

## **BY-LAW ARTICLE III Sports Medicine**

### **Sect. 1: Medical Coverage at Athletic Events**

The importance of the long-range safety of high school athletes cannot be overstated. Consequently, the NHIAA and its member schools will favor medical safety over any other countervailing concerns including competitive advantage. Every high school in New Hampshire must make provisions for **licensed** medical personnel at all practices and contests. The types of provisions that are acceptable are (the provisions are in alphabetical order, not preferential order):

1. Athletic Trainer
2. Board Certified Sports Physical Therapist
3. Emergency Medical Technician
4. Nurse
5. Nurse Practitioner
6. Physician
7. Physician Assistant
8. Systems developed to call medical personnel to the site of the athletic event

At the athletic competitions where medical coverage is either provided or mandated by the NHIAA, injuries sustained by athletes will be evaluated by the designated medical personnel. The clearance to re-enter competition after an injury will be made by the designated medical personnel only. Absent unanimous agreement between the designated medical personnel to allow continued participation, an injured player will not be allowed to return to the game. Their decision is final and cannot be overturned by the coach, coaching staff, parents/guardians, or any non-designated personnel.

When the NHIAA provides qualified medical personnel and member schools also provide qualified medical personnel, it is expressly understood that the NHIAA provider shall defer to the school designated qualified medical personnel if requested. If the member school does not provide qualified medical personnel or if no deferral is requested, the NHIAA provider will act as the designated medical personnel. In choosing who should act as the designated medical personnel, all medical personnel are expected to act in the best interests of the student athletes and participate to the extent that his or her expertise will increase the quality of the care delivered. Prior to the start of the event the NHIAA assigned medical personnel, in conjunction with the designated site manager, should review this requirement and determine the procedures/chain of command to be identified during the event to ensure compliance with the provisions stated in this By-Law.

**Note: Student trainers, high school or college, cannot be used to meet the provisions of this By-Law.**

### **Sect. 2: Medical Statement**

- A. Students shall be ineligible to participate in interscholastic athletics (practices or games) unless there is on file in the school a *medical statement* provided by a physician (within the meaning of NH RSA 329) certifying the student athlete has passed a pre-participation physical examination prior to the beginning of the student athlete's high school athletic career. In every subsequent year, athletes shall have an updated medical history and a physical examination pertinent to their needs, if deemed necessary. Any student athlete significantly ill or injured since the last review shall be re-examined by a physician in order to be eligible to participate in interscholastic athletics.
- B. A medical statement must be completed by a physician, ARNP or by a qualified non-physician health practitioner under the direct supervision of a physician (within the meaning of NH RSA 329).
- C. A family may apply to the NHIAA Executive Director through the school administration for a waiver of this By-Law based on religious reasons. Prior to approving such requests, the parent and/or legal

guardian must sign the NHIAA waiver form which holds the NHIAA harmless for any medical problems that arise.

D. Local school districts may impose requirements that exceed the provisions of this By-Law.

### **Sect. 3: Absence of or Disease of One Paired Organ**

No student athlete with the absence of one paired organ shall participate in inter-scholastic athletics unless the student athlete provides his/her principal with completion of a medical release completed by a physician, ARNP or by a qualified non-physician health practitioner. The student athlete is required to wear the protective equipment recommended by the medical specialist for all practices and games. It is required that copies of all materials be filed with the NHIAA.

### **Sect. 4: Use of Artificial Limbs**

The NHIAA authorizes the use of artificial limbs which in its opinion are no more dangerous to players than the corresponding human limb and do not place an opponent at a disadvantage. The authority to determine such rule lies with the Executive Director and the National Federation Rules Interpreter for that sport. All requests for rulings must be submitted in writing by the Principal of the member school.

### **Sect. 5: Transgender**

NHIAA rules and regulations allow transgender student-athlete participation under the following conditions:

- A. A student-athlete will compete in the gender of their birth certificate unless they have undergone sex reassignment.
- B. A student-athlete who has undergone sex reassignment is eligible to compete in the reassigned gender when:
  - 1. The student-athlete has undergone sex reassignment before puberty, OR
  - 2. The student who has undergone sex reassignment after puberty under all of the following conditions:
  - 3. Surgical anatomical changes have been completed, including external genitalia changes and gonadectomy.
  - 4. All legal recognition of the sex reassignment has been conferred with all the proper governmental agencies. (driver's license, voter registration, etc.)
  - 5. Hormonal therapy appropriate for the assigned sex has been administered in a verifiable manner and for sufficient length of time to minimize gender-related advantages in sports competition.
  - 6. Athletic eligibility in the reassigned gender can begin no sooner than two years after all surgical and anatomical changes have been completed.
  - 7. A student-athlete seeking participation as a result of sex reassignment can access the NHIAA eligibility appeal process.

### **Sect. 6: Prohibited Use of Tobacco Products**

No coach, game official, athletic team member or player of an NHIAA member school shall use or smoke any tobacco product (smokeless or otherwise) at any NHIAA sponsored or sanctioned event in which the coach, game official, team member or player is involved.

## **Sect. 7: RESOLUTION: MODEL TO SET STANDARDS FOR ALCOHOL OR MOOD-ALTERING CHEMICALS**

**STATEMENT OF PHILOSOPHY:** It is the philosophy of the NHIAA and its member schools that students should be encouraged and supported in their efforts to develop and maintain a chemical-free lifestyle.

The NHIAA and its member schools recognize the use of alcohol or mood-altering chemicals as a significant health problem for many students, resulting in negative effects on behavior, learning and the total development of each individual.

The NHIAA and its member schools believe the close contact of coaches, advisors and students in the classroom or activities provides a unique opportunity to observe, confront and assist one another.

### **STATEMENT OF PURPOSE:**

1. Emphasize concerns for the health of students in areas of safety while participating in activities and the long-term physical and emotional effects of chemical use on their health.
2. Promote a sense of order and discipline among students.
3. Confirm and support existing state laws, which restrict the use of alcohol or such mood-altering chemicals.
4. Establish standards of conduct for those students who are leaders and standard-bearers among their peers.
5. Assist students who desire to resist peer pressure, which directs them toward the use of alcohol or mood-altering chemicals.
6. Assist students who should be referred for assistance or evaluation regarding their use of alcohol or mood-altering chemicals.

**A CODE OF CONDUCT:** Recognizing the diversity of its member schools, the NHIAA recommends that a Code of Conduct incorporate the following:

1. Philosophy: Specify the philosophy and basis for recommending a code of conduct.
2. Purpose for Establishing Rules: State the reasons for setting standards and the educational rationale for assisting students through such standards.
3. Defining the Rule: Incorporate alcohol or the mood-altering chemicals to be included; the time during which the students are responsible for the rules.
4. Specifying the Consequences for Violations of the Rule: Define the activities for which the student is ineligible, the length of time and events, which apply to each violation and the responsibilities of the student during those periods.
5. Develop the Procedures for Due Process: Specify the procedures by which the school officials will investigate reported violations of the rules and apply the consequences for confirmed violations.
6. A Code of Conduct would define the time during which the rule is in effect, include the parameters of use, possession, intent to buy or sell, transmit, etc., and the consequences of a violation.

**SAMPLE RULE FOR A MODEL CODE OF CONDUCT:** A sample of a rule, which incorporates the standards, cited above could read:

“Regardless of the quantity, a student shall not: 1) use a beverage containing alcohol, 2) use tobacco; or 3) use or consume, have in possession, buy, sell or give away any other controlled substance.”

**SAMPLE OF CONSEQUENCES FOR VIOLATIONS OF THE RULE:** Consequences for rule violations should incorporate the following standards:

1. A Standard of Certainty: An expectation by those to be affected by the rule that it will be applied with a measure of consistency and uniformity to all involved.
2. A Standard of Severity: An expectation that the consequences for the violation are fair for the act committed and that those affected will be encouraged to follow through with the consequences, including coaches, students, and parents.
3. A Standard of Promptness: An expectation that the due process will promptly be applied following an alleged violation.

## Sect. 8: Medical Appliances

When it is necessary for an athlete to wear a medical appliance (such as an insulin pump) 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 firmly secured to the body. No medical appliance should pose a risk of injury to others. It is recommended that the athlete notify the official of the presence of the medical appliance prior to a contest.

## Sect. 9: Mouth Guards are required in:

- Soccer
- Field Hockey
- Football
- Basketball
- Ice Hockey
- Lacrosse
- Wrestlers with braces

\*This list does not preclude athletes from wearing mouth guards in other sports.

The Sports Medicine Committee has been trying to facilitate the availability of proper fitting mouth guards for the student athletes of the state. Although unsuccessful to date in attempts to get clinics provided around the state, they have compiled a list of vendors and companies that provide form fitted mouth guards. Please understand that the information provided is for your use as a reference and decisions must be made by the individual school and/or student athlete. Neither the NHIAA nor the Sports Medicine Committee is in any way recommending or endorsing the following vendors or service providers supplied in this list.

<u>Name</u>	<u>Contact Information</u>	<u>Price</u>
CustMbite	<a href="http://www.custmbite.com">www.custmbite.com</a>	\$34.99 plus shipping of \$5.00 Wholesale pricing is available to schools, sports teams, and other organizations. Contact: <a href="mailto:info@custmbite.com">info@custmbite.com</a>
Pro-Tekt	<a href="http://www.protektmouthguards.com">www.protektmouthguards.com</a> <a href="mailto:customerservice@protektinc.com">customerservice@protektinc.com</a>	\$49.99 - \$89.99
Sport Guard International	<a href="http://www.customguards.com">www.customguards.com</a> 1-877-8guards	\$45.00 - \$82.00
Opro	<a href="http://www.opro.com/opd">www.opro.com/opd</a> <a href="mailto:CustomerCareUS@opro.com">CustomerCareUS@opro.com</a>	\$61.95 - \$94.95
Custom Fit Mouth Guards/Ifit Mouth Guards	Heather Chase, RDH LeeAnn Grandmason, RDH Destinee Diprina, DA Atkinson, NH 1-603-362-5582	\$55 - They may be able to go to you for larger groups
Sports Guard Labs	<a href="http://www.sportsguard.com">www.sportsguard.com</a> <a href="mailto:customerservice@sportsguard.com">customerservice@sportsguard.com</a> 1-800-401-1776	\$55
Mouth Guards and More	<a href="mailto:mouthguardsandmore@comcast.net">mouthguardsandmore@comcast.net</a>	\$40-\$45
Defender Mouth Guards	<a href="http://www.defendermouthguards.com">www.defendermouthguards.com</a> 1-888-65-defender	\$57-\$93

## **Sect. 10: Eye Protection**

Eye protection is currently required in the sports of field hockey and lacrosse. Eye protection may be deemed medically necessary in other sports by a physician. Any adaptation to equipment must be commercially made and approved by the manufacture of the basic equipment i.e. an eye guard may be required or used on a football helmet as long as it is made and approved for that specific helmet. Helmet eye shields must be non-reflective and clear only.

## **Sect. 11: Outdoor Environmental Safety**

**Lightning/Thunder:** Lightning is the most consistent and significant weather hazard that may affect outdoor athletics. Within the United States, the National Severe Storm Laboratory (NSSL) estimates that 100 fatalities and 400-500 injuries requiring medical treatment occur from lightning strikes every year. The existence of blue sky and the absence of rain are not protection from lightning. Lightning can, and does, strike as far as ten (10) miles away from the rain shaft. It does not have to be raining for lightning to strike. Additionally, thunder always accompanies lightning, even though its audible range can be diminished due to background noise in the immediate environment, and its distance from the observer. The following guidelines are mandated:

- A. All athletic staff and game personnel are to monitor threatening weather. Establish a chain of command as to who makes the decision to remove a team or individual from athletic sites or events (athletic/site/event director, game officials/umpires, sports medicine staff?). An emergency plan should include planned instructions for participants as well as spectators.
- B. Be aware of potential thunderstorms that may form during scheduled athletic events or practices. Included here should include National Weather Service – issued (NWS) thunderstorm “watches” and “warnings” as well as signs of thunderstorms developing nearby. A “watch” means conditions are favorable for severe weather to develop in an area; a “warning” means that severe weather has been reported in an area and for everyone to take proper precautions.
- C. Know where the closest “safe structure or location” is to the field or playing area, and know how long it takes to get to that safe structure or location.

### **Safe structure or location is defined as:**

- Any building normally occupied or frequently used by people, i.e., a building with plumbing and /or electrical wiring that acts to electrically ground the structure. Avoid using shower facilities for safe shelter and do not use the showers or plumbing facilities during a thunderstorm.
  - In the absence of a sturdy, frequently inhabited building, any vehicle with a hard metal roof (not a convertible or golf cart) and rolled up windows can provide a measure of safety. A vehicle is certainly better than remaining outdoors. It is not the rubber tires that make a vehicle safe shelter, but the hard metal roof, which dissipates the lightning strike around the vehicle. Do not touch the sides of the vehicle!
- D. When you first hear thunder or see lighting, suspend activities and go to a safe shelter or location. “If you can see it (lightning), flee it (take shelter). If you can hear it (thunder) clear it (suspend activities).” Wait until 30 minutes after the last observed lightning or thunder before resuming activities.
  - E. If no safe structure or location is within a reasonable distance, find a thick grove of small trees surrounded by taller trees or a dry ditch. Assume a crouched position on the ground with only the balls of the feet touching the ground, wrap your arms around your knees and lower your head. Minimize contact with the ground, because lightning current often enters a victim through the ground rather than by a direct overhead strike. Minimize your body’s surface area, and minimize contact with the ground! Do not lie flat! Stay away from the tallest trees or objects (such as light poles or flag poles), metal objects (such as bleachers or fences), individual trees, standing pools of water, and open fields. Avoid being the highest object in a field. Do not take shelter under a single, tall tree.

## Sect. 12: Guidelines on Ozone Pollution and Physical Activity

School Administrators and coaches as well as other appropriate staff are to use this document in making decisions regarding indoor and outdoor activities during periods of high ozone pollution.

**CONTACT INFORMATION:** Air Quality Action Day Contact person is Kathy Brockett ([kathleen.brockett@des.nh.gov](mailto:kathleen.brockett@des.nh.gov)) (603) 271-6284. The following website provides air quality data by county in NH; [http://www2.des.state.nh.us/airdata/air\\_quality\\_forecast.asp](http://www2.des.state.nh.us/airdata/air_quality_forecast.asp)

Email alert for Air Quality Action days are available through the **EnviroFlash** system, a service provided jointly by EPA and DES. EnviroFlash is a notification system that sends e-mail, text, or pager messages with air quality information such as forecasts and Air Quality Action Day announcements. EnviroFlash is available statewide in New Hampshire. It is a quick, simple way to stay informed about air quality conditions in your region. This service is especially helpful for people who are at greater risk from air pollution, including children, older adults, and people with heart or lung diseases. To sign up for EnviroFlash, visit [www.enviroflash.info/](http://www.enviroflash.info/). You can sign up to receive just **Air Quality Action Day messages** or to receive forecasts at various air quality levels based on your location.

### CHARTING AIR QUALITY

Local officials use a simple scale to forecast and report on smog levels and other air pollution. Depending on where you live, it might be called Air Quality Index (AQI) or Pollutant Standards Index (PSI).

Current air quality is reported as a percentage of the federal health standard for a pollutant. If the current index is above 100, air pollution exceeds the level considered safe.

At Ozone smog levels above 100, children, asthmatics and other sensitive groups should limit strenuous exercise. Even otherwise healthy people should consider limiting vigorous exercise when ozone levels are at or above the health standard.

If the index is above 200, corresponding to an ozone pollution level of .20 parts per million (ppm), the pollution level is judged unhealthy for everyone. At this level, air pollution is a serious health concern. Everyone should avoid strenuous outdoor activity, as respiratory tract irritation can occur.

### U.S. EPA Air Quality Index

<u>Index Value</u>	<u>Descriptor</u>	<u>Color</u>	<u>1 hr. Ozone ppb</u>
0 – 50	Good	Green	---
51 – 100	Moderate	Yellow	---
101 – 150	Unhealthy for Sensitive Groups	Orange	125 – 164
151 – 200	Unhealthy	Red	165 – 204
201 – 300	Very Unhealthy	Purple	205 – 404
301 – 500	Hazardous	Maroon	405 – 604

## **OBSERVING AIR QUALITY**

- A. **Watch the Calendar:** Ozone smog tends to be worst during the May - September “smog season.” Be especially conscious of smog levels during warm weather. In warm areas, smog can be a problem at any time of the year. Carbon monoxide pollution levels also are related to the weather, as well as to altitude. In the western U.S., the highest carbon monoxide levels are found in the winter months.
- B. **Watch the Clock:** Since sunlight and time are necessary for ozone smog formation, the highest levels of ozone typically occur during the afternoon. Since carbon monoxide is produced primarily by motor vehicles, the highest carbon monoxide levels usually occur during rush hour or during other traffic congestion situations.
- C. **Watch the News**

## **GUIDELINES FOR PARTICIPATION**

- A. Observe appropriate physical activity restrictions represented above.
- B. If an ozone exceedance is expected, but has not yet occurred at the time an interscholastic practice or contest is scheduled to begin, that event may begin as scheduled.
- C. If an interscholastic practice or contest is scheduled to begin and an E.P.A. warning is in effect (PSI 201 or higher), the event shall be cancelled, delayed or rescheduled.

When ozone levels reach a national PSI level of 201 (.201 parts per million), exercising indoors or outdoors may cause significant respiratory tract irritation and a decline in lung function. Therefore, strenuous exercise indoors and outdoors is to cease.

## **RECOMMENDED RESTRICTION OF PHYSICAL ACTIVITY**

The following limits on activity for each type of episode are as follows:

- **Level Orange, PSI 101-150 (Unhealthy for Sensitive Groups)**
  - 1. Active children and adults and people with heart or respiratory disease, such as asthma or allergies, should limit prolonged outdoor exertion.
  - 2. Healthy individuals with noticeable health effects associated with existing conditions should minimize outdoor activity.
- **Level Red, PSI 151-200 (Unhealthy)**
  - 1. All athletes should discontinue prolonged, vigorous exercise indoors and outdoors.
  - 2. Sensitive individuals, primarily children who are active outdoors and people with heart or respiratory disease such as asthma or allergies, should avoid indoor and outdoor activity.
  - 3. Indoor and outdoor activities that should be avoided include, but are not limited to, calisthenics, basketball, baseball, running, field hockey, soccer, football, tennis, swimming and diving.
- **Level Purple, PSI 201-300 (Very Unhealthy)**
  - 1. All athletes shall discontinue vigorous indoor and outdoor activities, regardless of duration.
  - 2. All indoor and outdoor physical education classes, sports practices and athletic competitions shall be rescheduled.

Note: Indoor practices may be held if an air-conditioned facility is available.

## Sect. 13: Concussions

### 2010 NHIAA Adopts the NFHS Guidelines For Management Of Concussions In Sports

At the February 2010 Meeting of the NHIAA Sport Medicine Committee and subsequently confirmed by the NHIAA Council also in February of 2010 the guidelines regarding concussion management as published by the National Federation of State High School Associations in 2009, were adopted as **minimum mandatory standards** to be utilized by all NHIAA member schools. Schools may adopt more restrictive guidelines or protocols but under no circumstances can the NHIAA guidelines be diluted especially where specific actions are mandated. Specifically, schools must minimally follow items 1 and 2 under “Sideline Decision Making” found in the “Management of Concussions and Return to Play” section of this document. All individuals involved in interscholastic athletics are encouraged to carefully study and make themselves aware of these guidelines.

The NHIAA website also has more in depth information on this topic (NH Advisory Council on Sport-Related Concussion issues a “Consensus Statement”). Bottom line, new research has made the medical community much more aware of the significant dangers related to sports related head injuries. The days of getting a “ding” or “Having your bell rung” and then returning to play are long gone.

### SUGGESTED GUIDELINES FOR MANAGEMENT OF CONCUSSION IN SPORTS

National Federation of State High School Associations

PO Box 690, Indianapolis, IN 46206

February 2010

## INTRODUCTION

Concussions are a common problem in sports and have the potential for serious complications if not managed correctly. Even what appears to be a "minor ding or bell ringer" has the real risk of catastrophic results when an athlete is returned to action too soon. The medical literature and lay press are reporting instances of death from "second impact syndrome" when a second concussion occurs before the brain has recovered from the first one regardless of how mild both injuries may seem.

At many athletic contests across the country, trained and knowledgeable individuals are not available to make the decision to return concussed athletes to play. Frequently, there is undo pressure from various sources (parents, player and coach) to return a valuable athlete to action. In addition, often there is unwillingness by the athlete to report headaches and other findings because the individual knows it would prevent his or her return to play.

Outlined below are some guidelines that may be helpful for parents, coaches and others dealing with possible concussions. Please bear in mind that these are general guidelines and must not be used in place of the central role that physicians and athletic trainers must play in protecting the health and safety of student-athletes.

## SIDELINE MANAGEMENT OF CONCUSSION

1. **Did a concussion take place?** Based on mechanism of injury, observation, history and unusual behavior and reactions of the athlete, even without loss of consciousness, assume a concussion has occurred if the head was hit and even the mildest of symptoms occur. (See next page for signs and symptoms)
2. **Does the athlete need immediate referral for emergency care?** If confusion, unusual behavior or responsiveness, deteriorating condition, loss of consciousness, or concern about neck and spine injury exist, the athlete should be referred at once for emergency care.

3. **If no emergency is apparent, how should the athlete be monitored?** Every 5- 10 minutes, mental status, attention, balance, behavior, speech and memory should be examined until stable over a few hours. If appropriate medical care is not available, an athlete even with mild symptoms should be sent for medical evaluation.
4. **No athlete suspected of having a concussion should return to the same practice or contest, even if symptoms clear in 15 minutes.**

## **MANAGEMENT OF CONCUSSIONS AND RETURN TO PLAY**

*(See “Sideline Decision-Making”)*

Increasing evidence is suggesting that initial signs and symptoms, including loss of consciousness and amnesia, may not be very predictive of the true severity of the injury and the prognosis or outcome. More importance is being assigned to the duration of such symptoms and this, along with data showing symptoms may worsen some time after the head injury, has shifted focus to continued monitoring of the athlete. This is one reason why these guidelines no longer include an option to return an athlete to play even if clear in 15 minutes and why there is no discussion about the “Grade” of the concussion.

Any athlete who is removed from play because of a concussion should have medical clearance from an appropriate health care professional before being allowed to return to play or practice. The Second International Conference on Concussion held in Prague recommends an athlete should not return to practice or competition in sport until he or she is asymptomatic including after exercise.

Recent information suggests that mental exertion, as well as physical exertion, should be avoided until concussion symptoms have cleared. Premature mental or physical exertion may lead to more severe and more prolonged post concussion period. Therefore, the athlete should not study, play video games, do computer work or phone texting until his or her symptoms are resolving. Once symptoms are clear, the student-athlete should try reading for short periods of time. When 1-2 hours of studying can be done without symptoms developing, the athlete may return to school for short periods gradually increasing until a full day of school is tolerated without return of symptoms.

Once the athlete is able to complete a full day of school work, without PE or other exertion, the athlete can begin the gradual return to play protocol as outlined below. Each step increases the intensity and duration of the physical exertion until all skills required by the specific sport can be accomplished without symptoms. These recommendations have been based on the awareness of the increased vulnerability of the brain to concussions occurring close together and of the cumulative effects of multiple concussions on long-term brain function. Research is now revealing some fairly objective and relatively easy-to-use tests which appear to identify subtle residual deficits that may not be obvious from the traditional evaluation. These identifiable abnormalities frequently persist after the obvious signs of concussion are gone and appear to have relevance to whether an athlete can return to play in relative safety. The significance of these deficits is still under study and the evaluation instruments represent a work in progress. They may be helpful to the professional determining return to play in conjunction with consideration of the severity and nature of the injury; the interval since the last head injury; the duration of symptoms before clearing; and the level of play.

## **SIDELINE DECISION-MAKING**

1. No athlete should Return To Play (RTP) on the same day of concussion.
2. Any athlete removed from play because of a concussion must have medical clearance from an appropriate health care professional before he or she can resume practice or competition.
3. Close observation of athlete should continue for a few hours.
4. After medical clearance, RTP should follow a step-wise protocol with provisions for delayed RTP based on return of any signs or symptoms.

## **MEDICAL CLEARANCE RTP PROTOCOL**

1. No exertional activity until asymptomatic.
2. When the athlete appears clear, begin low-impact activity such as walking, stationary bike, etc.
3. Initiate aerobic activity fundamental to specific sport such as skating or running, and may also begin progressive strength training activities.
4. Begin non-contact skill drills specific to sport such as dribbling, fielding, batting, etc.
5. Full contact in practice setting.
6. If athlete remains asymptomatic, he or she may return to game/play.

- A. ATHLETE MUST REMAIN ASYMPTOMATIC TO PROGRESS TO THE NEXT LEVEL.**
- B. IF SYMPTOMS RECUR, ATHLETE MUST RETURN TO PREVIOUS LEVEL.**
- C. MEDICAL CHECK SHOULD OCCUR BEFORE CONTACT.**

## **SIGNS AND SYMPTOMS OF CONCUSSION**

Concussions can appear in many different ways. Listed below are some of the signs and symptoms frequently associated with concussions. Most signs, symptoms and abnormalities after a concussion fall into the four categories listed below. A coach, parent or other person who knows the athlete well can often detect these problems by observing the athlete and/or by asking a few relevant questions of the athlete, official or a teammate who was on the field or court at the time of the concussion. Below are some suggested observations and questions a non-medical individual can use to help determine whether an athlete has suffered a concussion and how urgently he or she should be sent for appropriate medical care.

### **A. PROBLEMS IN BRAIN FUNCTION:**

1. Confused state – dazed look, vacant stare or confusion about what happened or is happening.
2. Memory problems – can't remember assignment on play, opponent, score of game, or period of the game; can't remember how or with whom he or she traveled to the game, what he or she was wearing, what was eaten for breakfast, etc.
3. Symptoms reported by athlete – Headache, nausea or vomiting; blurred or double vision; oversensitivity to sound, light or touch; ringing in ears; feeling foggy or groggy; dizziness.
4. Lack of sustained attention – difficulty sustaining focus adequately to complete a task, a coherent thought or a conversation.

### **B. SPEED OF BRAIN FUNCTION: Slow response to questions, slow slurred speech, incoherent speech, slow body movements and slow reaction time.**

### **C. UNUSUAL BEHAVIORS: Behaving in a combative, aggressive or very silly manner; atypical behavior for the individual; repeatedly asking the same question over and over; restless and irritable behavior with constant motion and attempts to return to play; reactions that seem out of proportion and inappropriate; and having trouble resting or "finding a comfortable position".**

### **D. PROBLEMS WITH BALANCE AND COORDINATION: Dizziness, slow clumsy movements, inability to walk a straight line or balance on one foot with eyes closed.**

IF NO MEDICAL PERSONNEL ARE ON HAND AND AN INJURED ATHLETE HAS ANY OF THE ABOVE SYMPTOMS, HE OR SHE SHOULD BE SENT FOR APPROPRIATE MEDICAL CARE.

## **CHECKING FOR CONCUSSION**

The presence of any of the signs or symptoms that are listed in this brochure suggest a concussion has most likely occurred. In addition to observation and direct questioning for symptoms, medical professionals have a number of other instruments to evaluate attention, processing speed, memory, balance, reaction time, and ability to think and analyze information (called executive brain function). These are the brain functions that are most likely to be adversely affected by a concussion and most likely to persist during the post concussion period.

If an athlete seems “clear” he or she should be exercised enough to increase the heart rate and then evaluate if any symptoms return before allowing that athlete to practice or play.

Computerized tests that can evaluate brain function are now being used by some medical professionals at all levels of sports from youth to professional and elite teams. They provide an additional tool to assist physicians in determining when a concussed athlete appears to have healed enough to return to school and play. This is especially helpful when dealing with those athletes denying symptoms in order to play sooner.

For non-medical personnel, the Centers for Disease Control and Prevention (CDC) has also developed a tool kit (“Heads Up: Concussion in High School Sports”), which has been made available to all high schools, and has information for coaches, athletes and parents. The NFHS is proud to be a co-sponsor of this initiative.

## **PREVENTION**

Although all concussions cannot be prevented, many can be minimized or avoided. Proper coaching techniques, good officiating of the existing rules and use of properly fitted equipment can minimize the risk of head injury. Although the NFHS advocates the use of mouthguards in nearly all sports and mandates them in some, there is no convincing scientific data that their use will prevent concussions.

*Prepared by NFHS Sports Medicine Advisory Committee, 2009*

### References:

NFHS. Concussions. 2008 NFHS Sports Medicine Handbook (Third Edition). 2008: 77-82.

NFHS. <http://www.nfhs.org>