving reagent. All unused strips must remain in the original bottle. Do not remove strips from the bottle until immediately before the strip is to be used for testing. Immediately replace the bottle's cap and tighten after removing the reagent strip.
 - * While removing the strip from the urine, run the edge of the strip against the rim of the container to remove excess urine. **For 45 seconds hold the strip in a horizontal position to prevent mixing of the chemicals.** (Do not leave stick in urine 45 seconds. Dip & remove immediately.)
 - * Visually compare reagent area to the specific gravity color chart on the bottle's label by holding strip close to color blocks. Avoid laying strips directly on color chart as this will result in urine soiling the chart.



- * Discard urine in urinal or toilet and cup in an appropriate receptacle.

If the wrestler passes the test darken the PASS box on the scantron form (only after they have printed their name on the form and filled in the

appropriate bubbles). **Sign your name on the line provided (top right corner of form).** This will be required by the skinfold measurer before skinfold measurements will be taken.

If the wrestler fails the test, they will have to be retested at a later date. The wrestler is required to wait a minimum of 48 hours before retesting.

NOTE: Urine testing should be completed within one hour after voiding. If testing cannot be completed within one hour another sample must be taken.

XVI. WEIGHT LOSS BY WRESTLERS

This information has been prepared with the parents of wrestlers in mind. Athletic directors are encouraged to reproduce the information so it can be shared with the parents of wrestlers.

IMPORTANT INFORMATION REGARDING WEIGHT LOSS

The health hazards associated with excessive weight reduction through food deprivation and/or dehydration are well documented. These hazards include, but are not limited to, reduced regulation of body temperature, kidney failure, and acute and/or chronic fatigue. We urge you to consider the information provided below and discuss it with your wrestler in deciding at which weight they will compete.

Beginning with the 1991-92 wrestling season, the WIAA Board of Control adopted a mandatory weight control program for Wisconsin high school wrestlers. The program has two basic components: 1) a nutrition-education dimension and 2) the establishment of a healthy minimum weight for each wrestler. Skinfold measurements are used to predict (on a scientific basis) the lowest healthy weight for every wrestler. The program requires each male wrestler to maintain at least 7% body fat and females 12% body fat. The rule does not suggest or urge wrestlers to reduce to 7%, or 12% body fat, but sets a healthy limit as to how much they can safely reduce. The rule controls: 1) the rate of weight loss and 2) the amount of weight that can be lost.

It is recognized that the skinfold measurement method of estimating body fat has some inherent error. Every effort has been made to minimize this error by utilizing WIAA certified and registered skinfold measurers. The prediction of body fat and minimum weight is not an exact science, but skinfold measurement is the best available method. With that in mind, you need to consider the following facts: 1) If body weight is manipulated through dehydration prior to skinfold measurements being taken, the predicted minimum weight may be low. This would force the wrestler to repeat the rapid weight loss practices each time they must make weight. This practice would be dangerous to the health of your growing adolescent and is one of the main reasons the WIAA 7% rule was initiated. 2) The skinfolds may have overestimated, or underestimated, the body fat of your athlete. If the original skinfold prediction overestimated percent body fat for a wrestler, the margin of safety built into the program may be slightly reduced. Once again, this is a reason to encourage wrestlers to wrestle at a normal comfortable weight not one they must struggle to maintain.

We encourage you to monitor your wrestler's diet as well as weight loss efforts. Our publication, "The Wrestler's Diet" will help you in monitoring weight loss. If you do not already have a copy of this publication, contact your school's athletic director.

XVII. WRESTLING SKIN CONDITION REPORT

See form on website <http://www.wiaawi.org/Portals/0/PDF/Sports/Wrestling/wrestrelease.pdf>

XVIII. WRESTLING INJURY TIME OUT MODIFICATION

In the absence of certified medical personnel, (physician and/or certified athletic trainer) all injuries to the head and neck involving the cervical column and/or nervous system will be covered by the same time frame as other injuries.

When certified medical personnel are present, they have jurisdiction to extend the allowed time limit to a maximum of five minutes for evaluation of the injuries to the head and neck involving cervical column and/or nervous systems only, at which time the athlete would be required to prepare without delay for continuation or default the match.

A second occurrence of injury to the head and neck involving cervical column and/or central nervous system in the same match shall require the wrestler to default the match.

Note: When this provision is used, time consumed for the injury will in no way affect time used, or available, for other types of injuries.

XIX. MEDICAL APPLIANCES

Recommend:

The use of medical appliances and/or medical devices by student-athletes with health conditions has become more commonplace. With the wider use of insulin pumps, as well as other medical devices such as heart monitoring equipment and prosthetics, concerns have been raised regarding the safety of the athlete wearing the device, the safety of teammates and opponents, and the risk of damages to the device itself.

The NFHS SMAC has discussed these issues and recommends the following:

When it is necessary for a student-athlete to wear a medical appliance and/or a medical device (such as an insulin pump, heart monitoring equipment, etc.) during athletic competitions, the device shall be padded and securely attached to the player's body, underneath the uniform. Devices attached to the head (such as hearing aids and cochlear implants) do not need to be padded but shall be firmly secured to the body. Prosthetics may be padded as needed. No medical appliance and/or medical device shall pose any risk of injury or hazard to the student-athlete, teammates and/or opponents. The official has jurisdiction to disallow any medical appliance and/or medical device deemed unsafe for athletic competition. The head coach, or team personnel designated by the head coach, shall notify the official of the presence of the medical appliance and/or medical device prior to each contest. In addition, State Association approval may be required prior to a student-athlete wearing a medical appliance and/or medical device in athletic competition.

XX. Non-REQUIRED EQUIPMENT

SPORT	CAST/SPLINT (leather, rubber, plastic, plaster, fiberglass, Alumifom)	KNEE BRACE	PROSTHETIC DEVICE	INSULIN PUMP	ELECTRONIC MONITORING ANKLE DEVICE	PRESCRIPTION HEARING AID	#MEDICAL ALERT MEDALS/ BRACELETS
BASEBALL	Allowed*; must be padded	Allowed; if unaltered from manufacturer does not require additional padding	Allowed*	Allowed; must be covered and padded	Allowed; must be covered	Allowed+	Allowed; must be taped to body and may be visible
BASKETBALL	Not allowed on elbows, hand, finger, wrist or forearm even if padded	Allowed; may need padding; hinges must be covered	Allowed*; may need additional padding	Allowed; must be covered; may need padding	Allowed; must be covered	Allowed	Allowed; must be taped to body with data clearly visible
CROSS COUNTRY	Allowed*; referee determines if padding is necessary	Allowed	Allowed; Artificial lower limb "Blades" - Contact WIAA	Allowed; must be covered	Allowed; must be covered	Allowed	Allowed
FOOTBALL	Allowed*; must be padded	Allowed; if unaltered; must be worn under the pants	Allowed*; may need additional padding	Allowed; must be covered; may need padding	Allowed; must be padded	Allowed+	Allowed; must be taped to body; alert visible
GOLF	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
GYMNASTICS	Prohibited	Allowed; if unaltered from manufacturer does not require additional padding	Allowed	Allowed	Allowed; must be covered	Allowed	Allowed; must be taped to body; alert visible
HOCKEY	Allowed*; must be padded; must have medical release at game site	Allowed; may need padding; hinges must be covered	Allowed*; may need additional padding	Allowed; must be covered; may need padding	Allowed; must be padded	Allowed+; if no risk to wearer or opponent	Allowed; must be taped to body; alert visible
SOCCER	Allowed*; must be padded; must have medical release at game site	Allowed; any covering (sleeve) recommended by manufacturer may be worn	Allowed*; upper limb prostheses and above knee leg prostheses are discouraged	Allowed; must be covered; may need padding	Allowed; must be covered	Allowed+; if no risk to wearer or opponent	Allowed; must be taped to body; alert visible
SOFTBALL	Allowed*; must be padded; must have medical release at game site	Allowed; if unaltered from manufacturer does not require additional padding	Allowed*; may need additional padding	Allowed; must be covered; may need padding	Allowed; must be covered	Allowed+; if no risk to wearer or opponent	Allowed; must be taped to body; alert visible
SWIMMING/DIVING	Allowed; may not aid their speed or buoyancy	Allowed; may not aid speed or buoyancy	Allowed; if no advantage is gained. Written approval from WIAA must be made available to referee	Allowed; must be covered	Allowed; must be taped to body	Allowed+; may not aid speed or buoyancy	Allowed; must be taped to body
TENNIS	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed	Allowed
TRACK/FIELD	Allowed*; referee determines if padding is necessary	Allowed	Allowed; Artificial lower limb "Blades" - Contact WIAA	Allowed; must be covered	Allowed; must be covered	Allowed	Allowed
VOLLEYBALL	Not allowed on finger, hand, wrist or forearm even if padded	Allowed; if unaltered from manufacturer does not require additional padding	Allowed*; may need additional padding. Written approval from WIAA required	Allowed; must be covered	Allowed; must be covered	Allowed	Allowed; must be taped to body; alert visible
WRESTLING	* Special restrictions; check with WIAA	Allowed; hinges must be covered; hard surfaces must be padded; may be special restrictions	Allowed*; may need additional padding	May be allowed; must be covered and padded	Allowed; must be padded	Allowed+; if no risk to wearer or opponent	Not allowed
Footnotes:	# When taping a medical alert medal, transparent tape should be used if taping directly over the medal. If nontransparent tape is used it should be applied to the medal's chain immediately above the medal leaving the alert medal clearly exposed.						

* Standard padding is considered to be minimum of 1/2 inch dense foam/closed cell material or equivalent
 ^ Provided artificial limb is no more dangerous than corresponding limb - or must be padded
 + Prescribed by physician/note required

MEDICAL INFORMATION

I. NFHS POSITION STATEMENT – DRUGS, MEDICINE AND FOOD SUPPLEMENTS

In response to the recent focus on the use of food supplements, specifically creatine, the NFHS Sports Medicine Advisory Committee has issued a position statement on the use of drugs, medicine and food supplements in interscholastic sports. Text of the committee's statement follows:

"School personnel and coaches should not dispense any drug, medication or food supplement except with extreme caution and in accordance with policies developed in consultation with parents, health-care professionals and senior administrative personnel of the school or school district.

"Use of any drug, medication or food supplement in a way not prescribed by the manufacturer should not be authorized or encouraged by school personnel and coaches. Even natural substances in unnatural amounts may have short-term or long-term negative health effects.

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

II. WIAA POSITION STATEMENT – PERFORMANCE ENHANCING SUPPLEMENTS

Note: This policy statement is related to use of dietary supplements. For information on steroid use, see the sections addressing APEDS and Drugs in Sports.

The WIAA strongly opposes the use of supplements by high school student-athletes for performance enhancement due to the lack of published scientific research that documents the benefits and/or risks of supplement use, particularly in adolescents. Supplements should only be used on the advice of one's health care provider for health-related reasons, not for the purpose of gaining a possible competitive advantage. School personnel and coaches should never recommend, endorse, or encourage the use of any supplement, drug, or medication for performance enhancement to a student-athlete.

Products typically promoted as performance enhancing include: dietary or nutritional supplements, ergogenic aids, health supplements or sport supplements. While some mainstream supplements are made by responsible manufacturers, a growing number of products contain dangerous and hidden ingredients, including steroids and pro-hormones. In making a decision to use a supplement, several factors should be considered.

- **Evaluating Supplements for Discouraged or Banned Substances:** Supplements are not regulated like drugs, food or medication. Supplement companies do not have to follow the same "truth in labeling" regulations as for food or medication. Supplement labels are not required to list all the ingredients in the product and can omit listing ingredients that are in a bottle. A growing number of products contain dangerous and undisclosed ingredients, including steroids, stimulants and dangerous drugs. Proprietary ingredients are a "company secret" and do not have to be listed on the label. To minimize the risk of taking a supplement that contains a banned ingredient, visit the NFS Certified for Sport website <http://www.nfsport.com/> or Informed Choice <http://www.informed-choice.org/> for a listing of supplements that have been tested for purity and potency.
- **Health Consequences:** Supplement products have been known to be contaminated with banned or harmful ingredients. Taking supplements with dangerous hidden drugs such as designer steroids has been a known cause of liver injury, stroke, kidney failure, and pulmonary embolism. Supplement products with hidden stimulants can cause irregular heart rhythm, increased blood pressure, stroke, and even death.
- **Contamination:** Supplements can accidentally contain banned or discouraged ingredients due to cross-contamination when manufacturing equipment isn't cleaned properly between batches of products. In other cases manufacturers will spike a product with stimulants or pro-hormones without listing them on the label to deceive the student-athletes that the product will cause big gains while claiming the product is "all natural" or "legal."
- **Sources of information:** Supplement store staff or company distributors get paid by selling a product. They are well trained to sell the most popular product with the biggest profit margin. The staff generally may not have training in nutrition, biochemistry or pharmacology. In addition, they may not know or understand WIAA rules/regulations of supplement use by student-athletes. A supplement/product that is "legal" for the company to sell to the student-athlete, however, may not be allowed for an student-athlete to use.
- **Testimonials from professional athletes:** Supplement companies frequently advertise their products with testimonials from professional athletes or well-known sports figures. These testimonials are not proof that a supplement works. Athletes who are paid to endorse a product are generally at the end of their career and did not use the supplement when they were young and training to become successful.
- **Pre-Workout Boosters:** These products claim to provide increased energy and endurance for a workout. Supplements in this category generally contain several sources of stimulants – many not listed on the label – that affect the heart and blood pressure and can cause serious health consequences. In addition, this category of products has a history of containing hidden banned supplements, including illegal pro-hormones and steroids. Use of pre-workout boosters has caused many athletes to fail drug tests, be suspended from competition, and has been related to several deaths.
- **Protein Powders:** Most diets supply adequate protein. However, in cases where student-athletes can't eat enough food or when protein needs are higher than normal, limited supplementation may be needed. In these cases, a physician or sport dietitian consultation may be helpful. If extra protein is needed, read labels carefully. Protein powders may contain discouraged or banned ingredients not listed on the label. A 2007 study by Informed Choice Labs randomly selected 50 protein powders off the shelves of well-known supplement stores. They found that 25% of the powders contained anabolic steroids. In addition 11% of the protein powders tested positive for stimulants not listed on the label. Look for labels that list protein as the first ingredient, have few added ingredients and do not claim to be "mass builders". The primary reason student-athletes choose to use supplements are to gain mass and weight, get stronger, reduce body fat, and have more energy. Student athletes who want to improve athletic performance should focus on good training strategies, a good diet, and proven recovery strategies that stress the 4 "R's": rest, refuel, rehydrate, and repair. In the vast majority of cases, a few changes to the student-athlete eating habits will lead to muscle growth, fat loss, improved strength and faster recovery.

For a copy of the WIAA Performance Enhancing Supplement and Banned Substances Policy visit <http://www.wiaawi.org/Portals/0/PDF/Health/performanceenhancers.pdf>

National Institutes of Health Center for Complementary and Integrative Health. <https://nccih.nih.gov/health/supplements/wisepuse.htm>

True Sport Nutrition Guide http://www.truesport.org/library/documents/resources/nutrition_guide/NutritionGuide.pdf

NSF Certified for Sport <http://www.nsf sport.com/>

USADA Dietary Supplement and Safety Education

<http://www.usada.org/substances/supplement-411> Informed Choice <http://www.informed-choice.org/>

Drug Free Sport <http://www.drugfreesport.com/>

American College of Sport Medicine –

[Protein Intake for Optimal Muscle Maintenance protein-intake-for-optimal-muscle-maintenance.pdf](#) (acsm.org)

[National Federation of High School Sports Supplement Position Statement dietary-supplements-position-statement-2015.pdf](#) (nfhs.org)

III. NFHS POSITION STATEMENT ON APPEARANCE AND PERFORMANCE ENHANCING DRUGS AND SUBSTANCES

National Federation of State High School Associations (NFHS)

Sports Medicine Advisory Committee (SMAC)

Background Appearance and performance enhancing drugs and substances, or APEDS, refer to products that can be either naturally or synthetically produced and used with the intention of enhancing appearance or improving athletic performance. This use of APEDS is often referred to as “doping,” and has unfortunately been a part of competitive sport since ancient Roman times. In 1999, the World Anti-Doping Agency (WADA) was formed, with the mission of creating a doping-free sporting environment. In the United States, the U.S. Anti-Doping Agency (USADA) is the national anti-doping organization. WADA publishes the World Anti-Doping Code, which is followed by most sporting organizations, including the International Olympic Committee.

What are APEDS? The spectrum of APEDS is very broad, encompassing many different substances and methods of improving physical performance. There are multiple substances and drugs that fall under the heading of APEDS, from caffeine, found in numerous beverages, to illegal and dangerous anabolic steroids. All APEDS have the potential for dangerous complications and side effects, if used improperly. However, to more reasonably discuss use and abuse, we can divide them into two broad categories:

1. Legal, not banned for competition, and may have some positive effects upon athletic performance:

- a. Caffeine (limit set by WADA and NCAA)
- b. Creatine
- c. Protein powders and amino acids

An interesting distinction concerning APEDS is that except for prescription medications, none of the other products are regulated or routinely tested by the U.S. Food and Drug Administration (FDA). A dangerous side of this lack of regulation is the potential for the presence of contaminants in dietary supplements. Some studies have shown that 8-20% of tested protein supplements are contaminated with significant amounts of heavy metals, such as lead and mercury. In addition, 25% were found to be contaminated with anabolic androgenic steroids, and 11% were found to be contaminated with stimulants. Such “contamination” may be no accident as the manufacturer obviously benefits from a product that is effective, despite significant safety concerns for the consumer.

Caffeine has been shown to improve performance in endurance events. Its use is restricted, but not banned, by the NCAA and WADA. Caffeine can also have multiple side effects, some potentially dangerous, including headaches, increased blood pressure and increased heart rate. In 2011, almost 1,500 12- to 17-year-old children went to the emergency department due to caffeine toxicity. Caffeine is treated differently than other supplements by the FDA. While the FDA regulates the amount of caffeine allowed in foods and soft drinks, it does not regulate the amount allowed in energy drinks and supplements. This explains why the ingestion of multiple energy drinks can lead to dangerous levels of caffeine.

Creatine is a naturally occurring substance stored in fast-twitch muscle fibers, and serves as an energy source for muscle contraction. It works to increase strength, peak force and peak power when performing multiple sets of maximal-effort muscle contractions. Therefore, it is likely more effective for off-season weight training than for any specific sport or event. Creatine use is relatively safe, but there are risks of dehydration, muscle cramps and blood clots associated with its use.

Amino acids and protein powders are very popular and marketed as “muscle building” products. While there may be some benefits to the use of these products, amino acids and proteins are present in a variety of meats and other foods for much less cost.

2. Legal only when prescribed by a physician, illegal to possess without prescription, can have a positive effect upon athletic performance, banned for competition by NCAA, USADA and WADA.

- a. Anabolic Androgenic Steroids (AAS)
- b. AAS prohormones
- c. Human Growth Hormone (hGH)
- d. Stimulants (examples: Ritalin, Adderall)

The most commonly known category of APEDS is anabolic-androgenic steroids (AAS). The anabolic effect is what causes an increase in muscle tissue, whereas the androgenic effect leads to masculinization, the secondary sex characteristics that males experience during puberty. These steroids are very different from corticosteroids, which are used to treat inflammation in a joint, such as with a cortisone injection, or to treat illnesses like asthma. A prohormone is a precursor to the active hormone, and becomes converted to its active form once taken into the body. Prohormones are also included in the anabolic-androgenic category. AAS and AAS prohormones work by enhancing protein synthesis and decreasing the breakdown of muscle. The net result is an increase in muscle size, muscle strength and lean muscle mass along with a decrease in body fat.

Muscle-building steroids do work, but their use comes at a high cost. First, it is illegal to possess and use these drugs without a prescription. From a side effect standpoint, AAS use during adolescence can cause premature closure of the bones’ growth plates, leading to decreased final adult height. Acne, male pattern baldness, hypogonadism (shrinking of the testicles), gynecomastia (male breast overdevelopment) and violent behavior changes are all common side effects. There are also life-threatening side effects including cardiovascular disease, arrhythmias, blood clots, stroke, cancer and increased risk of suicide.

For more than a decade, the use of human growth hormone (hGH) by professional athletes has been in the spotlight. hGH promotes growth throughout childhood and adolescence, and is also involved in the regulation of multiple other hormones, such as insulin. Studies have shown that the use of hGH can decrease fat mass and increase lean body mass. However, there is limited evidence that its use improves athletic per-

formance. Because it is normally a very important hormone in the regulation of other hormones and multiple body processes, the use of hGH can lead to multiple side effects, including altered fluid balance in the body, cardiovascular disease, diabetes and cancer.

Stimulants are a category of APEDS that have been used for centuries as a performance enhancer. We have already discussed caffeine, the most commonly used stimulant. Stimulants may enhance performance by improving reaction time and increasing alertness, decreasing fatigue, and improving concentration and memory. Side effects from the use of stimulants range from relatively mild effects to the dangerous, including inability to sleep, anxiety, tremors, panic attacks, tachycardia (a rapid heart rate > 100), hypertension, psychosis, heart attacks and stroke. Some stimulants can also predispose an athlete to heat illness and death. Ephedrine was banned by the FDA in 2004 for use as a diet aid because of the increased risk of stroke and heart attack.

Who is using APEDS?

The use of APEDS in high school students ranges from 3% admitting the use of AAS, to almost 40% reporting a history of protein supplement use. Eighteen percent of APEDS users in high school do not participate in sports, so it is considered that this group uses APEDS for appearance enhancement (weight loss or gain, body building). Girls report a higher use of nonprescription diet pills (considered stimulants) than boys, and a lower use of substances associated with gains in muscle mass and strength, such as AAS, prohormones, and creatine.

Why is the use of APEDS an issue?

The use of illegal or banned APEDS by high school student-athletes is unfair, unethical and is considered a form of cheating. In addition, many of the products used as APEDS are not tested or regulated, and have been found to contain significant contamination with heavy metals, AAS and/or stimulants. Their use undermines the values of fair play, and can be a threat to the overall health and well-being of high school students.

The use of caffeine, creatine and amino acids/protein powders should not be taken lightly, and the student-athlete should first discuss their proper use with a knowledgeable health-care provider and only use as directed. As discussed earlier, the true purity of the product and potential for contamination must also be a consideration when deciding to use this category of APEDS.

Preventing students from using illegal or banned APEDS

Education about APEDS and their use is the hallmark to any prevention program. Despite advances in APEDS detection, random testing does not appear to be an effective deterrent to the use of APEDS. The following are key educational points to prevent the use of APEDS:

- School personnel, coaches, parents and other family members can reduce APEDS abuse by educating student-athletes and speaking out against such use.
- Talk with your student-athletes about their concerns and frustrations related to how they look or how they are performing in their sport. Help them establish and reinforce healthy and realistic expectations of their bodies and athletic performance.
- Have your student-athletes focus on proper nutrition and hydration. If possible, have your athletes work with a registered dietitian to develop a plan for appropriate weight gain and/or weight loss.
- Help your student-athletes understand that using illegal and banned APEDS is unfair, unethical and likely dangerous.
- Emphasize to your student-athletes that they should not trust internet marketing messages about quick fixes and enticing gains in athletic appearance or performance. Explain that the photos in these sites and in muscle magazines depict unrealistic pictures of bodies.
- Discourage your student-athletes' access to environments where APEDS use might occur and to people who are involved with APEDS.
- Consider initiating a formal APEDS education program to educate your students and athletes and to deter APEDS use, such as the ATLAS and ATHENA programs.

References/Resources:

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American College of Sports Medicine. ACSM's Position Stand, "The Use of Anabolic-Androgenic Steroids in Sports." 1987.
<http://www.acsm-msse.org>.

Anabolic Steroid Control Acts of 1990 (Pub L No. 101-647) and 2004 (Pub L 108-358).

Designer Anabolic Steroid Control Act of 2014 (Pub L No. 113-260)

Maughan RJ. Quality assurance issues in the use of dietary supplements, with special reference to protein supplements. *J Nutr*. 2013;143(11):1843S-1847S

Eisenberg ME, Wall M, Neumark-Sztainer D. Muscle-enhancing behaviors among adolescent girls and boys. *Pediatrics*. 2012;130(6):1019-1026

National Federation of State High School Associations. <http://www.nfhs.org>.

Taylor Hooton Foundation, <http://www.taylorhooton.org>.

ATLAS and ATHENA Health Promotion and Substance Abuse Prevention. Available at: <https://www.ohsu.edu/ortho/high-school-athlete-program>

The National Center for Drug Free Sport, Inc. <http://www.drugfreesport.com>.

United States Anti-Doping Agency. 2017, <http://www.usada.org/>

IV. DRUGS IN SPORTS

The implications and ramifications of drugs, even in the high school setting, much less society in general, are very large and difficult. Risks of drugs and their side effects such as the medical, psychological and addicting concerns. There is the effect on athletic performance, not only increasing athletic performance but also increasing the risk of injuries and decreasing performance.

Coaches may find themselves facing issues with athlete use of alcohol and tobacco use as well as marijuana, opioids and cocaine, stimulants, anabolic steroids and many others.

An understanding of the background of drugs and some of the major side effects and warning signs should be understood by all. Drugs can be broken down into three groups: 1) therapeutic; 2) ergogenic; and 3) recreational.

Therapeutic

Therapeutic drugs are those that are used for a medical reason so that the individual may perform at the athlete's normal ability or level. They are not used to enhance performance or to get a false high or "feeling good" attitude.

Ergogenic

Ergogenic drugs, as prior discussed, are ones that are used to obtain improved athletic performance. They have no therapeutic value in their own right.

Recreational Drugs

Recreational drugs are those that are used to relax, escape or to create a false impression of euphoria. There is no specific goal to improve performance but just to "feel better". This group would include alcohol, marijuana, misuse of opioid pain medication, cocaine, cigarettes, chewing tobacco and stimulant use without a prescription. Use of recreational drugs is illegal and can lead to poor athletic and academic performance. There is great risk to the athlete who uses these drugs as well as to others.

The WIAA has taken a stand and has instituted penalties for the use of these drugs. Individual high schools have often increased the penalties for the use of these drugs over what the WIAA has recommended and this should be complemented. Every high school athlete who has a problem with these drugs should be counseled and a clear process outlined by which they can re-enter athletic competition. Sports can be a route to allow the athlete to break a drug habit that they may have acquired, but at the same time a penalty must be clearly stated and enforced so that they know the rules and the limits ahead of time. Coaches, administrators, and the WIAA working together can work for a safer environment for all athletes in the area of drug use and misuse. Coaches have a unique relationship with athletes during an impressionable time in the athlete's life. Coaches spend many hours with athletes and should know signs of drug use.

When you talk to your players and students about the dangers of drugs, the message is more effective because "Coach" is behind those words.

Every coach should familiarize themselves with early signs and symptoms so they can be available to help the young athlete deal with their problem.

Change is key: It is important to watch for any significant changes in an athlete's physical appearance, personality, attitude or behavior.

Though not inclusive, below are some examples of changes coaches may observe.

Physical Signs May Include

- Changes in eating habits, unexplained weight loss or gain.
- Change in sleep patterns - increased or decreased
- Shaking hands, cold sweaty palms
- Excessive talking/hyperactivity
- Loss of energy

Behavioral Signs may include

- Changes in friends
- Drop in grades, poor concentration
- Lack of motivation
- Moodiness, Short tempered
- Lying

V. WIAA POSITION STATEMENT – CBD (CANNABIDIOL)

Position Statement

The WIAA has banned the use of Cannabidiol (CBD) Products and the products are only allowed and to be used with a prescription from a licensed health care professional.

Rationale and Safety

Cannabidiol (CBD) is marketed towards athletes for recovery and pain relief among other reasons. It may be sold in many forms, including oils, protein powders, capsules, lotions, creams, gels, extracts, and gummies. The U.S. Food and Drug Administration indicates that CBD products could cause potential harm or side effects. Potential side effects include change in alertness, gastrointestinal distress, and changes in mood. At this time the FDA has approved only one prescription CBD product for two rare, severe forms of epilepsy.

The safety and purity of CBD products is unknown. Research shows that CBD products may contain varying levels of tetrahydrocannabinol (THC), which may not be clearly known or indicated on the packaging. This is concerning for our student- athletes as one cannot be certain that a product does not contain THC. THC is classified as a banned substance by WIAA. Any substance chemically related to a banned or discouraged ingredient is also banned or discouraged

References/Resources

For a Copy of the WIAA Performance Enhancing and Banned Supplements

<https://www.wiaawi.org/Portals/0/PDF/Health/performanceenhancers.pdf>

FDA: <https://www.fda.gov/consumers/consumer-updates/what-you-need-know-and-what-were-working-find-out-about-products-containing-cannabis-or-cannabis>

Lachenmeier DW, Habel S, Fischer B, et al. Are side effects of cannabidiol (CBD) products caused by tetrahydrocannabinol (THC) contamination? F1000Res. 2019;8:1394. Published 2019 Aug 8. doi:10.12688/f1000research.19931.2

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7029751/>

VI. MENTAL HEALTH/MENTAL WELLNESS

General Information

Involvement in sports can have a very positive effect on the mental health of high school student-athletes. However, mental illnesses, such as depression, anxiety, and others, occur in student-athletes just like they do in everyone else. Mental illness may not be detected in athletes as easily as in others, though. This is for a number of reasons, including:

1. Athletes may have a tendency to deny signs of “weakness”.
2. Athletes may be afraid of not being allowed to play.
3. Athlete behaviors may resemble symptoms of mental illness, but can be chalked up to being a normal part of being a good athlete. This might include careful attention to diet, which may actually be part of an eating disorder.

How and Why Mental Illness Occurs in Athletes

Mental illness in student-athletes may relate directly to the athlete’s sport, or it may have nothing to do with the sport. There are 3 possible relationships between the student-athlete’s sport and their mental illness:

1. The illness is caused or worsened by the sport (for example, a student-athlete who develops an eating disorder directly related to wanting to be thin for their sport)
2. The student-athlete chooses the sport as a way to cope with the mental illness (for example, the student-athlete with anxiety who finds that running helps them to feel less anxious)
3. The sport and the mental illness are completely coincidental and have nothing to do with each other

Unique Risk Factors for Mental Illness in Athletes

While student-athletes are probably at similar risk for most mental illnesses compared to the general population, there are several unique factors that may especially put athletes at risk for these conditions. These include:

1. Injuries (including musculoskeletal injuries and concussion)
2. Lack of balance in life (no free time, including time with friends)
3. Pressure of competition
4. Overtraining (training too hard for too long without enough time for recovery)
5. Failure in sport
6. Harassment and discrimination related to personal characteristics such as race/ethnicity or sexual orientation
7. Coaching styles that do not match up with how the student-athlete performs best

Depression

Like most other mental illnesses, depression probably occurs in athletes at the same rate as in the general population. Symptoms of depression include (and note a person does not need ALL of these symptoms in order to have depression):

- Feeling sad, down, hopeless, or tearful on most days
- Feeling irritable on most days (this can be especially common in adolescent depression)
- Not looking forward to or enjoying things that used to make the person happy
- Feeling worthless
- Lower energy than usual
- Worse concentration than usual
- Appetite changes (either much lower or much higher than usual)
- Sleep changes (either trouble falling or staying asleep or sleeping more than usual)
- Thoughts of death or dying, including suicidal thoughts

On rare occasion, someone who has times of feeling depressed may have a condition called bipolar disorder. This is a disorder in which they not only may have times of depression, but they also have times of abnormally elevated mood (called mania or hypomania). In mania or hypomania, they have multiple days or weeks on end of feeling euphoric, not needing very much sleep and still feeling rested and very energetic (this is different than simple insomnia in which they wish they could sleep but can’t), feelings of being better than everyone around them, talking much more quickly than usual, engaging in uncharacteristically risky behaviors without thinking through the consequences, engaging in much more activity than usual, seeming more sexual than usual, and reckless spending of relatively large amounts of money (note a person does not need ALL of these symptoms in order to have mania or hypomania). Importantly, this is not just feeling better than they feel compared to when they are depressed. It is a dramatic state of elevated mood in which people around them notice they are not their usual selves, and the behaviors and symptoms create problems in their lives.

Student-athletes with depression, bipolar disorder, or any number of other psychiatric disorders may be at risk for suicide. High school student-athletes do not appear to be at any greater risk of suicide than their non-athlete peers.

Anxiety

Anxiety may also occur in student-athletes at the same rates as in the general population. Some symptoms of anxiety are similar to those of depression. It is possible that athletes can have both depression and anxiety. Symptoms of anxiety (which may be part of something called generalized anxiety disorder) may include (and note a person does not need ALL of these symptoms in order to have anxiety):

- Worry about many things (for example, sports, school, friends, family, day to day obligations) in a way that feels difficult to control and happening on most days
- Trouble sleeping (especially falling asleep)

- Lower energy than usual
- Worse concentration than usual
- Muscle tension
- Feeling fidgety or restless
- Feeling irritable much of the time

There are also specific types of anxiety that can occur, including:

Social anxiety disorder: This is a condition in which someone has significant fear and anxiety about being negatively judged and evaluated by others. People with this condition may be viewed as extremely shy or unfriendly, but in actuality, these people would like to be able to make friends. They dislike being the center of attention and being observed while doing something, and this can make it hard for some people to participate in certain sports, especially individual sports.

Panic disorder: This is a condition in which someone has sudden, severe attacks of intense anxiety and fear lasting several minutes. They usually involve physical symptoms such as feeling short of breath, feeling one's heart beat hard in the chest, or feeling dizzy. Sometimes the symptoms can feel similar to how people feel when they exercise intensely, and that can make an athlete with panic disorder start to avoid their sport out of fear that exercise will bring on an actual panic attack.

Obsessive-compulsive disorder (OCD): This is a condition in which someone has repeated, unwanted thoughts that come into their mind that they have difficulty controlling (obsessions) and/or physical or mental behaviors that they feel must be performed over and over (compulsions). Examples include intense fear of germs and associated washing of hands over and over, or ordering things "just so" or symmetrically to an extreme degree. OCD is different than superstitious rituals, which are usually harmless. Rituals are common among athletes, and examples include wearing the same pair of socks for every game or eating the same meal before each race. Full-blown OCD may be more common in athletes than in non-athletes.

Post-traumatic stress disorder: This is a condition in which someone has suffered any sort of trauma (for example, physical, verbal, or sexual abuse, assault, major accidents, or illnesses). Associated with that trauma, they have symptoms that may include: nightmares or flashbacks about it, avoidance of anything that reminds them of the trauma, increased startle response, and any of a number of symptoms of depression and anxiety. Traumas unique to athletes may include "out of the ordinary" sport-specific adverse events, such as severe injuries (especially if they involve threats to physical integrity), witnessing of lethal accidents, loss of a crucial game where the athlete feels they are to blame, public cheating scandal, or teammate suicide. The more a student identifies themselves as "athlete" to the exclusion of other sources of identity, the more traumatic a major injury may feel to them.

Treatment and Resources

1. Student-athletes with mental health concerns may reach out to any of a number of people, including coaches, athletic trainers, team physicians, parents, school nurses, school counselors, or others. In emergency situations, such as when someone is suicidal, any of these contacts should ensure the athlete gets emergency treatment, such as in the emergency department. Additionally, student-athletes (and anyone else) in the U.S. may call or text 988 to access the Suicide and Crisis Lifeline, through which they will be able to talk to/message with a trained counselor.
2. For non-emergency issues, student-athletes should be referred to health care providers who are familiar with mental illness if it is suspected that they might be suffering from such a condition. These providers include pediatricians, family medicine physicians, internal medicine physicians, sports medicine physicians, psychiatrists, psychologists, or other counselors/therapists. Early signs that an athlete might be suffering from mental illness include changes in personality, demeanor, interactions with peers, and general behavior.
3. Treatment may include talk therapy (psychotherapy), medications, or changes in the environment. The athlete will usually be allowed to continue to participate in the sport. However, if the sport itself is significantly contributing to the symptoms, then a break from sport may be necessary.
4. The National Federation of State High School Associations (NFHS) has developed a course for student-athletes and anyone responsible for their care and well-being titled "Student Mental Health and Suicide Prevention" that is available here: <https://nfhslearn.com/courses/student-mental-health-and-suicide-prevention>.

VII. HARASSMENT AND ABUSE IN SPORT

Harassment and abuse (non-accidental violence) in sport is a serious problem. All student-athletes have a right to participate in 'safe sport', i.e., an athletic environment that is respectful, equitable, and free from all forms of harassment and abuse of athletes. These issues can represent a blind spot for institutions because of ignorance, silence, or collusion. Athletes at highest risk of harassment and abuse include children, disabled, and LGBT athletes. Types of harassment and abuse in sport are:

- Psychological harassment and abuse: This is at the core of all other forms of harassment and abuse, and it includes belittling, humiliating, shouting, scapegoating, rejecting, isolating, threatening, ignoring, or denying attention and support. Inappropriate normalizing of psychological abuse makes it hard for student-athletes to disclose it and to seek help.
- Sexual harassment and abuse: On average, peer athletes are more often perpetrators than are other members of the athlete circle. Perpetrators commonly seek out opportunities in less supervised environments.
- Neglect: This may include exposure to extreme heat, provision of insufficient hydration during exertion, denial of access to appropriate medical care, and failure to implement sport safety equipment and rules in the training and competition environments.
- Physical abuse and forced physical exertion: Just as with psychological harassment and abuse, there can be inappropriate normalization of this type of abuse.

There are several mechanisms through which harassment and abuse may occur, including:

- Contact mechanisms
- Verbal mechanisms
- Cyber mechanisms
- Bullying (e.g., insults or taunts, refusing to engage with or 'pass the ball/puck' to an athlete, humiliation, social exclusion, threats)

- Hazing (requirement for acceptance into a team, a 'rite of passage' handed down from one sport generation to the next, sometimes in the presence of coaches)

When any student-athlete confides that harassment or abuse is occurring, that individual must be taken seriously. If it appears that there is a possibility that this student is being abused in any way, it must be reported to the proper authorities (e.g., relevant experts in social work, counseling, or medicine, as well as law enforcement if criminal activity directed toward a minor is suspected).

If an athlete shows uncharacteristic anxiety, depression, irritation, or appears frightened in any manner when before they appeared to be a happy student-athlete, it is prudent to ask if there is anything you can do to help.

Our attention should be directed to adequate management for maximum health, well-being, and safety, while permitting active participation when safe to do so.

VIII. STATEMENT ON PHYSICAL CONDITIONING WIAA

The Wisconsin Interscholastic Athletic Association (WIAA) and the Wisconsin Athletic Trainers Association (WATA) have a mutual professional interest in injury prevention programs for student athletes. One of the most effective tools in injury prevention is an effective conditioning and flexibility program. While the WIAA and WATA do not endorse any specific program, we do encourage coaches to continually re-evaluate the program they use for safety, effectiveness, and appropriateness for their sport and the maturity level of their student athletes. If they have any questions regarding conditioning programs they might utilize the expertise of Licensed Athletic Trainers, Physical Therapists, Strength and Conditioning Specialists, or Exercise Physiologists in their area.

IX. OVERUSE INJURIES IN SPORTS

Youth athletes are susceptible to overuse injuries. The spectrum of skeletal maturity in high school athletes opens up different possibilities for injury. Open growth plates can be susceptible to pulling or traction injuries. These injuries occur from repetitive microtrauma to soft tissue or bone. These injuries can account for up to half of all sport related injuries. Multiple factors can contribute to overuse, including those intrinsic to the athlete such as baseline conditioning, strength and flexibility, physical maturity level and prior injury.

Other factors outside of the athlete, or extrinsic factors, can include equipment or training environment problems (such as wrong size or worn out equipment - poor playing surfaces), poor technique, and inadequate recovery.

Overuse injuries are largely preventable by careful development of training programs and progression of activity intensity.

X. UNPAIRED ORGANS

Those organs of most consideration are the kidneys, the eye and the testicles. The risk of injury to these organs is small in sports, but real. All safeguards must be taken if the athlete is allowed to participate. No matter what ruling the sports administrator, coach, or physician makes, the parents can go to the courts and reverse all three decisions the administrator, coach and/or physician.

In the past, the loss of a paired organ routinely resulted in disqualification from contact sports. However, developments in protective equipment have allowed many athletes to participate in some contact sports.

Eye

Eye injuries are not common in high school sports. However, this injury is of great concern because of the seriousness of the loss of any visual acuity or loss of an eye. All steps must be taken to protect the athlete's eyes. Eye injuries are common in basketball, baseball, racquet sports, ice hockey, lacrosse, boxing, soccer and field hockey. The tragedy is the eye cannot be replaced or rehabilitated.

Individuals who have one eye can participate in contact sports if they wear proper eye protection (approved by the American Society of Testing Materials (ASTM)). Wearing facial protection, such as a mask or cage can prevent further injury.

When an athlete's best corrected visual acuity is worse than 20/40 in one eye, they should be required to wear protective eyewear.

Boxing, wrestling, and full-contact martial arts are contraindicated in monocular athletes because no adequate eye protection is available.

Kidney

Individual assessment is recommended for patients who have solitary kidneys. Though contact sports place the remaining kidney at very little risk, participation in contact/collision sports should be individually assessed. People who have disabilities and have sued for the right to participate in contact sports have successfully cited the Federal Rehabilitation Act of 1973, and athletes who previously had been disqualified from participation are now able to compete. Protective equipment such as flak jackets may make limited contact/impact sports very safe.

Testicle

The absence of one testicle and wearing a protective cup enables individuals to participate safely in all sports. If an individual has one testicle, a cup is required for all contact/collision sports and most of limited contact/impact sports.

XI. STAYING HYDRATED FOR TOP PERFORMANCE

Water is second only to air in its importance to our survival. Our bodies are 60-70% water by weight. Much of this fluid weight comes from the muscles (70% water) and the blood – both of which are critical to optimal athletic performance. **Dehydration compromises muscular endurance and strength.** Dehydration also decreases blood volume which can decrease athletic performance and increase the risk for heat illness (heat cramps, heat exhaustion, or heat stroke).

PASSING THE HYDRATION TEST FOR SKINFOLD MEASUREMENTS: The purpose of the hydration test is to help assure that each wrestler's weight taken at the time of skinfold measurements is an accurate weight from which a minimum weight can be established. Below are some guidelines that can help you prepare for the hydration test. But staying hydrated means more than passing the hydration test. It is an important step in making sure you perform your best in your sport.

The key to staying well hydrated is to drink plenty of non-caffeinated beverages throughout the day, and to replace fluid loss incurred while working out. On a daily basis, this will help you feel stronger and last longer at practice and matches. It will help you pass the hydration test before your skinfold measurements are taken.

Below are some guidelines for student-athletes

- Drink 8 to 10 cups (8 ounces) of water, milk, juices, sport drink, or non-caffeinated beverages each day.

- Drink another 6-12 oz. every 15-20 minutes while you work out. If you have a 2-hour football practice, that means an additional 8 cups of fluids. Student-athletes who sweat heavily or are in a hot environment may need to drink 6 to 8 cups of non-caffeinated beverages for each hour they work out.
- Make sure you are well hydrated the day before games, matches and your hydration test. Drink until your urine is a pale yellow and almost odorless. Dark colored urine usually means you are dehydrated. Drink 4 to 5 glasses of non-caffeinated fluids the night before, then drink as recommended above, the day of your match or hydration test.
- 2 hours before the game, match or hydration test, drink 16 to 24 ounces of water or non-caffeinated beverage. The 2- hour time frame will allow the body to clear excess fluid from the body. Being dehydrated, then drinking immediately prior to an athletic contest or the hydration test will do little to help improve performance or pass the hydration test.
- Re-hydrate after practice/exercise; Monitor weight before/after practice. Drink 24 ounces fluids for every pound lost in sweat. Aim for replacing 80% of lost water weight before the next workout.
- These tips stress avoiding caffeine, because caffeine is a diuretic. That means it increases urine production. Increased urine production means you are losing extra fluids, essential for top performance and will likely become dehydrated. Caffeine is a common ingredient in some sodas, coffee beverages and some teas. Chocolate and some pain relievers may also contain caffeine. Additionally, carbonated beverages will also contribute to the sensation of "feeling full" or bloated. This sensation may be counter-productive as it will likely diminish the thirst drive.

XII. SUN EXPOSURE

Organizers of outside athletic events should realize that excessive sun exposure is harmful to the skin, producing acute changes of sunburn and long-term chronic changes in the skin including increased risk for skin cancer and accelerated aging. Therefore, appropriate facilities should be made available for the participants in outdoor events to be able to get out of the direct sun rays. Similarly, participants should be encouraged to use a sunscreen with a sun protective factor (SPF) of at least 15 or 30. Ideally, these products should be made available for contestants. If allowed and/or safe, wearing sunglasses or protective eyewear can be helpful.

XIII. DERMATOLOGIC CONDITIONS AND INFECTIONS

Contagious skin diseases and the potential transmission from one person to another are a legitimate concern in any setting in society where there is close personal contact. Sports are no exception.

- Skin infections are common among high school student-athletes and may be caused by bacterial, fungal or viral infections.
- Skin conditions are of particular concern in wrestling due to the nature of the sport.
- Most skin infections are the result of direct skin-to-skin contact.
- Skin infections may also be due to the sharing of contaminated equipment, towels, razors, as well as poor hygiene.
- Adhering to recommended procedures for prevention and treatment can decrease the transmission of skin infections.

SIGNIFICANCE

Skin conditions and infections are common in adolescents, some can be rapidly transmitted, affecting teammates and opponents, and ultimately affecting ability to continue participation. In addition, some skin disorders such as Herpes Gladiatorum may have profound lifelong consequences, while others such as Methicillin-Resistant Staphylococcus aureus (MRSA) can result in serious illness and the need for hospitalization or surgery.

RECOGNITION AND MANAGEMENT

Due to the variety of skin disorders, transmission to others, and potential serious consequences of untreated skin infections, every new skin lesion should be evaluated by an appropriate health care professional. The student-athlete should be held from physical contact in practices and not permitted to participate in games or matches until the skin lesion is determined to be non-infectious. It is important to note that when medical treatment is initiated, such as the prescribing of oral antibiotics, the skin disease may still be transmissible, until the guidelines outlining that a lesion is "non-contagious" are met. Potentially infectious lesions can be covered to allow for participation in all sports EXCEPT wrestling.

The sport of wrestling has a high level of direct skin-to-skin contact; thus, guidelines for this sport differ in the fact that wrestling requires specific medical clearance prior to competition (<http://www.wiaawi.org/Portals/0/PDF/Sports/Wrestling/wrestrelease.pdf>). Skin lesions cannot be covered to allow for participation in the sport of wrestling.

The WIAA Sports Advisory Committee has developed guidelines for common skin conditions encountered in sports. Treatment guidelines that include minimum treatment before returning to wrestling are included. In addition, an educational video of common skin disorders, photos, optimal treatment, and guidelines for return to participation is available for review ([WIAA Skin Infections](#)). The guidelines follow the principles of Universal Precautions (see Blood-Borne Pathogens) and are intended to protect all student-athletes, coaches, officials, and health care providers in situations where skin-to-skin contact may occur.

However, there are other diseases that everyone should be aware of and take precautions against. Hepatitis and AIDS are two such diseases. The WIAA office receives frequent inquiries about HIV/AIDS and hepatitis and the possible spread of these infections. HIPAA laws and regulations prevent knowledge about individuals who are positive for these infections from being shared with the WIAA, athletic directors, coaches, or parents. It is expected and assumed that all medical care providers educate the patient in detail about the risk of spreading these infections, especially regarding close contact sports. While the risk of spreading HIV/AIDS in athletics is low, all blood/fluids should be always handled with appropriate care and proper procedures.

1. All individuals dealing with situations that yield a potential exposure to body fluids (blood, vomit, saliva, etc.) should wear latex-free gloves when in contact with body fluids. Gloves and any other products utilized should be properly disposed of in red Biohazard Infectious waste bags as directed.
2. Do not use a common towel for athletes and/or when wiping up floors, mats or equipment. Clean individual towels or disposable paper should be used for each situation. To clean blood off affected surfaces, a disinfectant solution of bleach and water (1/100 mix) can be utilized.
3. An adult from the host school must be on hand to wipe floors, mats or equipment exposed to body fluids. Officials are not obligated to do this!
4. Red biohazard bags should be available at every contest.

The above items are basic infection control procedures that should be universally followed by all involved in sports.

BACTERIAL DISEASES

Impetigo, Folliculitis, Carbuncles, and Furuncles

While these infections may be secondary to a variety of bacteria, methicillin-resistant *Staphylococcus aureus* (MRSA) infections are of greatest concern. Though skin infections, including MRSA, are commonly reported in sports with significant physical contact such as wrestling, football, and rugby, MRSA has been reported in almost every sport. Even without significant physical contact, MRSA may spread before or after participation, such as in locker rooms. If a skin infection is suspected, the student-athlete should be removed from practices and competition and evaluated by a health care professional. Treatment may consist of incision and drainage with or without oral antibiotics. Return to contact practices and competition may occur after 72 hours of treatment, providing the infection is not actively draining and there are no new skin lesions.

All lesions are considered infectious until each one has a well-adherent scab without any drainage or weeping fluids. Once a lesion is no longer considered infectious, the lesion should be covered with a protective material (bio-occlusive dressing) until complete resolution. Covering of skin lesions is not permitted in the sport of wrestling.

All team members should be carefully screened for similar skin infections daily by a knowledgeable coach or appropriate health care professional. If multiple student-athletes are infected, consideration should be given to consultation with the local health department for further guidance.

MRSA in Sports

MRSA skin infections outbreaks are increasing in frequency. Additional guidelines to minimize its spread and preventive measures to reduce occurrence are outlined below. **The guidelines below should be observed to assist in the prevention of all contagious dermatological disorders:**

- Student-athletes should shower after each practice or competition.
- Wash all personal clothing and uniforms after practice or competition.
- Clean and disinfect all equipment that is in direct contact with a student-athlete's skin on a daily basis.
- Wash personal gear (knee pads and braces) weekly.
- Use liquid soap, not bar soap.
- Refrain from whole body (chest, arms, abdomen) cosmetic shaving.
- Do not share towels or personal hygiene products, such as razors.
- Notify coaches and/or sports medical staff about any skin lesions and seek evaluation by a health care provider before returning to practice or competition.
- Shower before using whirlpools or hot tubs and any student-athlete who has open sores, scratches, or scrapes should not use hot tubs, whirlpools, etc.

FUNGAL DISEASES

Ringworm (Tinea corporis)

These fungal lesions are caused by dermatophytes. As they are easily transmissible, the student-athlete should be treated with oral or topical antifungal medications and the lesions covered with a protective material (bio-occlusive dressing). In sports where there is skin-to-skin contact, if the skin lesion cannot be covered with a prescribed dressing or clothing, the athlete should be held from competition and practices until the lesion is no longer infectious.

For wrestlers, antifungal medications must be used for 72 hours before returning to competition. Fungal scalp infections (Tinea capitis) are more difficult to treat and require 14 days of oral antifungal medication before returning to practice and competition.

VIRAL INFECTIONS

Herpes Gladiatorum

This skin infection, specific to wrestling, is caused by the Herpes Simplex Type 1 virus (HSV-1). The spread of this virus is skin-to-skin with most of the outbreaks developing on the head, face, and neck.

- Primary Outbreak:

The initial outbreak is typically characterized by a raised rash coalesced into groupings of six to ten vesicles. The skin findings are often accompanied by sore throat, fever, malaise and swollen cervical lymph nodes. The infected student-athlete should be removed from all contact and treated with antiviral medication. An infected student-athlete may return to contact only after all lesions are healed with adherent scabs, no new vesicles have formed, and no swollen lymph nodes are palpable near the infected site. In addition, primary outbreaks of Herpes Gladiatorum require a minimum of 10 days of oral antiviral medications before return to practice and competition is permitted. The student-athlete's health care provider may consider prescribing oral antiviral medications for the remainder of the season and each subsequent season to prevent further outbreaks.

- Recurrent Outbreak:

Recurrent outbreaks usually involve a smaller area of skin, milder systemic illness, and shorter duration of symptoms. Treatment should include oral antiviral medications and the student-athlete is not allowed to practice or compete until completion of a minimum of 5 days of oral antiviral therapy and no swollen lymph nodes near the affected area.

If antiviral medications are not used, the infected student-athlete may return to contact only after all lesions are well-healed with well-adhered scab formation, no new vesicles have formed, and no swollen lymph nodes near the infected area.

Use of antiviral medication for prevention is only at the discretion of your health care provider who can explain the potential risks and benefits.

Student-athletes who contract Herpes Gladiatorum may experience life-long reoccurrences and potential spread to other individuals, such as partners or children.

It is important to continue to promote education and awareness of this virus. Affected student-athletes should work closely with their health care provider to determine the optimal treatment of any outbreak and means of reducing the spread of the virus. It is recommended that coaches and school sports medical staff continue to emphasize routine skin checks at practices, encourage proper hygiene, and not allow a student-athlete to practice or compete with any suspicious skin lesion.

Shingles, Cold Sores

These are viral infections that are transmitted by skin-to-skin contact. Lesions on exposed areas of skin that are not covered by clothing, uniform or equipment require the student-athlete to be withdrawn from any sport that may result in direct skin-to-skin contact with another participant. Covering infectious lesions with an occlusive dressing is not sufficient or acceptable. Primary outbreaks of shingles and cold sores require at least 10 days of oral antiviral medications, while recurrent outbreaks require 5 days of treatment before return to practice or competition is permitted. A student-athlete is considered "non-contagious" when all lesions are scabbed over with no weeping/discharge, and no new lesions have occurred in the preceding 72 hours.

Molluscum Contagiosum

Molluscum contagiosum is another viral infection which can be spread through direct skin-to-skin contact and/or sharing of towels. It is usually self-limited in healthy individuals. Prompt treatment to prevent transmission should be directed by the student athlete's health care provider. These lesions should be covered if prone to bleeding when scratched.

Verrucae (warts)

Warts are skin infections also caused by viruses but are not considered highly contagious. These lesions require no treatment or restrictions from practice or competition. Lesions should be covered if prone to bleeding when abraded.

Herpes Simplex Virus Types 1 and 2

HSV-1 mostly spreads by oral contact and causes infections in or around the mouth (oral herpes or cold sores). It is mainly transmitted via contact with the virus in sores, saliva, or surfaces in or around the mouth. It can also cause genital herpes.

HSV-2 spreads by sexual contact and causes genital herpes.

Both HSV-1 and HSV-2 are most contagious when sores are present but can also be transmitted when no symptoms are felt or visible.

XIV. KEEPING THE MATS CLEAN

Cleaning and keeping wrestling and gymnastics mats sanitary has been a long standing concern for coaches. With the growing concern regarding mat usage and cleanliness South Milwaukee High School under the direction of Head Wrestling Coach, Dave Van Duser, has developed the following procedure for addressing this problem. This procedure has been used for a number of years and has been very successful in stopping skin problems.

First, we have our own mat washing equipment that is not used by anyone else. The mats are swept before practice and washed with Matt-Kleen, sold by Cramer. Towels are placed by the edge of the mat so that every wrestler wipes his feet before stepping on the mat. The bucket and mop is kept at hand during practice in case of bleeding that needs to be wiped up. The proper solution to use is one part bleach to 100 parts water. This solution must be prepared daily. After practice the mats are also swept and washed to prepare them for recreational use in the evening. This practice is followed each time the mats are used. Our practice mats are used for wrestling, gymnastics, physical education, and recreation. Due to the multiple use, the district has hired three wrestlers to wash the mats following wrestling practice to prepare them for later use in the day. Prior to practice the managers are responsible for the cleaning.

In addition to the above, each wrestler is given by the coach a small amount of physoderm to use when showering. The wrestlers are told to be sure to wash any acne, mat burns, or small cuts very carefully with this soap. We also try to have each wrestler bring a clean change of personal gear each day. This, of course, is the most difficult part of the cleaning task.

In following this procedure we have virtually eliminated the skin problems that so often are associated with mat related activities.

State Association Regulations (Wrestling Season Regulations – updated annually)

a. With regard to contagious skin conditions:

- (1) It shall be considered unsportsmanlike to attempt to conceal a contagious skin condition. Any wrestler involved in such attempts shall not be allowed to wrestle that day. In addition, it could result in loss of eligibility of the wrestler and/or disciplinary action being taken against the coach.
- (2) The on-mat official for varsity competition shall make the final determination relative to skin condition concerns for varsity matches.
The on-mat official for sub-varsity competition shall make the final determination relative to skin condition concerns for sub-varsity matches.
- (3) Covering a communicable skin condition is not acceptable and does not make the wrestler eligible to participate. An on-site meet physician may override the diagnosis of the physician signing the physician's release form for a wrestler to participate with a particular skin condition.
NF 4-3-3 and 4-3-4.

XV. WEIGHT LOSS CAN BE DANGEROUS

The Medical Advisory Committee of the WIAA is concerned about weight loss methods used by many student-athletes, especially wrestlers.

Some of the methods used are dangerous to the student-athlete's health and detrimental to their performance.

Abusive weight loss methods, which include starvation, severe calorie restrictions, and multiple methods of dehydration, are threatening the health of those who try them. These methods may also affect the future growth potential in a maturing young student-athlete.

Sports physiologists and physicians have shown that severe calorie-restricted diets cause medical problems. When a low number of calories are consumed daily, the body turns to its storage calories to meet its energy needs. Student-athletes end up destroying the very tissue (muscle protein) by starving what they need in order to perform well.

It has also been shown that in a starvation diet, both cardiovascular and work load performance decrease quickly. The diet affects the central nervous system if combined with dehydration in a short period of time. Mental fatigue, physical fatigue, poor concentration, and irritability can result.

Student-athletes rationalize that they can eat just before competing and replace the calories that they need. This method is not effective. Only regular food intake can lead to peak performance.

Student-athletes may also try to lose weight by dehydrating themselves. They wear rubber sweat suits (which increases sweating), spit more,

and take little, if any, fluids on the day before or day of the event. Controlled studies have proven that as little as a 2% loss of body fluids (water) can cause a measurable loss in performance. Combined with poor caloric intake, this can have a devastating effect. Starvation and fluid restrictions are dangerous and, if done together, have an additive effect.

A weight loss program should include the following guidelines and goals:

1. Plan to lose the weight over a reasonable period of time; weeks, not days.
2. Don't lose more than 2 pounds per week unless under the direct supervision of a physician.
3. Set a realistic goal on how much weight to lose based on your best performance weight and 7% body fat.
4. Lose weight by diet control and increased exercise output.
5. Eat three balanced meals per day so that there are calories constantly available for conditioning and for training.
6. Monitor your weight loss program and re-evaluate with the advice of your doctor, athletic trainer, coach, and sports dietitian.

Weight loss could be safe and helpful to the student-athlete when done with adequate supervision. Poor planning and unrealistic goals can be dangerous to the health of the athlete. It should be remembered that poor performance on the athletic field, or in the classroom, can often be due to too few calories, or too little water taken in. Student-athletes perform on what they take in on a daily basis and, if they take in little or nothing, they will perform in the same manner.

Note: State Association Regulations Regarding the Practice of Dehydrating

STATE ASSOCIATION REGULATIONS (Wrestling Season Regulations – updated annually)

- a. With regard to the practice of dehydration:
 - (1) The use of laxatives, emetics, excessive food and fluid restriction, self-induced vomiting, hot rooms (exceeding 75 degrees), hot boxes, saunas, and steam rooms is prohibited.
 - (2) The use of diuretics at any time is prohibited.
 - (3) Regardless of purpose, the use of vapor-impermeable suits (e.g., rubber or rubberized nylon) is prohibited. Violators shall be disqualified from the competition for which the weigh-in is intended. A second violation will result in suspension for the remainder of the season.

XVI. MEDICAL CONDITIONS AND DISEASE EFFECTS ON SPORTS PARTICIPATION

When discussing medical illnesses or diseases in athletes, we must always look at the benefits of participation in sport against any possible risk to the athlete. This evaluation should include the physical demands of the sport, the amount of contact and collision, and psychological factors, such as the loss of the competitive experience and loss of friendships as a result of participation limitations. The parents, athlete, and physician have a responsibility to educate the coaches, athletic trainers, and athletic directors about key medical conditions which could affect an athlete's ability to play. Our ultimate goal is to encourage sports participation, and all of its associated benefits, in a safe manner and within the limitations of medical illness.

The medical conditions discussed in subsequent sections represent some of the more common diseases that may be encountered by coaches, but this is not meant to be all-inclusive. We hope that this information will serve as a starting point for further education and allow for a better understanding of the athlete and his/her medical condition. As a reminder, these are general guidelines, and it is important to consider each athlete's case individually.

Preparticipation Physical Evaluation

The preparticipation physical evaluation (PPE) serves as a screening tool for athletes to identify underlying medical conditions which may affect sports participation clearance and promote health and safety.

The PPE is required for athletes every 1-2 years and must be performed by a physician, physician's assistant (PA), or advanced practice nurse practitioner (APNP). Ideally, the PPE is conducted by the athlete's primary care provider (PCP). If the PPE is performed after April 1, it is valid for the following two school years. If the PPE is performed before April 1, it is only valid for the remainder of that school year and the following school year. However, especially for athletes with chronic medical conditions, it is advised that they be seen by their PCP annually.

Athletes should be encouraged to schedule PPE in the spring to allow ample time for specialist follow up and/or advanced workup to be pursued, if needed, prior to the start of practices for fall sports. The PPE can then also be used for summer sports and recreational camps.

The PPE should include:

- Medical History
 - Include screening questions about high-risk behaviors like drug, alcohol and steroid use, and high-risk sexual activity
- Vision Screen
- Vital Signs
- General Appearance
- Head, Eyes, Ears, Nose, and Throat Examination
- Heart and Lung Examination
- Dermatologic Examination
- Abdominal/GU Examination
- Musculoskeletal Examination
- Neurologic Examination
- Evaluation for Stigmata of Marfan's Syndrome
- Clearance for Participation
 - **Full clearance/participation:** there are no identified risk factors or problems in the athlete

- **Clearance with recommendations for further evaluation or treatment:** there is a problem that does not pose an immediate threat to the athlete's safety (such as rechecking a mildly elevated blood pressure)
- **Not cleared:** there is a condition that makes participation dangerous for an athlete (such as identification of a new heart murmur which requires cardiology workup)
- **Not cleared for certain sports or activities:** there is a condition which allows participation in some activities because they do not pose a significant risk to the athlete's health (such as a functionally one-eyed athlete being withheld from sports involving intentional injury like boxing, full-contact martial arts, and wrestling)

Contraindications to Sports Participation

There are several underlying medical conditions which may be identified during the PPE that preclude participation and prompt further workup. However, it is also important to be aware of several acute medical conditions which may not be present at the time of PPE but are absolute contraindications to athlete participation, at least temporarily, and may warrant physician consultation prior to return to play. These conditions include but are not limited to:

- Myocarditis due to increased risk of sudden cardiac death
- History of recent concussion with persistent post-concussive symptoms
- Acute splenic enlargement or recent mononucleosis infection (within initial 21 days) due to increased risk of splenic rupture
- Symptomatic or persistent fevers due to increased risk of heat-related disorders
- Significant vomiting and/or diarrhea due to increased risk of dehydration
- Severe hypo- or hyperglycemia (blood glucose <70 or >250 with symptoms) – Please refer to diabetes section for more detailed information

Seizure Disorder

A seizure is abnormal electrical activity in the brain that causes sudden, involuntary movements of part or all of the body. The underlying cause of seizures is usually unknown, but they can be caused by an acute cause such as metabolic derangement, head trauma, significant sleep deprivation, infection, substance use, structural lesion, and autoimmune condition. Patients who have recurrent unprovoked seizures may be diagnosed with epilepsy. After a seizure, a patient may enter a post-ictal phase, characterized by fatigue and confusion, for minutes to hours.

The young athlete with a seizure disorder, who is on medication and whose seizures are under control, should be allowed to compete. This competition can be at all levels, and in most circumstances, in all sports. In fact, regular exercise and athletic activity can improve seizure control. Sports such as aviation, surfing, climbing, windsurfing, diving, ski jumping, horse racing, scuba diving, motor sports, rodeo, parachuting, and other similar sports do pose a high risk to the athlete with seizure disorder and, in some cases, to others. However, even some of these sports are permitted after 12 months being seizure-free.

If an athlete has a seizure during athletic activity, consider the following steps:

- Cushion the head and loosen any tightfitting clothing around the neck
- Clear the surrounding area of potential hazards
- Turn the athlete on his/her side to avoid aspiration
- Activate the Emergency Medical System
- Monitor breathing status and airway, and start CPR if needed

It is important to be aware of athletes' seizure triggers and warning signs as well as medication regimens. The most common trigger is failure to take medication as prescribed. Any athlete who has a seizure should be evaluated by a health-care professional and receive clearance before return to sport.

Diabetes

Diabetes mellitus is a group of metabolic disorders which results in high blood sugar. It can be divided into Type 1 (insulin-dependent because the body does not produce insulin) and Type 2 (non-insulin-dependent because the body does not use insulin appropriately). Symptoms of both types include frequent urination, increased thirst, and increased hunger. Generalized management of Type 1 diabetes involves insulin administration, whereas that of Type 2 involves diet, exercise, and medications. If diabetes is not properly managed, an individual can experience serious long-term medical complications.

If well-controlled, diabetes should not prevent individuals from participating in sports; exercise has many benefits for diabetics. However, appropriate diabetes management requires a high level of responsibility from the athlete as blood sugar can vary depending on activity. Athletes must be aware of the following principles for maintaining normal blood sugars:

- Regular blood sugar monitoring
- Caloric intake pre-, post-, and during exercise
- Fluid intake
- Medication management

A rule of thumb is to ingest 40g of carbohydrate for every 30 minutes of intense exercise. 1 hour before starting exercise, an athlete should eat a small snack. 30 minutes prior to exercise, the athlete should check their blood sugar and adjust as follows:

- Blood glucose <130 = eat 2 exchanges*
- Blood glucose 130-180 = eat 1 exchange*
- Blood glucose 180-240 = no additional food needed
- Blood glucose >240 = do not exercise

*1 exchange = 12 grams of carbohydrate, 8 grams of protein, and 0 to 3 grams of fat [90 calories])

Athletes should also check their blood sugar for every hour x 4 hours after exercise.

Athletes should reduce their insulin dose by 20% to 50% prior to prolonged (multi-hour) exercise. If they have an insulin pump, the following recommendations apply:

- Reduce basal rate by 50% 1 hour prior to exercise.
- Remove pump for swimming or contact/collision sports
 - Activity <1 hour, stop 30 min prior
 - Activity >1 hour, decrease basal rate by 50% 1 hour prior to exercise; discontinue for the activity; give 50% of basal rate as injection each hour during exercise

Of note, while coaches should not be expected to control the athlete's insulin, they should have a good understanding of the signs, symptoms, and treatment of hypoglycemia and hyperglycemia.

Signs, symptoms, and treatment of hypoglycemia:

- Mild hypoglycemia (glucose <70 mg/dL) = headache, dizziness, hunger, high heart rate, palpitations, fatigue, weakness, and/or pre-syncope
 - Treatment: Oral carbohydrate (orange juice, glucose tablets, goo packets)
- Severe hypoglycemia (glucose <70 mg/dL + symptoms) = altered mental status, personality change, aggression, decreased or loss of consciousness, or seizure
 - Do not return to sport same day
 - Treatment: Glucagon 1mg SC or intramuscular

Signs, symptoms, and treatment of hyperglycemia:

- Mild hyperglycemia (glucose >250 mg/dL) = thirst, nausea, fatigue, excessive urination, or psychomotor slowing
 - Treatment: oral fluids and insulin
- Severe hyperglycemia (glucose >250 mg/dL + symptoms) = altered mental status, dehydration, fruity breath, drowsiness, decreased responsiveness
 - Do not return to sport same day
 - Treatment: IV fluids and insulin

If an athlete is found to be hypo- or hyperglycemic, it is recommended that they check their blood sugar every 15 minutes until levels return to ~150-200 AND symptoms resolve. EMS should be activated in cases of severe hypo- or hyperglycemia or if an athlete is not responding to treatment.

Asthma

Asthma is a chronic medical condition characterized by airway inflammation, reactivity/sensitivity, and increased mucus production. People with asthma often have symptoms such as coughing, wheezing, chest tightness, and shortness of breath. There are several triggers including respiratory infection, pollutants, and allergens. One of the most common triggers is exercise; some athletes only have symptoms with exercise (exercise-induced asthma, EIA). Symptoms of EIA typically develop 10 to 15 minutes after a brief period of exercise or about 15 minutes into prolonged exercise. They resolve with rest for 30 to 60 minutes. It is important to recognize signs of an asthma exacerbation and to have knowledge of asthma medications, as uncontrolled asthma can result in death.

There are many medications to treat asthma, most of which are inhaled into the lungs via an inhaler. Some are taken as pills. There are both quick-relief (rescue medications) and long-term control medications. With EIA, first-line therapy involves the use of an albuterol (or similar medication) inhaler 15 minutes before exercise. Treatment for an acute attack is similar and starts with the quick-acting inhaler, which can help relax the airways. It is recommended that athletes utilize a spacer with their inhaler.

How to Use a Metered-Dose Inhaler with a Valved Holding Chamber (Spacer) (American Lung Association, 2022)

1. Shake inhaler 10 seconds.
2. Take the cap off the inhaler and valved holding chamber. Make sure the mouthpiece and valved holding chamber are clean and there is nothing inside the mouthpieces.
3. Put inhaler into the chamber/spacer.
4. Breathe out away from the device.
5. Put chamber mouthpiece in mouth.
6. Press inhaler once and breathe in deep and steadily.
7. Hold your breath for 10 seconds, then breathe out slowly. If you need another puff of medicine, wait 1 minute and repeat steps 4-7.
8. Rinse with water and spit it out.

If symptoms improve quickly, the athlete may return to activity. If the athlete has difficulty walking or talking due to shortness of breath or his/her lips are blue, EMS should be activated. Treatment regimens are unique to the athlete and depend on severity of symptoms. All athletes with asthma should have regular follow up with their physician to assess their symptoms and make changes to their medications if needed. Ultimately, if well-controlled, asthma should not predispose athletes from participating in sport.

Cardiac Conditions

Medical conditions involving the heart should be completely evaluated by physicians before the athlete is allowed to compete; cardiac evaluation is a critical component of the PPE. There are several heart conditions which would prevent an athlete from participating in sport, at least to some extent. It is important for an athlete with an identified heart condition or cardiac abnormality on PPE to pursue further workup and educated decision making with a physician (likely a cardiologist) and to discuss sport-specific recommendations with their medical team.

Sudden cardiac arrest (SCA) is the leading cause of death in young athletes while training or participating in sport competition. SCA occurs most often in basketball and football and in black compared to white athletes. Even athletes who appear healthy and have a normal PPE may have an underlying heart abnormality that could be life-threatening.

Project ADAM (<https://www.projectadam.com/>) is Wisconsin-based program that helps secure funding for AEDs and also provides education and resources for schools to help with cardiac emergencies.

There are several underlying causes of SCA:

- Conditions present at birth
 - Heart Muscle Disease
 - Hypertrophic Cardiomyopathy – thickening of the left ventricle and the most common cause of SCA
 - Arrhythmogenic Right Ventricular Cardiomyopathy – replacement of part of the right ventricle by fat and scar
 - Marfan Syndrome – disorder of the structure of blood vessels that make them prone to rupture
 - Electrical System Disease
 - Long QT Syndrome – abnormality in the electrical system of the heart
 - Catecholaminergic Polymorphic Ventricular Tachycardia and Brugada Syndrome
 - Coronary Artery Abnormalities – abnormality of blood vessels that supply the heart
 - Aortic Valve Abnormalities – failure of the aortic valve (valve between the heart and aorta) to develop properly
 - Wolff-Parkinson-White Syndrome – an extra conducting fiber is present in the heart's electrical system
- Conditions not present at birth
 - Commotio Cordis – disruption of the heart rhythm that can occur from being hit in the chest by a ball, puck, or fist
 - Myocarditis – infection/inflammation of the heart
 - Recreational/Performance-Enhancing Drug Use

Symptoms/warning signs (if present) of underlying heart disease include: palpitations, chest pain with exertion, fainting or near-fainting, shortness of breath, decreased exercise tolerance, disproportionate fatigue compared to other athletes, family history of SCA at age <50. **Any of these symptoms/warning signs that occur while exercising may necessitate further evaluation from your physician before returning to practice or a game.**

SCA should be suspected in any collapsed and unresponsive athlete. It is advisable to have an emergency action plan in place for all sport practice and competition sites that outlines the plan of action in case of the sudden collapse of an athlete. This action plan should be reviewed and practiced with respective school personnel, coaches, on site medical personnel, and local EMS. Basic actions include:

1. Have a cell phone available at all venues
2. Immediately activate EMS and start CPR
3. Apply an AED as soon as possible (goal <3 minutes from collapse to first shock)

Sickle Cell Disease and Trait

Sickle cell disease occurs when there is abnormal inheritance of sickle hemoglobin. It has multiple subtypes based on the pattern of hemoglobin chains. Athletes with sickle cell disease are susceptible to anemia and painful crises. Most individuals with sickle cell disease do not participate in intense physical activity.

Sickle cell trait occurs when there is one abnormal beta chain (HbS) in hemoglobin. It is present in 8% of African Americans and often does not affect exercise capacity unless the athlete is placed in a stressful environment (extreme heat, high altitude, sickness, poorly controlled asthma, dehydration). During intense and/or extensive exercise, the sickle hemoglobin can alter the shape of red blood cells from round to "sickle", and this can be potentially dangerous as the sickle shaped cells accumulate in the blood stream. This sickling can cause the working muscles to be depleted of adequate blood supply.

Collapse from sickling is a medical emergency and EMS should be contacted in the case of collapse. It is recommended that sickle cell trait status be discussed and confirmed during the PPE. All states require neonatal screening but many athletes do not know if they are sickle cell trait positive.

The following guidelines are recommended for athletes with sickle cell trait:

- Build up slowly in training with paced progressions, allowing longer periods of rest and recovery between repetitions
- Encourage participation in preseason strength and conditioning programs to enhance the preparedness of athletes for performance testing, which should be sport specific
- Cessation of activity with onset of symptoms (muscle cramping, pain, swelling, weakness, tenderness, inability to catch breath, fatigue)
- Adjust work/rest cycles for environmental heat stress
- Emphasize hydration
- No workout if an athlete with sickle cell trait is ill

Common Illnesses

Athletes are exposed frequently to a variety of infectious diseases during sport participation as well as in the classroom and through social interactions with peers. The list of possible illnesses is broad but includes the common cold, influenza (flu), gastroenteritis, pharyngitis (sore throat), bronchitis, pneumonia, mononucleosis, meningitis, impetigo, ringworm, herpes gladiatorum, and staph infections.

Upper respiratory infections are arguably the most common illness that athletes will encounter and include the common cold, sore throat, sinusitis, laryngitis (loss of voice), and tonsillitis. Most of these infections are self-limiting and involve symptomatic treatment with rest and fluids. Because the common cold is typically caused by a virus, antibiotics ("z-pack", for example) are not usually most effective for treatment. "Strep throat," however, is caused by group A streptococcus bacteria and needs to be treated with antibiotics due to the risk of developing more dangerous conditions like rheumatic fever and spreading the condition to others.

Influenza can have symptoms similar to the common cold but they are generally more severe and can include fever, body aches, extreme tiredness, and cough. Early use of antiviral agents can minimize complications, especially if started early in the course.

Gastroenteritis is an infection of the intestinal tract which can result in diarrhea and vomiting. It is usually caused by a virus but can be caused by certain bacteria, such as Salmonella, Campylobacter, or E. coli. Bacterial types are typically transmitted through under-cooked foods or foods that have been prepared with inadequate personal hygiene. Treatment includes fluid and electrolyte replacement. If an athlete develops a high fever or blood in their stool, diarrhea lasting at least three days, or inability to drink, then they should present to urgent care.

Prevention is key in managing these common illnesses. It is important to emphasize frequent hand washing, showering after each practice or competition, cleaning clothes/jerseys and equipment, and covering up coughs and sneezes. It is also important to review immunization history with athletes. Immunizations with particular relevance to athletes and universal recommendation include measles, mumps, and rubella (MMR), tetanus, influenza, varicella, meningococcal, hepatitis B, and human papillomavirus (HPV).

Infectious Mononucleosis

Infectious mononucleosis, or Mono as it is commonly called, is a viral infection most-commonly caused by the Epstein Barr Virus. Many cases of Mono are very mild and may go completely undiagnosed or thought of as a simple cold. While it is a contagious disease, it is not as contagious as most people believe. It is rare for teammates to pass Mono to another teammate, and many athletes have already had Mono by their teen years and are protected against it.

Symptoms of Mono include sore throat, fever, headache, and achiness as well as enlarged lymph nodes in the neck and an enlarged spleen. Symptoms usually improve by 3 to 4 weeks but, in some cases, there may be a feeling of tiredness and lethargy for 2-6 months afterwards.

The biggest concern with Mono is spleen rupture, which could happen with physical activity. Every athlete who has Mono should be evaluated by a physician to assess for spleen enlargement. Rupture is most common within the first 21 days and is life-threatening.

No sports participation should be allowed for a minimum of 3 to 4 weeks from onset of symptoms AND until systemic symptoms resolve with a non-palpable spleen. Once cleared, the athlete should return to sport gradually.

XVII. NFHS GUIDELINES ON HANDLING PRACTICES AND CONTESTS DURING LIGHTNING OR THUNDER DISTURBANCES

These guidelines provide a default policy to those responsible or sharing duties for making decisions concerning the suspension and restarting of practices and contests based on the presence of lightning or thunder. The preferred sources from which to request such a policy for your facility would include your state high school activities association and the nearest office of the National Weather Service.

Proactive Planning

1. Assign staff to monitor local weather conditions before and during practices and contests.
2. Develop an evacuation plan, including identification of appropriate nearby safe areas and determine the amount of time needed to get everyone to a designated safer area:
 - a. A designated safer place is a substantial building with plumbing and wiring where people live or work, such as a school, gymnasium or library. An alternate safer place from the threat of lightning is a fully enclosed (not convertible or soft top) metal car or school bus.
3. Develop criteria for suspension and resumption of play:
 - a. When thunder is heard or a cloud-to-ground lightning bolt is seen, the leading edge of the thunderstorm is close enough to strike your location with lightning. Suspend play for thirty minutes and take shelter 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.

* - 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.
4. Review the lightning safety policy annually with all administrators, coaches and game personnel and train all personnel.
5. Inform student-athletes and their parents of the lightning policy at start of the season.

Significance

Lightning is one of the most consistent causes of weather-related deaths in the U.S. According to the National Severe Storms Laboratory, there are approximately 100 lightning-related deaths and over 1000 injuries yearly.

Background

Lightning-related injuries mainly occur between May and September. Most lightning casualties happen between 10 a.m. and 7 p.m. with the majority of those occurring between 2 p.m. and 6 p.m. Therefore, the risk of lightning-related injury appears to be highest during some of the most active periods for outdoor athletic activities. The average distance between successive lightning flashes is two to three miles which means that risk is present WHENEVER lightning can be seen or thunder can be heard.

Game administrators, officials and the sports medicine staff can be aware of adverse weather by following local forecasts and by monitoring the National Weather Service (NWS). The NWS issues storm watches and warnings during times of severe weather. A watch means that the conditions are favorable for severe weather to develop, while a warning indicates severe weather has been reported and appropriate precautions should be taken. It must be remembered that any thunderstorm poses a risk of injury, even if not deemed "severe" by the NWS.

Management

As soon as lightning is seen or thunder is heard, practice and competition should be suspended immediately. A Lightning Safety Plan should be

a component of the Emergency Action Plan and should be in place for every sport and facility. This plan should contain instructions for participants and spectators, designation of safe shelters, and designation of warning and all clear signals. This plan must be disseminated to the proper personnel and reviewed and practiced on a routine basis.

There should also be a systematic plan for monitoring weather. The weather forecast should be closely followed throughout the day prior to any practice or competition. A weather radio is helpful in providing current information. Weather can also be monitored over the Internet or through the use of lightning strike monitors. However, such technology should never be a substitute for directly hearing or seeing dangerous weather. There should also be one person designated to monitor threatening weather and make decisions regarding participation. However, if anyone hears thunder or sees a lightning strike, appropriate action should begin.

If lightning is imminent or a thunderstorm is approaching, all personnel, athletes, and spectators should be evacuated to safe structures. A list of the closest safe structures should be announced and displayed on placards at all venues. The ideal safe structure is a fully enclosed building with plumbing, telephone and electrical service, which aid in grounding the structure. A fully enclosed automobile or school bus with all the windows rolled up is a reasonable shelter, although care must be taken to avoid contact with any metal inside the vehicle. The hard metal frame and roof, not the rubber tires, dissipate the current around the vehicle. Golf carts and convertible cars are not safe shelters. Dugouts and golf shelters are not safe shelters and are not grounded for the effects of lightning.

Avoid the use of shower facilities and do not use showers or plumbing during a thunderstorm as the electrical current from lightning can enter the building through plumbing connections. It is also unsafe to stand near utilities or use a landline telephone during a thunderstorm because of the risk of the current traveling through the lines. Cellular and cordless telephones are considered to be safe.

If a suitable safe shelter is not available, it is best to avoid tall objects (trees, light poles, etc.) that allow lightning an easy path to the ground. It is important to avoid being the tallest object. In an open field, people should crouch with their legs together, the weight on the balls of their feet, arms wrapped around their knees, and head down with their ears covered. The person should minimize contact with the ground and should NOT lie flat.

People who have been struck by lightning do not carry an electric charge. Therefore, it is safe to perform CPR, if needed. Ideally, injured persons are moved into a safe shelter. Lightning-strike victims showing signs of cardiac or respiratory arrest need emergency help.

Prevention

In order to prevent lightning-related injuries, it is important to formulate and implement a Lightning Safety Plan and provide adequate education for all athletes and personnel. The plan needs to be reviewed and practiced periodically. The plan also must include a systematic approach for monitoring local weather activity and recognizing signs of nearby danger (thunder and lightning strikes). Criteria for suspension and resumption of activity should be clear. Appropriate safe shelters for each athletic venue should be clearly identified.

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Bennett BL. A model lightning safety policy for athletics. *Journal of Athletic Training* 1997; 32:251-253.

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Material from the NFHS Sports Medicine Handbook (4th ed): 37-39

XVIII. PREVENTION OF HYPERTHERMIA

1. Weight charts should be kept on each athlete. Athlete should be weighed before and after each practice, and for every pound of weight loss during practice should be replaced by 24 oz. fluids. Water replacement should not be the responsibility only of the athlete, but should be the responsibility of the coaching staff to monitor this important point. It has been shown in many studies that dehydration is the major cause of decreased athletic performance.
2. Allow 7-10 days for the athlete to acclimate to hot temperatures.
3. Make sure there is adequate evaporation of sweat from the skin. Since evaporation of sweat is the most important source of heat loss that occurs during strenuous exercise careful attention must be made to this area. During early practices, athletes should wear light colored shorts and T-shirts and avoid heavy padding. Remember that the head is a major source of heat loss and should not be covered initially. When the humidity and temperature are very high. High intensity must be kept at short intervals.
4. Adequate fluid replacement must be encouraged and allowed during practice sessions.
5. Salt and potassium should be replaced by a regular diet. Salt tablets should never be used.

XIX. HEAT INFORMATION

BACKGROUND

Exertional heat stroke (EHS) deaths are preventable with proper precautions, early recognition, and emergency management.

Exertional Heat Stroke (EHS) is the leading cause of preventable death in high school athletics. Students participating in high-intensity, long-duration or repeated same-day sports practices and training activities on hot weather days are at greatest risk. Football has received the most attention because of the number and severity of exertional heat illnesses. Notably, the National Center for Catastrophic Sport Injury Research (NCCSIR) reports that **39 high school football players died of EHS from 2008 through 2022**. EHS also results in thousands of emergency room visits and hospitalizations throughout the nation each year.

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

Following the recommended guidelines in this position statement and "Heat Illness Prevention" can reduce the risk and incidence of EHS and the resulting deaths and injuries in high school athletics. The NFHS recognizes that various states and regions of the country have unique climates and variable resources, and that there is no "one-size-fits-all" optimal acclimatization plan.

The WIAA strongly encourages coaches to complete the NFHS Heat Illness Prevention online course.

TYPES OF HEAT ILLNESS

1. **HEAT STROKE** - A life threatening medical emergency that can cause death if not recognized and rapidly treated. It is highlighted by an elevated temperature (>104) & central nervous system changes (fainting, confusion). This can lead to whole body inflammation and organ failure. The longer the temperature remains above 104, the higher the risk of death and medical complications.
 - a. Symptoms/signs:
 - (1) **High body temperature (103+)**
 - (2) **Confusion or mental status changes**
 - (3) **Loss of consciousness (fainting, passing out)**
 - (4) Skin is hot and sweaty, but may be dry
 - (5) Dizziness
 - (6) Headache
 - (7) Nausea or vomiting
 - b. Treatment:
 - (1) Stop activity, remove equipment, and move to a shady, cooler location
 - (2) **Immediate cooling** with an ice bath, TACO method, etc.
 - (a) Stir water to keep ice moving around body
 - (3) Assess and monitor core body temperature every 5 minutes
 - (4) Activate EMS: However, the athlete should ideally be cooled to 102 or lower prior to transport
 - (5) Need medical clearance prior to return to play, likely over 1 week away from participation
2. **HEAT EXHAUSTION** - the inability to exercise effectively in the heat, associated with an elevated, but safe, body temperature and often dehydration.
 - a. Symptoms/signs:
 - (1) Heavy sweating
 - (2) Cool, pale, clammy skin
 - (3) Nausea and/or vomiting
 - (4) Dizziness and/or feeling "faint"
 - (5) Headache
 - (6) Fatigue
 - (7) Muscle cramping
 - b. Treatment:
 - (1) Stop activity, remove equipment, and move to a shady, cooler location
 - (2) Rest and hydrate
 - (3) Help with cooling using ice, ice bath
 - (4) No return to activity that day
 - c. Activate EMS if worsening or not responding to initial treatment.
3. **HEAT CRAMPS** - sudden, painful, involuntary muscle spasms that occur during and after exercise.
 - a. Symptoms/signs:
 - (1) Heavy sweating and muscle pain/spasm
 - b. Treatment:
 - (1) Stop activity, remove equipment, and move to a shady, cooler location
 - (2) Rest and hydrate
 - (3) Consider resuming activity once pain has completely resolved

HEAT ILLNESS SAFETY AND STRATEGIES

Heat Acclimatization and Safety Priorities

- Recognize that EHS is the leading preventable cause of death among high school athletes.
- Know the importance of a formal preseason heat acclimatization plan. See WIAA Football Season Regulations
- Create and implement a specific hydration plan to keep athletes well-hydrated, and encourage and provide ample opportunities for regular fluid replacement. **Never restrict access to water.**
- Appropriately modify activities based on the environmental heat stress and contributing individual risk factors (e.g., illness, obesity) to keep your athletes safe and performing well.
- 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.

- Know your emergency action plan and promptly implement it in case of suspected EHS or other medical emergency.
- Energy drinks are NOT appropriate hydration fluids. Refer to NFHS SMAC "Position Statement and Recommendations for the Use of Energy Drinks by Young Athletes".
- Further Information:
<https://ksi.uconn.edu/wp-content/uploads/sites/1222/2019/05/Reducing-Heat-Illness-in-College-and-High-School-Sports.pdf>
<https://www.nfhs.org/media/1015695/ksi-5-pillars-of-exertional-heat-stroke-prevention-2015.pdf>

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. See WIAA Football Season Regulations
2. Begin with shorter, less intense practices and training activities, with longer recovery intervals between bouts of activity.
3. Minimize protective gear (such as helmets and pads) during first several practices, and introduce additional uniform and protective gear progressively over successive days.
4. 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.
5. Keep each athlete's individual level of conditioning and medical status in mind and adjust activity accordingly. These factors directly affect exertional heat illness risk.
Rationale: Athletes begin each season's practices and training activities at varying levels of physical fitness and varying levels of risk for exertional heat illness. For example, there is an increased risk if the athlete is obese, unfit, has been recently ill, has a previous history of exertional heat illness, or has Sickle Cell Trait.
6. 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 and/or competitions to maintain safety and performance. Coaches can monitor the athletes' weights pre and post practice to ensure adequate fluid replacement, and can follow guidelines for hot and humid weather including using Wet Bulb Globe Temperature (WBGT) readings.
7. Athletes must begin practices and training activities adequately hydrated.
Rationale: While proper hydration alone will not necessarily prevent exertional heat illness, it will decrease risk. Athletes can observe the color of their urine, which should be straw yellow or the color of lemonade, when adequately hydrated. A Urine Color Chart can be accessed at: <http://www.urinecolors.com/themes/uctheme/assets/dehydration-chart.pdf>
8. 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.
9. 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 (call 911). 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, equipment for Tarp-assisted Cooling Oscillation (TACO) method, or pools / tubs of ice water to be used for rapid cooling of athletes should be available on-site and personnel should be trained and practiced in using these facilities for rapid cooling. Ice water baths are the preferred method for rapid cooling, however, if ice water pools or tubs are not available, then applying ice packs to the neck, axillae, and groin and rotating ice-water soaked towels to all other areas of the body can be effective in cooling an affected athlete. Remember, cool first, transport later.
10. An Emergency Action Plan (EAP) with clearly defined written and practiced protocols should be developed and in place ahead of time. It can be helpful to engage the local EMS team to help understand when to transport athletes, ideally cooling the athlete prior to transportation, as the ambulance will not have a cooling mechanism.
Rationale: An EAP should be in place in case of any emergency, as a prompt and appropriate response in any emergency situation can save a life. The EAP should be designed and practiced to address all teams (freshman, junior varsity, and varsity) and all practice and game sites. For heat illness emergencies, emphasis must be placed on full body cooling prior to transport.

WIAA EXAMPLE POLICY - See WIAA Football Season Regulations for the Football Acclimatization Policy

30 minutes prior to the start of an activity, and again 60 minutes after the start of that activity, take temperature and humidity readings at the site of the activity. A digital sling psychrometer or Wet Bulb Globe Thermometer (WBGT) are recommended. Record the readings in writing and maintain the information in files of school administration. Each school should designate who is responsible for these duties, generally the athletic director, head coach or certified athletic trainer.

If unable to use the digital sling psychrometer or WBGT, then calculate the Heat Index using the temperature and humidity.

- National Weather Service: <https://www.wpc.ncep.noaa.gov/html/heatindex.shtml>

If the Heat Index is below 95 degrees

- Provide ample amounts of water. This means that water should always be available and athletes should be able to take in as much water as they desire.
- Optional water breaks every 30 minutes for 10 minutes in duration.
- Ice-down towels for cooling.
- Watch/monitor athletes carefully for necessary action.

If the Heat Index is 95 degrees to 99 degrees

- Provide ample amounts of water. This means that water should always be available and athletes should be able to take in as much water as they desire.
- Optional water breaks every 30 minutes for 10 minutes in duration.
- Ice-down towels for cooling.
- Watch/monitor athletes carefully for necessary action.

For contact sports and activities with additional equipment:

- Helmets and other possible equipment removed while not involved in contact.
- Reduce time of outside activity. Consider postponing practice to later in the day.
- Recheck temperature and humidity every 30 minutes to monitor for increased Heat Index.

If the Heat Index is above 99 degrees to 104 degrees

- Provide ample amounts of water. This means that water should always be available and athletes should be able to take in as much water as they desire.
- Mandatory water breaks every 30 minutes for 10 minutes in duration.
- Ice-down towels for cooling.
- Watch/monitor athletes carefully for necessary action.
- Alter uniform by removing items if possible.
- Allow for changes to dry t-shirts and shorts.
- Reduce time of outside activity as well as indoor activity if air conditioning is unavailable.
- Postpone practice to later in the day.

For contact sports and activities with additional equipment:

- Helmets and other possible equipment removed if not involved in contact or necessary for safety. If necessary for safety, suspend activity.
- Recheck temperature and humidity every 30 minutes to monitor for increased Heat Index.

If the Heat Index is above 104 degrees

- Stop all outside activity in practice and/or play, and stop all inside activity if air conditioning is unavailable.

Note: When the temperature is below 80 degrees there is no combination of heat and humidity that will result in need to curtail activity.

Heat-Humidity Index Tables

The chart below is an example of a heat-humidity index table that defines low, moderate, high, and extreme risk zones.

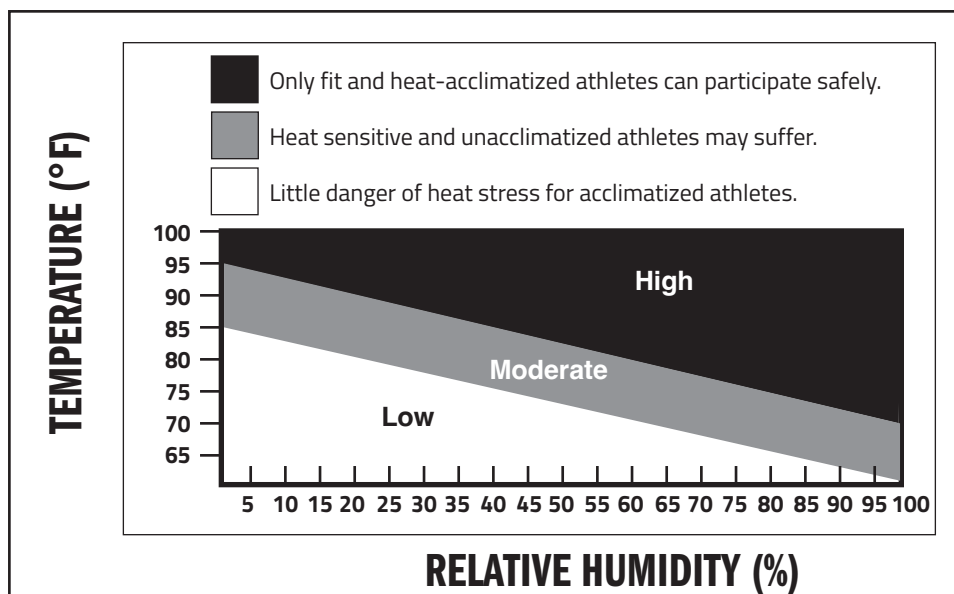
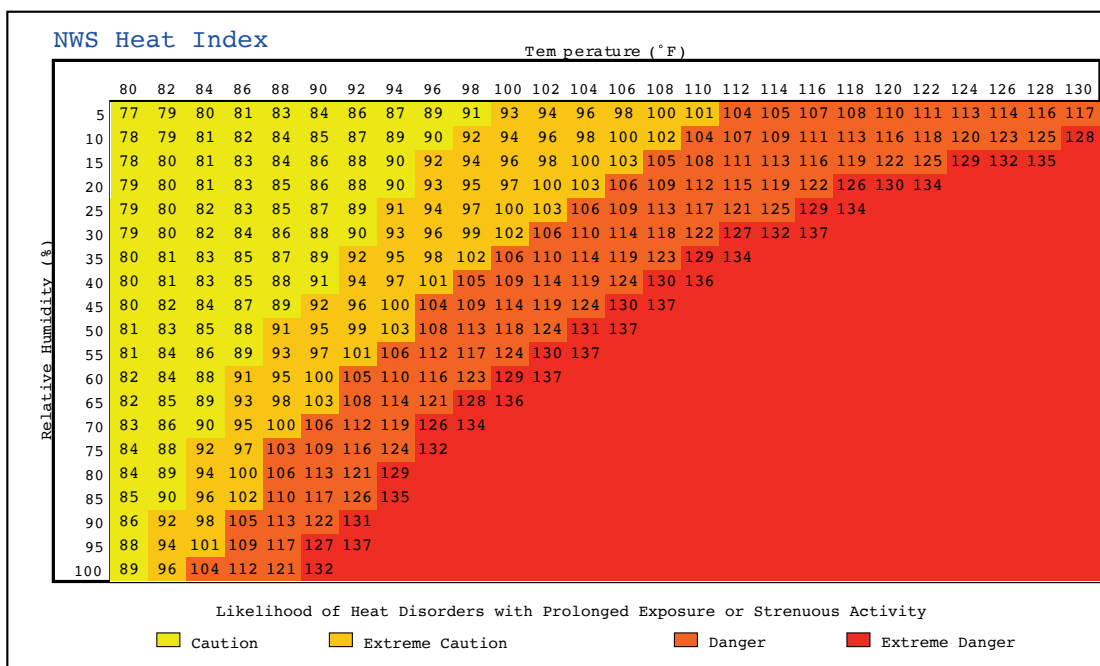


Figure I

The chart below is another example. The red and dark orange zones are Heat Index above 104 degrees (stop outdoor activity).



Further Reading and References

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

Casa DJ et al. (2015). National Athletic Trainers' Association Position Statement: Exertional Heat Illnesses. *Journal of Athletic Training*, 50(9), 986–1000

Casa DJ, Csillan D. (2009). Preseason Heat-Acclimatization Guidelines for Secondary School Athletics. *Journal of Athletic Training*, 44(3), 332–333

NFHS Heat Acclimatization and Heat Illness Prevention Position Statement.

<https://www.nfhs.org/media/5919613/nfhs-heat-acclimatization-april-2022-final.pdf>

NFHSLearn Heat Illness Prevention course. <https://nfhslearn.com>

XX. COLD EXPOSURE IN WINTER SPORTS

Introduction

While not as common as heat illness, cold-related injuries happen to athletes participating in outdoor sports, especially with training or competitions in the late fall, winter, or early spring.

When exposed to cold temperatures, the body undergoes peripheral vasoconstriction, or narrowing of the blood vessels in the extremities which helps decrease heat loss. This allows the body's core to lose less heat and remain warmer. In addition, cold exposure activates involuntary shivering and encourages voluntary movement in the skeletal muscle, increasing the body's heat production.

Over time, athletes repeatedly exposed to cold may exhibit cold acclimatization, where the body does less cold-induced peripheral vasoconstriction and shivering. Importantly, cold acclimatization is not very effective at preventing cold injury and often takes several weeks.

Risk Factors for Cold Exposure

Environmental factors increase risk for cold exposure and injury. For example, athletes exercising in wet, rainy, and windy conditions lose more heat. The risk of cold exposure also increases with a lower wind chill. Windchill is a calculated apparent temperature one feels when exposed to lower-temperature air plus wind. It can be calculated using a formula, an app, or a chart like the one shown on next page:



Wind Chill Chart

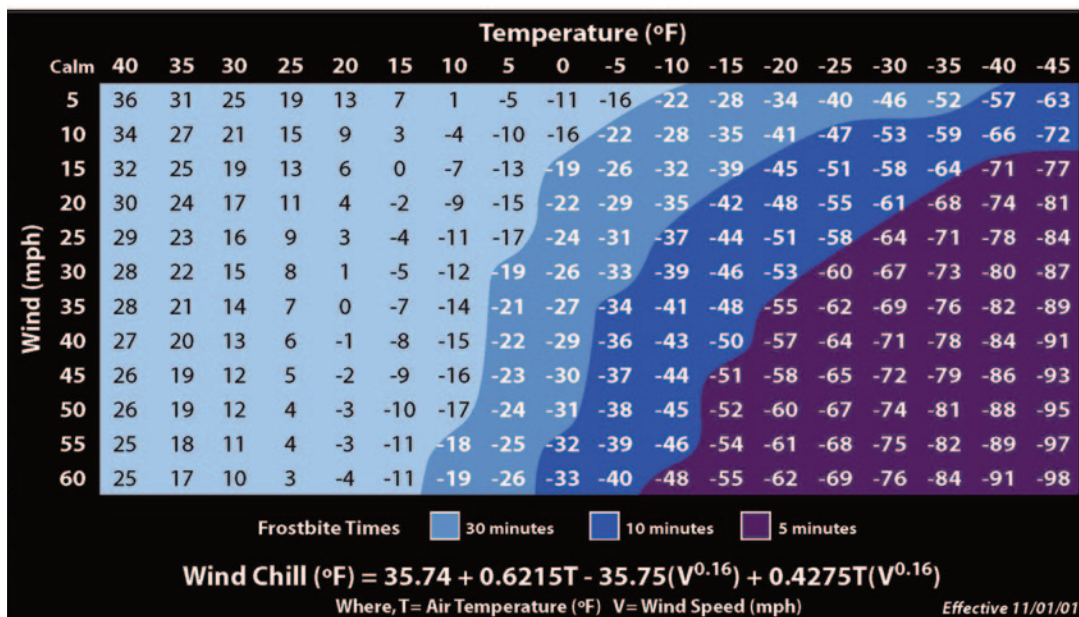


Figure 1

Furthermore, the time of day and altitude can increase the risk of cold-related pathology. At nighttime, the sun sets and the temperature falls increasing the risk for cold injury. Athletes exercising at an altitude >8,000 feet have a higher risk for cold injury.

Non-environmental risk factors include:

1. Body composition: Low fat and low muscle mass mean less insulating materials to trap heat and elevated cold injury risk..
2. Fatigue and sleep deprivation elevate risk. .
3. Dehydration: Increases cold injury risk by impairing how the body regulates temperature.
4. Moisture on exposed skin: Water on the skin may freeze or evaporate, causing increased heat loss.
5. Improper clothing: Clothing that allows moisture to build up on the skin or exposes skin increases risk.
6. Poor physical fitness: More fit athletes can exercise longer and generate more heat.
7. Remaining in the cold weather after ceasing exercise: Exercise-induced heat can no longer be generated.
8. Age: Older individuals (coaches, staff, officials) have more difficulty retaining heat.
9. Drugs: Certain drugs, such as alcohol, caffeine, nicotine, and medications may disrupt the body's ability to regulate temperature.
10. Some endocrine disorders: Athletes with low blood sugar, or hypoglycemia, may lack the energy needed for muscles to produce heat.
11. Certain medical conditions: People with exercise-induced bronchospasm, Raynaud syndrome, and cardiovascular disease may be predisposed to cold injuries.

Types of Cold-Related Injuries

Frostnip is the stage right before superficial frostbite. The skin is <50F (10C), looks red, and feels cold. It may tingle or be numb. It does not cause long-term damage. Always avoid rubbing the injured area.

Frostbite, or the freezing of skin and its underlying tissues, occurs when the skin is exposed to extreme cold for too long and drops to <28F (-2C). There are two types: Superficial and deep frostbite. In mild/superficial frostbite, only the top layers of the skin freeze. The skin becomes white/pale and can feel stinging and burning. It also may swell or become insensitive to touch. In severe/deep frostbite, deeper layers of skin are affected too. It looks white or bluish-gray and feels numb, but it will gradually turn black and hard as the tissue dies. Frostbite typically affects the nose, ears, cheeks, hands, and feet, but can affect any body part.

Treatment is to get out of the cold - Find shelter and wrap the affected area in warm clothing. Frostnip can be treated with gradual rewarming with a warm water bath (at 104-109F or 40-43C) or body heat, whereas frostbite will require greater medical attention. If there is a chance that the tissue will refreeze after rewarming, do not rewarm it. Refreezing could cause more tissue damage. Obtain medical clearance before returning to the sport.

Hypothermia occurs when the core body temperature drops below 95F (35C). Early signs and symptoms include shivering, feeling cold, apathy, and impaired athletic and mental performance. If not addressed quickly, the athlete may get severe hypothermia, in which there is confusion, sleepiness, motor issues, slurred speech, irrational thoughts and behavior, and even cardiac and respiratory failure. (Table 1).

Table 1. Signs and Symptoms of Hypothermia

STAGE	CORE TEMPERATURE	SIGNS AND SYMPTOMS
Mild Hypothermia	99° – 97° F	Normal, shivering may begin
	97° – 95° F	Cold sensation, goose bumps, unable to perform complex tasks with hands, shiver can be mild to severe, hands numb
Moderate Hypothermia	95° – 93° F	Intense shivering, muscle in coordination becomes apparent, movements slow and labored, stumbling pace, mild confusion, may appear alert. Use sobriety test, if unable to walk a 30 foot straight line, the person is hypothermic.
	93° – 90° F	Violent shivering persists, difficulty speaking, sluggish thinking, amnesia starts to appear, gross muscle movements sluggish, unable to use hands, stumbles frequently, difficulty speaking, signs of depression, withdrawn.
Severe Hypothermia	90° – 86° F	Shivering stops, exposed skin blue or puffy, muscle coordination very poor, inability to walk, confusion, incoherent/irrational behavior, but may be able to maintain posture and appearance of awareness.
	86° – 82° F	Muscle rigidity, semiconscious, stupor, loss of awareness of others, pulse and respiration rate decrease, possible heart fibrillation.
	82° – 78° F	Unconscious, heart beat and respiration erratic, pulse may not be palpable.
	78° – 75° F	Pulmonary edema, cardiac and respiratory failure, death. Death may occur before this temperature is reached.

To treat hypothermia, get out of the cold - seek shelter and insulate with warm and dry clothes/blankets. For mild hypothermia, you may need to rewarm the athlete with a warm water bath. Give the athlete plenty of warm carbohydrate-rich fluids and encourage movement/exercise. If they have confusion or changes in mental status, or if they do not respond to rewarming, activate EMS for immediate transport to a medical facility. Obtain medical clearance before returning to the sport.

Strategies for Prevention of Cold-Related Injuries

Before participating in cold-weather sports, review the school's Emergency Action Plan and its cold-weather policies and procedures. This contains information on local cold-weather issues, who to contact if there are concerns. Consider moving training sessions indoors during cold weather.

Schools should constantly monitor the area's weather conditions and consider postponing or shortening athletic events when the wind chill is below -18F (-28C) because exposed facial skin in that setting can freeze in less than 30 minutes. Event managers and coaches should consider environmental and non-environmental risk factors for cold exposure when deciding on whether or not to cancel an event.

Wearing sufficient, insulated clothing helps maintain body core temperature. Hats, face and ear protection, mittens, socks, gloves, and glove liners that do not constrict extremities help trap heat and prevent cold injury. If an article of clothing gets wet, it should be removed and changed as soon as possible to prevent heat loss from evaporation. Also, layering with an inner, middle, and outer layer of clothes is extremely valuable for perspiration wicking, moisture transfer, trapping heat, and repelling wind and rain.

Exercising in cold environments depletes more energy, carbohydrate reserves, and fluids. Giving athletes 6-12% carbohydrate beverages and carbohydrate-rich foods will prolong the amount of time they can sustain exercise in the cold. Serving warm liquids during a break can also rewarm the body.

References

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Curtis R. Outdoor Action Guide to Hypothermia And Cold Weather Injuries. Outdoor Action Program, Princeton University. Jul 2023.

<https://www.princeton.edu/~oa/safety/hypocold.shtml>

XXI. AIR QUALITY

Air quality concerns are primarily caused by wildfire smoke, but may also be caused by pollution, industry, and chemical spills. Particulate matter is a mix of solid and liquid particles in the air - some particles, like dust, are visible to the naked eye. However, fine particles are so small they can only be seen using a microscope. These fine particles often cause visible haze. Fine particles are small enough to enter lungs and bloodstream, causing respiratory issues like wheezing, bronchitis, or asthma attacks. Once in the bloodstream, they can lower the body's immune system making people more prone to infections.

Exercise increases our respiratory rate and volume, and increases mouth breathing, all of which means more pollutants or particulate matter can enter the respiratory tract. People at elevated risk of harmful effects from poor air quality:

- People with lung disease, asthma or COPD
- People with cardiovascular disease
- Children and adolescents

- Elderly
- Pregnant or nursing individuals

The US Environmental Protection Agency created a six tier Air Quality Index (AQI) with higher numbers representative of more pollution / lower air quality. This helps inform the safety of outdoor exercise.

Air Quality Index Levels of Health Concern	Numerical Value	Meaning
Good	0 to 50	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate	51 to 100	Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is not likely to be affected.
Unhealthy	151 to 200	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy	201 to 300	Health alert: everyone may experience more serious health effects.
Hazardous	301 to 500	Health warnings of emergency conditions. The entire population is more likely to be affected.

In general, it is safe to exercise outdoors in the good to moderate ranges. Athletes with respiratory disorders may struggle with exercise in the “Unhealthy for Sensitive Groups”, so careful observation is needed if they must participate outdoors, but consider moving training indoors at that time. At the “Unhealthy” range, moving training indoors and postponing events should be strongly considered. “Very Unhealthy” and “Hazardous” AQI ranges should trigger event postponement or relocation to area with better AQI, and no outdoor training.

There are AQI apps for the smartphone, but the following government webpage provides up-to-date local information on AQI: <https://www.airnow.gov/>

XXII. GROWTH AND MATURATION

Growth is the increase in size measured in height, weight and body mass.

Maturation is the progress from childhood, to adolescence, and then to full mature adult state. Adolescence begins with the onset of puberty where physical, emotional and hormonal changes begin to occur. Maturation can vary in its timing (when it happens) and tempo (how fast it occurs).

Development is the complex interaction between an individual's growth and maturation and how they develop emotionally, socially and cognitively.

The most important thing for coaches to learn and remember is that this maturation occurs at different ages and at different speeds. This can help the athlete compete to the best of their abilities and it will help the coach have a better team because of their understanding. The late maturer can be a concern in some respects when it comes to athletic participation. Psychologically it is tough to not show signs of sexual maturation and be of small stature as you enter high school or tenth grade. Because the maturation takes place during their sophomore and junior years, they're often lost in the athletic arena. They are felt to be too small and fragile when they try out for the high school teams as freshmen, and then many times are discouraged by their parents, or even coaches, from playing because they are so small. The age of onset of adolescent maturation as well as the speed at which they go through it will vary greatly from one individual to another. This variation must be remembered by all coaches so they can encourage the late maturer to stay active in sports and work on their skills and wait for their body to grow.

The early maturer also has trouble as they are the best athlete in seventh and eighth grade and are stars as freshmen. But because they are so physically mature, they do not improve to the same extent as the late maturer does and may reach their peak at a much younger age period.

It should be remembered that athletes at different levels of maturation have trouble competing against one another. Injuries are increased when a mature athlete competes against an immature athlete. It is best to allow the immature athletes to compete with those at the same level of maturation whenever possible. This cannot always be done but should be encouraged.

Females tend to mature sooner than boys, but post-pubertal boys will experience greater increases in strength and power due to testosterone and other androgen hormones. An appropriate strength and conditioning program will increase the motor skills, coordination, strength and power in children and adolescents. Adolescents may be prone to overuse injuries during periods of rapid growth in height and mass.

Female Reproductive Hazards

Reproductive hazards most associated with regular exercise are oligomenorrhea (skipped or light menses), to amenorrhea (no menses), or menarche delay. These are most common among girls who exercise strenuously especially runners, swimmers, cyclists. Individual variety is great, and is associated with a decrease of progesterone (feminine hormone) during the menstrual cycle. If secondary amenorrhea occurs for a long period of time the female athlete should be checked by her physician.

XXIII. IRON DEFICIENCY ANEMIA (IDA) AND IRON DEFICIENCY NON ANEMIA (IDNA) IN ADOLESCENTS

Early signs of IDA and/or IDNA are: low mood, irritability, depression, fatigue, dizziness, increased resting heart rate and unexplained drop in performance.

Individuals are more susceptible to IDA and/or IDNA through GI bleeding, menstruation and/or low iron absorption (ie. Vegetarian or Vegan diet, Celiac disease, etc.)

Athletes that are more at risk of IDA and/or IDNA are on a reduced calorie diet, such as those in weight class sports or those with disordered eating or eating disorders. Athletes who consume a majority of their calories from low nutrient foods, such as soda pop or candy, are also at risk of developing iron depleted states.

Increasing iron intake can be accomplished through eating beef, dark poultry, fortified breakfast cereals, dried beans/peas, tuna, spinach, eggs and dark chocolate. If the individual athlete is suspected to have IDA or IDNA and has supplemented their diet to include non-containing foods without change, the individual should seek medical care for official diagnosis and treatment.

XXIV. NUTRITION FOR STUDENT-ATHLETES

There is probably no area in sports medicine where there is more misinformation, quackery, and unproven testimonials than in the area of nutrition for student-athletes. Understanding, knowledge, and application of nutrition principles can not only make the student-athlete healthier, but also enhance their performance. It is not within the scope of this manual to give the details of all areas of sports nutrition, access specific diets, or give caloric recommendations for specific student-athletes. However, we can give some general observations and information. A very good source for the details of specific caloric needs and sample diets for specific sports and student-athletes are from registered dietitians.

The essential body nutrients are: (1) fluid, (2) carbohydrates, (3) protein, (4) fat, (5) vitamins, and (6) minerals. Proper nutrition and optimal athletic performance is dependent upon an understanding and proper use of all of these nutrients. Water makes up 60-70% of the body composition. Dehydration has been shown to be the biggest cause of decreased athletic performance. Despite this, dehydration from inadequate replacement of water losses during practices and competition and use of water deprivation to lose weight are very common practices. The consequences of dehydration can be severe and certainly affect athletic performance. The main consequences of dehydration are depression, loss of muscle strength, decreased blood flow to the kidneys, potassium loss, decreased heart output, decreased blood volume, increased heart rate, decreased learning capacity, and often emotional instability. The signs of weight loss, rapid pulse, small volume of dark colored urine, muscle or stomach cramps, loss of appetite, and fatigue may be symptoms coaches/parents/student-athletes are more likely to notice before dehydration becomes so severe as to cause depression. To properly rehydrate after a significant water loss, it takes up to 48 hours for the body to totally get back in balance. The simplest way to avoid problems with dehydration and water loss is to monitor the weight before and after practice and replace the weight loss with 24 oz. of fluids for every pound lost. Also, use of water during practices and competition should be encouraged.

The second important body nutrient is carbohydrates. Carbohydrates make up the main energy source for most high school sports. Carbohydrate consumption should be at least 50% of the total calorie intake and often may need to be as high as 55%-60% of total caloric intake depending on the sport and intensity level of the student-athlete. An emphasis should be on consuming complex carbohydrates, which are the starches, versus the simple carbohydrates, which are the sugars. The complex carbohydrates, or starches, have more minerals and vitamins and provide energy for a long period of time for the student- athlete.

The third essential body nutrient is protein. Protein is very important to optimal nutrition. Protein is used for growth and repair of the human body and is an essential source of energy, but not the immediate source of energy in exercise. It should be approximately 10-20% of the student-athlete's diet. Use of excess protein can lead to dehydration through excessive loss of water through the kidneys. Meat, fish and poultry, beans, eggs, nuts, and dairy products are good sources of protein.

Fat is the fourth essential nutrient needed for good nutrition. Fat is one of the energy sources for student-athletes. It should make up about 25-35% of the calories in the athlete's diet. Fat is essential also for absorption of fat-soluble vitamins that are necessary for proper nutrition. Fat is calorically dense containing 9 calories per gram as opposed to carbohydrate and protein both having 4 calories per gram.

The fifth essential body nutrient is vitamins. Vitamins are broken down into the water soluble vitamins, which are the C and B complex vitamins. The fat soluble vitamins A, D, E, and K, which are stored in fat and are essential to proper nutrition. Eating a well-balanced diet allows you to get all the vitamins that you need. Student-athletes who are at the greatest risk of poor vitamin/mineral status are those who restrict calories, use severe weight-loss practices, eliminate a food group, or eat only from a single food group.

The sixth nutrient is minerals. There are essential minerals needed in the body, such as magnesium, zinc, and selenium. But, with proper nutrition and eating a well-balanced diet, these essential mineral needs are met very easily.

There are a few helpful hints that can make the meals productive for student-athletes. It has been shown that a pre-game meal high in carbohydrates will enhance performance in the majority of student-athletes. The content of protein and fat should be kept low in the pregame meal for ease of digestion as protein and fat take longer to digest. The timing of the pregame meal should be anywhere from 3 to 5 hours prior to competition depending on the athlete. It is important for the athlete and the coach to determine what is best tolerated by the athlete and the timing because there can be no set rule as to what the exact composition of the meal should be. Hydration with generous amounts of fluids at this time will also help peak performance.

XXV. DISORDERED EATING/RELATIVE ENERGY DEFICIENCY IN SPORT

The Basics

Disordered eating in student-athletes includes a wide range of eating concerns. These range from the student-athlete who inadvertently is not eating enough to fuel their body for sport simply out of not realizing how high their caloric needs are, all the way to the extreme of a full blown eating disorder and associated complications. Eating disorders include anorexia nervosa (being significantly underweight with distorted body image and intense fear of gaining weight) and bulimia nervosa (recurrent episodes of bingeing—rapidly eating very large amounts of food well beyond the point of comfortably full and in a manner that feels out of control--and purging—self-induced vomiting, laxative or diuretic use, excessive exercise beyond that recommended by coaches in order to compensate for food eaten, or times of fasting to compensate for binges). Student-athletes may underfuel because of wanting to try to achieve a competitive advantage in sport, meet appearance standards for sport or for society, or for other reasons. Ultimately, under- fueling is not a sustainable way to achieve success in sport, and athletic performance will suffer if disordered eating continues. Student-athletes may find themselves on a slippery slope in which a desire to “eat healthy” turns into food restriction and rigid dieting in the hopes of improving athletic performance.

Risk Factors

- Risk factors for disordered eating in sport include the following:
- Participation in sports in which lean body physique is felt by some to be advantageous (e.g., cross country, track)

- Participation in sports in which artistic quality, in addition to technical skill, is felt to be important (e.g., gymnastics)
- Anxiety or depression
- Family members with disordered eating
- Perfectionism

Complications

- Complications that may result from disordered eating in sport include:
- Changes in menstrual cycles (either not starting menstruation at all by the expected age, no longer getting menstrual cycles, or getting menstrual cycles less often, lighter, or for a shorter duration than usual)
- Low bone mineral density, which can result in stress fractures or other bone stress injuries and eventual osteoporosis
- Abnormal levels of electrolytes such as potassium
- Dehydration
- Problems with the cardiovascular system (heart and blood vessels)
- Mental health conditions and suicide
- Weakened immune system
- Changes in metabolism

Note that some people reference the term “Female Athlete Triad”, which is becoming outdated. However, the idea still applies that the three elements of the Triad, disordered eating, menstrual cycle changes, and lowered bone mineral density, can occur in athletes who are not eating enough calories to fuel their activity levels.

A newer term being used is RED-S (Relative Energy Deficiency in Sport). The International Olympic Committee has used the “RED-S” terminology since 2014. This term is preferred over Female Athlete Triad in recognition of the fact that student-athletes across genders can suffer from inadequate intake, disordered eating, or full-blown eating disorders (though it is a more common problem in females). Additionally, the RED-S term conveys that there are more than just three issues when it comes to underfueling in sport.

Treatment

The ultimate treatment for disordered eating in sport is increased caloric intake. Any athlete suffering from signs and symptoms of disordered eating should be referred for professional help to a sports medicine physician, pediatrician, family medicine physician, internal medicine physician, psychiatrist, psychologist/therapist/counselor, and/or registered dietician. Disordered eating is a serious concern that can have life-threatening consequences if unaddressed.

In the meantime, parents and coaches can be helpful via the following:

- Educate athletes on the energy demands of their sport.
- Create an environment that supports eating at least three meals and one to two snacks daily. Talk about having a regular breakfast, full lunch at school, and a pre-practice snack to provide energy for training.

Disordered Eating Scenarios

Athlete Losing Weight

Question: One of our top athletes looks like she lost quite a bit of weight. She’s not having any problems with the training but I think she might be having a problem with food. She rarely eats at our team functions and I hear from some of her teammates that she skips school lunch. How should I approach this?

Answer: Have a private meeting with the athlete and discuss your observations and concern for the athlete’s health. Discuss how under-fueling (i.e., dieting) can lead to drops in performance, injury, and health problems such as irregular menstruation, anemia, and low bone density. Ask the athlete what she typically eats on a training day. Many athletes will report eating a “healthy diet” by avoiding “junk food”, soda, and drinking “lots of water” but do not know how much food/fuel their bodies need to support their training. Sometimes this can result in eating very small portions or skipping meals because there is nothing “healthy to eat”. This is a frequent excuse for avoiding school lunch or fast food meals. Also, drinking water to excess can be a concern. Excessive water intake can result in eating small portions causing low calorie intake, can mask hunger, or can cover up food avoidance. Share a sample training day menu based on the athlete’s weight and point out areas for improvement.

Discussing Menstrual Cycles

Question: Last season we had several girls injured with stress fractures. This year at our team meeting we talked about preventing stress fractures and how not having a period can be a warning sign. Today one of my athletes told she has not had a period for a few months. In addition to suggesting she see her physician, is there anything else I can do?

Answer: One of the risk factors for irregular periods is not eating enough calories to meet the demands of training. You can discuss with her what and how much she normally eats on a training day. Key fueling times are the 3 meals and a pre/post workout snack. Some athletes eat healthy, but not enough. Share the sample training day menu posted on the WIAA website for an example of what, when, and how much she needs to eat to fuel her training.

Referring Athletes for Help

Question: I am concerned about one of my athletes, who has lost quite a bit of weight and has stopped getting her period. I sent her to a doctor, but the doctor was not concerned and said the athlete could continue competing. Is there anything else I should do?

Answer: Some professionals are not sufficiently educated about disordered eating to fully understand the seriousness of its long-term consequences. You should have your athlete see a different provider who is knowledgeable about disordered eating. Types of professionals to whom you should consider sending your athlete include: physicians (family medicine, internal medicine, pediatrics, sports medicine, or psychiatry), registered dietitians, psychologists or other licensed therapists, school counselors, and athletic trainers.

Additionally, the coach is the one who determines the athlete's workouts. Thus, the coach can cut back on the amount of training the athlete does, even if she is officially 'cleared' to return to sport.

Unconcerned Athlete/Parents

Question: I am concerned about an athlete that I coach, but she and her parents refuse to get help. How can I convince them, and what else should I do?

Answer: Talk about the potential negative consequences of disordered eating with the athlete and her parents. Explain that the athlete could develop life-long struggles with eating disorders and other mental health problems. The sooner disordered eating is addressed, the more likely it is to permanently resolve. Also, explain that irreversible bone loss and osteoporosis are more likely to occur the longer insufficient calorie intake goes on. Additionally, you should insist that she see a professional prior to her continuing to participate on the team.

Common Myths about Disordered Eating in Sport

MYTH: Runners are the only athletes who develop eating disorders.

FACT: It is true that athletes in sports in which leanness is emphasized (e.g., cross country, track and field, gymnastics, figure skating, diving, swimming) are more likely to develop eating disorders. However, we see athletes in any and all sports develop eating disorders.

MYTH: Only girls develop eating disorders.

FACT: Athletes across genders develop eating disorders. Eating disorders in boys often happen in sports such as wrestling, cross country, and track and field, but it can happen to athletes of any gender in any sport.

MYTH: If an athlete's performance has not started suffering, then they must not have a problem.

FACT: Even if an athlete's performance has not started to suffer yet, it eventually will. Not taking in enough calories to match activity level is not sustainable in the long-run.

MYTH: It is normal for female athletes to stop menstruating.

FACT: It is never normal for an athlete with a uterus to stop menstruating, and it often means that the athlete is not taking in enough calories to match activity level. There are serious health risks, especially bone loss, to not menstruating. Research shows that after three years of not menstruating, bone loss is likely to be permanent. Loss of future reproductive function could also occur. Any athlete who has been without a menstrual period for three months should be referred to a physician for an evaluation.

MYTH: It is normal for female athletes to have changes in their menstrual patterns when exercising heavily.

FACT: It is NOT normal for athletes to stop menstruating or to have lighter menstruation or lighter flow, even during heavy training.

MYTH: If athletes are not losing weight, they are probably eating enough.

FACT: Weight loss does not always happen when an athlete under-eats. The body can compensate by slowing down metabolism. Fifty percent of the time when an athlete restricts calories, menstrual cycle changes are the first symptoms to appear. Thus, discussions with athletes about the menstrual cycle are extremely important.

MYTH: If an athlete who loses their period goes on the birth control pill to start menstruating, her bones will be protected.

FACT: An athlete is likely to start menstruating again by going on the birth control pill, but if she has not started eating more, then this is just treating the symptoms and not the underlying problem. No medication, including birth control, has been shown to restore bone loss.

MYTH: If an athlete is not eating enough to match activity level, they are aware of what they are doing.

FACT: Denial is powerful. Athletes will very often feel that they are being as healthy as possible, and that meticulous attention to diet is a sign of dedication to sport. Coaches, parents, and professionals will need to help the athlete see the problems with the behaviors. It will probably take time, education, and convincing for the athlete to see there is a problem.

MYTH: An athlete who eats "healthy," is a top performer on the team, and excels in class is unlikely to have an eating disorder.

FACT: Traits that are desirable in an athlete can make them more at risk of developing an eating disorder. Mental toughness, pursuit of excellence, performance despite pain, commitment to training, and being a team player are very similar to excessive exercise, perfectionism, denial of discomfort, over-compliance, and being self-less. What looks like a "good athlete" may also be a person with a serious eating problem.

Signs and Symptoms of Disordered Eating in Student-Athletes

Significant or sudden weight loss, gain, or fluctuations (or failure to gain expected weight in a child/adolescent who is still growing). Importantly, student-athletes with eating disorders can present in all sizes.

- Fatigue
- Cold intolerance
- Unexpected athletic performance decline
- Bowel changes (constipation or diarrhea)
- Trouble concentrating (e.g., on school work or coaches' instructions)
- Dizziness
- Chest pain or heart palpitations

Resources

Sample Training Day Menu <https://www.wiaawi.org/Portals/0/PDF/MenusFemaleTriad.pdf>

NCAA Resources Related to Disordered Eating <http://www.ncaa.org/sport-science-institute/disordered-eating>

XXVI. HEAD INJURY AND CONCUSSION

BACKGROUND

A concussion is a type of traumatic brain injury that interferes with normal function of the brain. All concussions are brain injuries. The WIAA recommends avoiding the use of nicknames like “ding” or “bell ringer” to describe concussion as those terms minimize the seriousness of concussion.

A concussion is most commonly caused by a direct blow to the head, but can also be caused by a blow to the body. Even what appears to be a mild blow to the head or body can result in a concussion. It is important to know that loss of consciousness is not required to have a concussion. In fact, less than 10% of athletes lose consciousness.

A concussion is a complex physiologic event that causes problems with brain functioning (energy use and communication between nerves), but does not cause swelling or bleeding that affects brain structure. Therefore, CT/CAT scan and MRI are usually normal in athletes with concussion. Imaging studies are not indicated for most concussions, but may be needed in some instances to rule out more severe injuries, like brain bleeds.

Research has shown that concussion in the adolescent age range takes longer than previously thought to recover, with 20-30% of high school athletes taking over 4 weeks to fully recover. Athletes must be fully recovered before considering medical clearance to return to full participation.

There are unique concerns surrounding concussion in high school sports:

1. Adolescents get concussions more often than collegiate and professional athletes
2. Adolescents take longer than adults to heal from concussion
3. Most high schools may not have access to a team physician or an athletic trainer for all of their teams & activities, thus the responsibility for identifying a possible concussion falls on athletes, coaches and parents
4. High school players may try to hide symptoms or be reluctant to admit their symptoms due to fear of removal from play

High school injury surveillance research has shown the following sports have higher risk of concussion: Football, Boys & Girls Soccer, Boys & Girls Ice Hockey, Boys & Girls Lacrosse, Boys & Girls Wrestling, Girls Field Hockey, Competitive Cheer, and Girls Basketball.

Noticeable in this data is that the risk for girls is higher than boys in the same sports; in fact, soccer & basketball carry twice the risk for concussion in girls than boys. It is unclear why girls appear to have a higher risk of concussion.

Most importantly, concussion can happen to anyone in any sport. Concussions also occur away from organized school sports: physical education class, on the playground, while skiing or snowboarding, and when involved in a motor vehicle collision. Coaches and athletic trainers need to be aware of non-sport injuries and how they affect participation.

Everyone involved with high school athletics must be alert for potential injuries on the field and be able to recognize signs and symptoms of concussion. While coaches are not expected to make a diagnosis of concussion, coaches are expected to be aware of possible injuries and understand that their athletes may have a concussion. **Any athlete with a suspected concussion should be held out of all activity until medically cleared by a healthcare provider.** It is important for athletes and coaches to communicate possible injuries to the athletic trainer, parents, and teachers.

Schools should educate their athletes, coaches and parents in the preseason about the seriousness of concussion and the importance of athletes honestly reporting their symptoms and injuries. This education should also include information on the school policy (supported by state law and WIAA guidance) on the steps an athlete with a concussion must complete to return to participation. The information is best delivered at preseason meetings, but also reinforced throughout the season.

SIGNS AND SYMPTOMS

Signs are what can be seen by others, like clumsiness / stumbling off the field. Symptoms are what the injured player feels, like a headache. Remember, athletes should report their symptoms, but they may not unless they are directly asked about how they feel. Even then, it is important to consider that athletes may not be telling the truth.

These are some SIGNS of concussion (what others can see in an injured athlete):

- Dazed or stunned appearance
- Change in the level of consciousness or awareness
- Confused about assignment
- Forgets plays
- Unsure of score, game, opponent
- Clumsy
- Answers more slowly than usual
- Shows behavior changes
- Loss of consciousness
- Asks repetitive questions or memory concerns

Concussion SYMPTOMS are often categorized into four main areas

1. Physical – This describes how they feel: headache, nausea, vomiting, dizziness, tired and loss of consciousness (which is uncommon in concussion). Vision and balance problems are also recognized as potential signs and symptoms of a concussion.
2. Thinking or Cognitive – Poor memory and concentration, responds to questions more slowly and asks repetitive questions. Concussion can cause an altered state of awareness and thinking.
3. Emotions – A concussion can make a person more irritable or sad and cause mood swings.
4. Sleep – Concussions frequently cause trouble falling asleep and may wake athletes up overnight, which can make them more fatigued throughout the day.

Injured athletes can exhibit many or just a few of the signs and/or symptoms of concussion. However, if a player exhibits any signs or symptoms of concussion, the responsibility is simple: remove them from participation. A student-athlete should never return to play on the same day. **“When in doubt, sit them out.”**

It is important to notify a parent or guardian of any student-athlete with a suspected concussion. All student-athletes with a concussion must be evaluated and receive written medical clearance by an appropriate health care provider before returning to practice (including conditioning and weight lifting) or competition.

Some injured student-athletes may require emergency care & necessitate the activation of the Emergency Medical System (911). If you are uncomfortable with the athlete on the sideline or unable to ensure they are going home to a safe environment, it is reasonable to activate EMS/911. The following are other examples to activate EMS:

1. Loss of consciousness, as this may indicate more severe head injury
2. Concern for cervical spine injury
3. Worsening symptoms
4. Decreasing level of alertness
5. Unusually drowsy
6. Severe or worsening headaches
7. Seizures
8. Vomiting
9. Difficulty breathing

MANAGEMENT

If you **suspect** a player may have a concussion, that student-athlete should be immediately removed from play. The injured student-athlete should be kept out of play until they are cleared to return by an appropriate health care provider. If the athlete has a concussion, that athlete should never be allowed to return to activity (conditioning, practice or competition) that day. Student-athletes with a concussion should never be allowed to return to activity while they still have symptoms.

A player with a concussion must be carefully observed throughout the practice or competition to be sure they are not feeling worse. Even though the athlete is not playing, never send a concussed athlete to the locker room alone, as the athlete might not have the wherewithal to understand and report worsening symptoms. Do not allow the injured athlete to drive themselves home.

Most concussions are temporary and will completely resolve without causing residual or long-term problems. About 20-30% of high school athletes will take longer than a month to recover. This prolonged recovery is commonly known as Post-Concussion Syndrome (PCS). Common PCS symptoms include headache, difficulty concentrating, poor memory, mood changes and sleep disturbances. This prolonged recovery often leads to academic troubles, family and social difficulties.

Allowing an injured athlete to return too quickly increases the risk for repeat concussion. Repeat head injury while still recovering from a concussion may cause Second Impact Syndrome. This is a rare phenomenon occurring in young athletes that leads to rapid brain swelling, brain damage and potentially death (50% of cases).

Repeat concussions may increase the chance of long-term problems, such as decreased brain function, persistent symptoms and potentially chronic traumatic encephalopathy (CTE), a disorder that causes early degeneration of the brain. It is felt that these long-term complications are very rare in high school athletes, and the risk can be minimized by proper reporting and care of every concussion. The development of CTE is still an unclear pathway that requires more research.

Return to Learn

A major concern in high school student-athletes is that concussion can negatively affect school performance and grades. Symptoms (headache, nausea, etc.), poor short-term memory, poor concentration and organization may temporarily turn a good student into a problem student. The best way to address this is to decrease the academic workload, and potentially taking time off from school or attending partial days (although time missed should almost always be less than 5 days). Injured athletes should be allowed extra time to complete homework and tests, and they should be given written instructions for homework. New information should be presented slowly and repeated. Injured athletes will need time to catch up and may benefit from tutoring. If an athlete develops worsening symptoms at school, he/she should be allowed to visit the school nurse or take a rest break in a quiet area. The school and coaches should maintain regular contact with the injured athlete's teachers and parents to update progress.

All injured students should be removed from PE class until medically cleared.

In conjunction with Children's Wisconsin, Healthy Kids Learn More developed a free "Return to Learn" educational webinar to help schools and teachers improve their academic care of students with a concussion and create school-based return to learn plans.

<https://www.healthykidslearnmore.com/Healthy-Kids-Learn-More/Course-Topics/Concussion/Return-to-Learn>

Athletes with a concussion must return to full speed academics without accommodations before returning to sports (practice and competition).

Other Treatment Strategies

Relative rest remains an essential component of concussion treatment. It is helpful for parents to decrease stimulation at home by limiting video games, but a reduction (not elimination) of screen time (phone, computer, tablet, TV) may be helpful. "Cocoon therapy," or avoiding all brain stimulation, has been shown to negatively impact recovery and is no longer a recommended treatment style.

Physical activity may be beneficial for recovery of injured student-athletes. However, high-level activity (weight lifting, practice level training and conditioning) should still be avoided. Simple physical exertion, like walking or gentle stationary biking, that does not worsen symptoms may be done for short periods of time. Any post-injury exercise plan should be authorized and overseen by an appropriate health care provider.

A student-athlete's concussion can interfere with work and social events (movies, dances, attending games, etc.). Good hydration and dietary habits and good sleep habits (8-10 hours per night) are important parts of the recovery process. There are no medications or supplements that help speed the recovery process.

Neuropsychological Testing

Neuropsychological testing has become more commonplace in concussion evaluation as a means to provide an objective measure of brain function. Testing is currently done using computerized neuropsychological testing (example: ImPACT, Sway) or through a more detailed pen and paper test administered by a neuropsychologist. It is only a tool to help ensure safe return to activity and not as the only piece of the decision making process.

If neuropsychological testing is available, ideally a baseline or pre-injury test is completed prior to the season. This baseline should be done in a quiet environment when the athlete is well rested. It is felt that baseline testing should be repeated every one to two years for the developing adolescent brain. **Multi-modal baseline evaluation assessing baseline symptoms, cognitive functioning, visual tracking, reaction time, and balance are ideal.**

If there is no baseline available, the injured student-athlete's computerized test scores can be compared to age established norms. This requires a provider experienced in the use and interpretation of computerized testing. The WIAA feels that neuropsychological testing can be a useful tool with regard to concussion management, but research does not support mandating computerized baseline evaluations.

RETURN TO PLAY

In order to resume full participation in sport, the student-athlete must be symptom free and off any pain control or headache medications that they were not taking prior to the concussion. The athlete should be carrying a full academic load without any significant accommodations for 1-2 days. Finally, per Wisconsin law, the student-athlete must have written medical clearance from an appropriate health care provider.

The program below details guidelines for returning concussed student-athletes to exercise and activity. Athletes with multiple concussions and/or prolonged symptoms often require a prolonged or different return to activity program which should be managed by a physician with experience in treating concussion.

The program allows for a gradual increase in heart rate/physical exertion, coordination, and then allows contact. Student-athletes should progress no faster than one stage per 24 hours. If symptoms return while working through the program, the athlete should stop activity and notify their healthcare provider before progressing to the next level.

- | | |
|--------------|--|
| STAGE ONE: | Daily activities that do not increase symptoms (gradual reintroduction of school, work and walking). This may be started within a few days of the injury. |
| STAGE TWO: | Light aerobic exercise: slow to medium pace jogging, stationary cycling. No resistance training. No increase in symptoms. This stage allows for increased heart rate - begin with <55% of max HR, but if tolerating, can progress to <70% of max HR. |
| STAGE THREE: | Sport-specific exercise: moderate to higher intensity running or skating drills, but no activities with risk of head impact. This allows for increased heart rate and agility/movement. No increase in symptoms. |
| *STAGE FOUR: | Non-contact training: Higher intensity aerobic fitness, and non-contact/non-collision team training drills (e.g., passing drills). May begin progressive resistance training. This increases coordination and thinking during sport. |
| STAGE FIVE: | Full contact practice. Following medical clearance, participate fully in normal training activities. This restores confidence and allows coaches to assess functional skills. |
| STAGE SIX: | Full clearance / Normal game play. |

* Stages 4-6 should only begin after the complete resolution of any symptoms, abnormalities in cognitive function, and any other clinical finding related to the current concussion. Student-athletes should remain symptom-free during and after physical exertion.

PREVENTION/RISK REDUCTION

There is nothing that truly prevents concussion. Education and recognition of concussion are the keys in reducing the risk of problems with concussion.

Wisconsin State Concussion Law (Act 172) was passed in 2011. This law mandates distribution of preseason educational information sheets to be signed by coaches, athletes and parents. It also recommends immediate removal of any athlete with a suspected concussion and no same day return to play. Finally, all injured athletes require written medical clearance from an appropriate health care professional. Research has indicated that the state law has helped improve education and awareness of concussion.

Proper equipment fit and use may reduce the risk of concussion. Proper maintenance and reconditioning of equipment is important.

- Mouthguards have been shown to decrease dental injuries, but have not been shown to reduce risk of concussion.
- Soccer headgear has been shown not to reduce the risk of concussion.
- Helmets are useful in preventing facial injuries and skull fractures; however, helmets have not been reliably shown to decrease concussion rates.
 - Virginia Tech University has created a helmet rating system for the Varsity Football age range. Helmets with lower scores may be less protective, but research is still needed to prove risk reduction. <https://www.helmet.beam.vt.edu/varsity-football-helmet-ratings.html>
 - The NFL has also created a helmet rating system for NFL aged players, which may not correlate with high school student-athletes. Research is still needed to prove true risk reduction. <https://www.nfl.com/playerhealthandsafety/equipment-and-innovation/equipment-testing/helmet-laboratory-testing-performance-results>
- Third party "add-on" equipment for helmets (external padding or strips applied to the outside of the helmet) have not shown a decrease in concussion risk, and any add-on may void the helmet warranty.

Proper technique for hitting/initiating contact is vital. For example, student-athletes that lower their head while making a football tackle have a significantly higher risk for concussion and neck injuries. Athletes should never lead with their head or helmet.

Rule changes and proper enforcement of rules have been shown to reduce concussion rates. WIAA limitations in contact football practices have reduced concussion rates since implementation.

All schools should have an Emergency Action Plan for each team and practice / competition area. This plan can be used for any medical emergency from a concussion to a neck injury to anaphylaxis (severe allergic reaction). Ideally, these plans are reviewed annually.

The WIAA encourages every member school to promote concussion education and bring about a positive change in culture by discussing con-

cussion with all teachers, coaches, athletes and parents. We recommend a preseason discussion with athletes and families to set expectations for what will happen if a student has a suspected concussion, including the steps the student must go through to return to play. Coaches should use in-season concussions as “teachable moments” to remind teammates about the importance of reporting their injuries and supporting their injured teammate through the recovery process.

Further reading and additional materials can be obtained at no charge through these resources:

- Concussion in Sports Course www.nfhslearn.com
- Heads Up Tool Kit www.cdc.gov
- Concussion Return to Learn Course www.healthykidslearnmore.com

XXVII. REDUCING BRAIN & SPINAL INJURIES IN FOOTBALL

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

The most common brain injury in sport is a concussion. All athletes with suspected concussion should be immediately removed from play to undergo a medical evaluation. An athlete sustaining a concussion should not be allowed to return to play (game or practice) that day. Athletes should be symptom free and back to full academics without limitation before considering returning to sport. All athletes with a concussion need written medical clearance from an appropriate health care provider. Returning to play too soon may be associated with poor outcomes (second impact syndrome, prolonged recovery, etc.) for the injured athlete.

Several suggestions for reducing brain and spinal injuries:

1. Preseason preparticipation evaluation for all participants.
 - a. Identify athletes with a history of previous head injury, concussion, and spinal injury. If the physician has questions regarding the athlete’s readiness to participate, the athlete should not be allowed to play.
2. If it is not possible to have sports medicine personnel (athletic trainer or physician) at all games or practices, then emergency measures must be provided. The entire coaching staff should be organized with an emergency action plan, and each person should know what they should do in case of a brain or spinal injury during a game and practice. Prevention of further injury is the main objective.
3. The WIAA Medical Advisory Committee recommends that, ideally, a health care provider should be present at games and a Licensed Athletic Trainer be present at all games and practices. If it is not possible for a physician and/or trainer to be present at all games and practice sessions, then emergency measure must be provided, and the Emergency Action Plan should be well rehearsed.
 - a. The emergency action plan should be reviewed and rehearsed at least on a yearly basis.
 - b. **A cell phone should be readily available at all times.**
4. Athletes should have appropriate conditioning and training, including exercises to strengthen their neck. Stronger neck muscles may decrease injury risk.
5. Coaches should teach appropriate contact techniques and demonstrate proper execution of the fundamental football skills, particularly blocking and tackling.
 - a. Keep the head out of football – coaches should discourage leading with the head / helmet.
6. Special care should be taken to ensure that all players have properly fitted equipment that is properly worn for every practice and game.
7. Coaches and officials strictly enforce the rules of the game at every practice and competition to reduce injury risk.
8. Coaches should educate athletes and families about concussion and the importance of immediate reporting of any suspected injury.
 - a. Coaches should create a culture that encourages injury reporting and is not punitive or demeaning to the injured athlete.
9. Coaches should not be hired if they do not have the training or experience needed to teach the skills of the sport, including proper training and development of athletes for competition.

Based on original article by Mueller, FO and Cantu, RC.

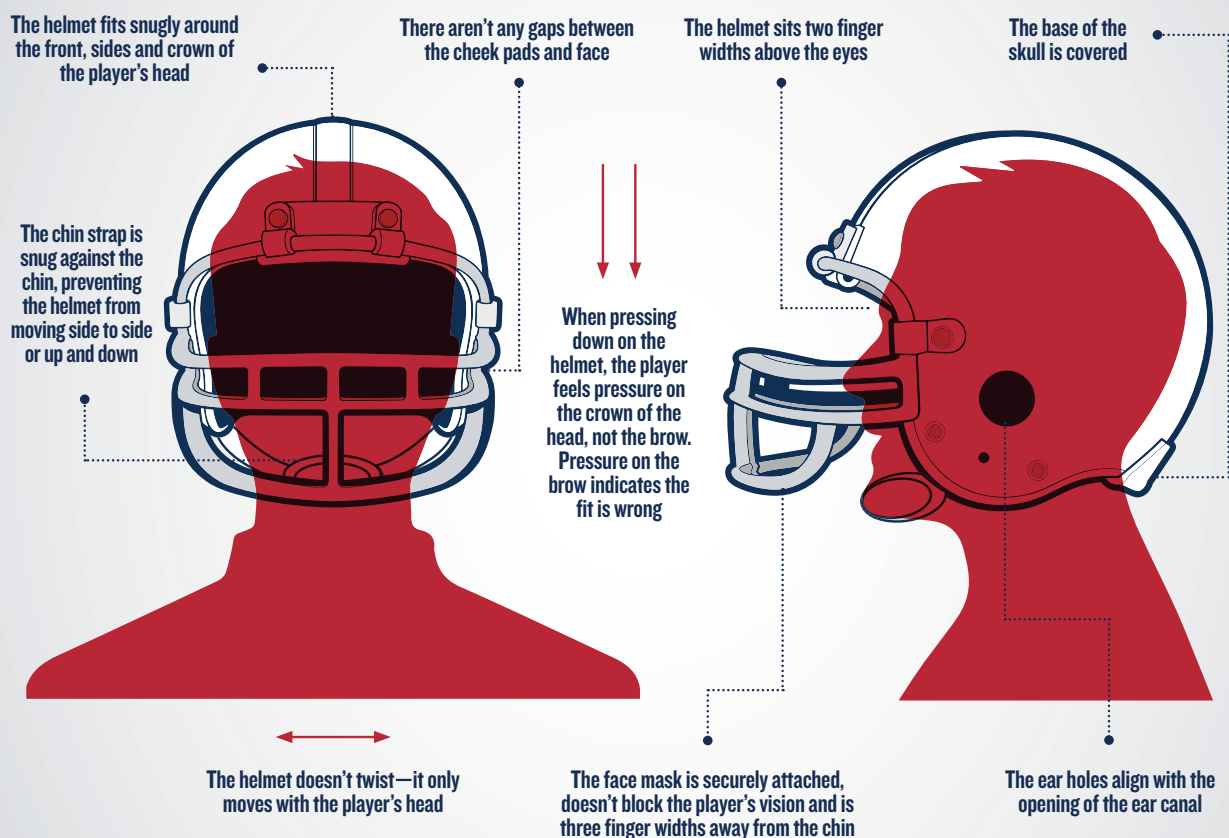
PROPER FIT = PROPER PROTECTION

The right football helmet is the first step in safety

Designed to withstand repeat blows, the football helmet is a player's first line of defense. An ill-fitting helmet puts the player at risk. It's important to thoroughly read and follow the manufacturer's fit guidelines. When in doubt, talk with your athletic trainer or equipment manager to ensure your player is properly protected.

GETTING THE RIGHT FIT

Measure the player's head circumference 1 inch above the eyebrows and select the appropriate helmet size according to the helmet manufacturer. Make sure the air bladders are inflated. Place the helmet on the player's head and check that:



PLAYERS, REMEMBER ...

- Inspect your helmet before each use, checking for:
 - Proper fit
 - Damage to the liner, shell or face mask
 - Loose hardware
- *Never wear a damaged or ill-fitting helmet**
- Keep your chin strap locked at all times during play
- Multiple factors can impact the fit of a helmet, including (but not limited to):
 - Air temperature
 - Changes in altitude
 - Hair length
 - Damage to air bladder valve

Source: "Principles of Athletic Training: A Guide to Evidence-based Clinical Practice 16th edition"; Riddell Fitting Guide; Schutt Helmet Fitting Instructions; USA Football Infographic provided by the National Athletic Trainers' Association

GET A HEADS UP ON Football Helmet Safety



While there is no concussion-proof helmet, a football helmet can help protect your athlete from a serious brain or head injury. The information in this handout will help you learn what to look for, and what to avoid when picking out a helmet for your football player.

Start with the Right Size:

BRING THE ATHLETE

Bring your athlete with you when buying a new helmet to make sure you can check for a good fit.

HEAD SIZE

To find out the size of your athlete's head, wrap a soft tape measure around the athlete's head, just above their eyebrows and ears. Make sure the tape measure stays level from front to back. (If you don't have a soft tape measure, you can use a string and then measure it against a ruler.)

SIZES WILL VARY

Helmet sizes often will vary from brand-to-brand and with different models. Each helmet will fit differently, so it is important to check out the manufacturer's website for the helmet brand's fit instructions and sizing charts, as well as to find out what helmet size fits your athlete's head size.

Get a Good Fit:

GENERAL FIT

A football helmet should feel snug with no spaces between the pads and the athlete's head. The helmet should not slide on the head with the chin strap in place. If the helmet can be removed while the chin strap is in place, then the fit is too loose. Some helmets have a unique fitting system, or use an air bladder system that requires inflation with a special needle to avoid puncturing the air bladders. You can find more information on fitting a football helmet on the manufacturer's website.

ASK

Ask your athlete how the helmet feels on their head. While it needs to have a snug fit, a helmet that is too tight can cause headaches.

HAIRSTYLE

Your athlete should try on the helmet with the hairstyle athletes will wear while at practices and games. Helmet fit can change if your athlete's hairstyle changes. For example, a long-haired athlete who gets a very short haircut may need to adjust the fit of the helmet.

COVERAGE

A football helmet should not sit too high or low on their head. To check, make sure the ear holes line up with the athlete's ears, and the pad in the front of the helmet covers the athlete's head from the middle of their forehead to the back of their head.

VISION

Make sure you can see your athlete's eyes and that they can see straight forward and side-to-side.

CHIN STRAPS

The chin strap should be centered under the athlete's chin, and fit snugly. Tell your athlete to open their mouth wide... big yawn! The helmet should pull down on their head. If not, the chin strap needs to be tighter.

Once the chin strap is fastened, the helmet should not easily move in any direction, back-to-front or side-to-side. For helmets with a four point chin strap system, all four straps must be snapped and tightened as part of the fitting process. Always follow the manufacturer's fitting instructions.

Take Care of the Helmet:

Athletes should NOT attempt to make any helmet or faceguard repairs themselves.

CHECK FOR DAMAGE

DO NOT allow your athlete to use a cracked or broken helmet, or a helmet that is missing any padding or parts. For air bladder-equipped helmets, make sure to check for proper inflation. DO NOT alter, remove or replace padding or internal parts unless supervised by a trained equipment manager. Check for missing or loose parts and padding before the season and regularly during the season.

CLEANING

Clean the helmet often inside and out with warm water and mild detergent. DO NOT soak any part of the helmet, put it close to high heat, or use strong cleaners.

PROTECT

DO NOT let anyone sit or lean on the helmet.

STORAGE

Do not store a football helmet in a car. The helmet should be stored in a room that does not get too hot or too cold, and where the helmet is away from direct sunlight.

DECORATION

DO NOT decorate (paint or put stickers on) the helmet without checking with the helmet manufacturer, as this may affect the safety of the helmet. This information may also be found on the instructions label or on the manufacturer's website.

Look for the Labels:

LOOK FOR A FOOTBALL HELMET WITH LABELS THAT:

- Say "MEETS NOCSAE Standard®"¹ as certified either by the manufacturer or by SEI². That label means that the helmet model has been tested and meets NOCSAE performance and protection standards.
- State whether the helmet can be recertified. If not, look for the label that specifies when the certification to the NOCSAE standard expires.
- Specify how frequently the helmet must be reconditioned and recertified.

- Have the date of manufacture. This information will be helpful if the manufacturer has: specified a useful life of the helmet; specified that the helmet may not be reconditioned and recertified; or if there is ever a recall on that particular model or year.

Know When to Replace a Football Helmet:

RECONDITIONING

Reconditioning involves having an expert inspect and repair a used helmet by: fixing cracks or damage, replacing missing parts, testing it for safety, and recertifying it for use. Helmets should be serviced regularly by a licensed NAERA² member.

DO NOT allow your athlete to use a used helmet that has not been recently recertified for use by a NAERA reconditioner.

For a complete list of licensed recertifiers, visit the National Federation of State High School Associations (NFHS): www.nfhs.org/media/1018157/4-20-2017_nocsae_reconditioners.pdf.

"Only companies that are licensed by NOCSAE® can recertify a helmet. All NAERA members are licensed by NOCSAE®".

10 AND OUT

Football helmets should be replaced no later than 10 years from the date of manufacture. Many helmets will need to be replaced sooner, depending upon wear and tear.



¹ National Operating Committee on Standards for Athletic Equipment: www.nocsae.org

² Safety Equipment Institute (SEI) is an independent and nationally accredited certification body: www.seinet.org

TO LEARN MORE ,GO TO
WWW.CDC.GOV/HEADSUP





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