

**ARTICLE 34  
MEDICAL POSITION STATEMENTS OF THE  
RHODE ISLAND INTERSCHOLASTIC LEAGUE**

**The following position statements were developed by the Rhode Island Interscholastic League's Sports Medicine Advisory Committee and approved by the RILL Principals' Committee on Athletics:**

**Section 1. CARDIOVASCULAR DISEASE IN ATHLETES**

The Rhode Island Interscholastic League in an attempt to emphasize the importance of screening for cardiovascular diseases in young student-athletes has developed the following position on a prudent approach to this important problem.

Sudden death in young athletes has become a highly visible health concern in our country. Unfortunately, most of these deaths are most often congenital cardiovascular malformations. The most common lesion is hypertrophic cardiomyopathy.

The ultimate goal is not treatment, but early detection. Therefore, it is the position of the Rhode Island Interscholastic League that every Rhode Island community have in place a comprehensive pre-participation screening program with appropriate procedures for identification of these potentially lethal cardiovascular abnormalities. The objective of these exams is the disqualification of selected athletes from competition thereby reducing their risk for sudden death during sports activities.

Although sudden cardiac death is a rare event, it is the responsibility of our communities to provide a safe environment for our student athletes.

The RILL has produced a comprehensive sports-oriented history and physical examination form to aid Rhode Island physicians in identifying these and other problems.

The history is the most sensitive method for detection. The majority of cardiac problems will be identified by the history rather than by the physical exam.

The physical exam must be performed by a clinician familiar and comfortable with the physical signs of the causes of sudden cardiac death.

It is the goal of the Rhode Island Interscholastic League that all communities utilize this screening form in order to standardize the approach of all Rhode Island physicians, thereby optimizing our chances of detecting these potentially lethal conditions in our student-athletes.

**Section 2. CONCUSSIONS**

Please refer to the NFHS – Sports Medicine Handbook (3<sup>rd</sup> Edition 2008, Pages 77-82) that was distributed to every member high school.

**Section 3. BURNERS AND STINGERS**

The Rhode Island Interscholastic League has taken the following position on return to play criteria after sustaining a *burner*.

*Burners or stingers* are terms used to describe an injury to one side of the upper extremity, which typically includes burning pain and muscle weakness most commonly involving the biceps, deltoids, and rotator cuff muscles (supraspinatos and infraspinatos). A *burner usually* occurs from downward movement of the shoulder associated with the lateral flexion of the neck toward the opposite shoulder.

A detailed assessment should be performed consisting of neck palpation for pain and range of motion. If all motor and sensory symptoms resolve within seconds to minutes and there is no associated neck pain or limitation of neck motion, the athlete may return to competition. If symptoms persist for more than a few minutes, an MRI of the cervical spine should be considered to look for a herniated disc or any other cervical compressive pathology. Electromyography (EMG) is recommended when symptoms remain for more than two weeks. Any athlete who suffers two repetitive stingers should use high shoulder pads and a soft cervical roll or cowboy collar. One should also undergo cervical radiographs and an MRI to evaluate a possible underlying cervical spinal stenosis.

**Burners** can be minimized with appropriate equipment and education on tackling technique. An on-field evaluation is crucial to differentiate **burners** from a far more serious spinal cord injury. An individual who sustains recurrent **burners** and demonstrates evidence of cervical spinal stenosis should be disqualified from any contact athletic events.

#### **Section 4. LICENSED/CERTIFIED ATHLETIC TRAINERS AT RIL CHAMPIONSHIP EVENTS**

The Rhode Island Interscholastic League provides certified athletic trainers to various high school championship events. The purpose of these certified athletic trainers is to provide emergency medical coverage to all participants of these games.

As more and more schools have begun to see the necessity of proper athletic medical coverage, high schools have begun using certified athletic trainers, physicians and other medical professionals to assist with the schools' medical needs. Many of these medical personnel have developed a strong working relationship with the teams.

- A. To provide the best possible coverage for all students-athletes at these games, the following protocol will be observed by all athletic trainers at all contests. We hope that this outline will promote better quality care at all championship events.
  1. Upon arrival at the game/meet, the athletic trainers will situate themselves in such a location to be available to both teams, without interfering with the area of competition.
  2. Prior to the start of the game, the athletic trainer will introduce themselves to a member of the coaching staff from each team. The athletic trainer will state their purpose for being at the game, their location and availability. The athletic trainer will then ask if there is any medical personnel traveling with the team. The athletic trainer will also inquire if there are any medical problems or conditions that any member of their team may have that they should be aware of during the contest.
  3. The athletic trainer will also introduce themselves to the officiating staff and alert them of their presence and availability.
  4. If there is NO medical coverage traveling with a team, the athletic trainer will inform the coach that they will go out onto the floor/field if it is warranted to provide medical care to a downed athlete. All medical decisions regarding the treatment of the athlete will be made by the athletic trainer.
  5. If there IS medical personnel (ATC, PT/ATC, EMT) with a team, the athletic trainers will introduce themselves and offer assistance. In the event that medical treatment for one of their athletes is needed, the athletic trainer will accompany their medical personnel on the floor/field. However, the athletic trainer will remain at a discrete distance to observe the incident and to assist if needed. All medical decisions made in regard to the athlete will be done by the team's medical personnel.
  6. If the medical personnel is a physician, all decisions made by the doctor will be considered final.
  7. If there is "medical personnel" with a team that is **not** a certified athletic trainer, physician, EMT or if the "medical personnel" is a non-accredited individual, (i.e., a student athletic trainer or a certified first-aider) then all medical decisions regarding the care and treatment of the athlete will be made by the athletic trainer.

## **Section 5. COMMUNICABLE DISEASE PROCEDURES**

While the risk of one student-athlete infecting another with HIV/AIDS during competition is close to non-existent, there is a remote risk that other blood-borne infectious diseases can be transmitted. For example: Hepatitis B can be present in blood as well as other body fluids. Procedures for reducing the potential for transmission of these infectious agents should include, but not be limited to, the following:

1. The bleeding must be stopped and the open wound covered. If there is an excessive amount of blood on the uniform; it must be changed before the athlete may participate.
2. Routine use of gloves or other precautions to prevent skin and mucous membrane exposure when contact with blood or other body fluids is anticipated.
3. Immediately wash hands and other skin surfaces if contaminated (in contact) with blood or other body fluids. Wash hands immediately after removing gloves.
4. Clean all contaminated surfaces and equipment with an appropriate disinfectant before competition resumes.
5. Practice proper disposal procedures to prevent injuries caused by needles, scalpels, and other sharp instruments or devices.
6. Although saliva has not been implicated in HIV transmission, to minimize the need for emergency mouth-to-mouth resuscitation, mouthpieces, resuscitation bags, or other ventilation devices should be available for use.
7. Athletic trainers/coaches with bleeding or oozing skin conditions should refrain from all direct athletic care until the condition resolves.
8. Contaminated towels should be properly disposed of and/or disinfected.
9. Follow acceptable guidelines in the immediate control of bleeding and when handling bloody dressings, mouth-guards, and articles containing body fluids.

## **Section 6. USE OF LEGAL CAST IN ATHLETIC CONTESTS**

If the student/athlete's doctor gives clearance to participate with the use of a protective cast that is approved by the Rule of the game (NFHS), the student athlete will be required and must have an authorization letter from the doctor which shall be considered valid for a period of six (6) weeks from the date of letter. (It shall not be necessary for the student-athlete to present a note each week). At the end of the six (6) week period the student-athlete may provide another doctor's note which shall remain valid for another six (6) weeks from the date of the letter). The school is required to have the doctor's authorization letter for review by the officials prior to any RIIL contest.

## **Section 7. STUDENT CHEMICAL HEALTH/ALCOHOL/TOBACCO**

### **A. Philosophy**

The RI Interscholastic League and its member schools have a vital interest in the health and safety of its student-athletes.

The RIIL recognizes the use of mind-altering/performance enhancing chemicals as a significant health problem for many adolescents, resulting in negative effects on behavior, learning and the total development of each individual. The use of mind-altering/performance enhancing chemicals for some adolescents affects co-curricular participation and development of related skills. The lives of other adolescents are affected when family members, team members and other significant persons use these chemicals.

The RIIL member schools assume a partnership role, along with families and their community by providing an educational environment where students learn about the harmful effects of such substances and where such use is strictly prohibited.

**B. Position Statements**

It is the position of the RIIL and its member schools that:

- a. Scholastic athletes and other students should abstain from the use of alcohol and controlled substances as well as refrain from using tobacco and smokeless tobacco.
- b. Coaches and other adult school personnel should demonstrate responsible use of alcohol and tobacco in an appropriate setting and abstain from the use of controlled substances.
- c. No coach should use alcohol, tobacco, or other drugs before, during or immediately after any interscholastic contest until his/her supervisory duties are completed for that contest.
- d. Adults should abstain from the use of 1) alcohol before and during, and 2) tobacco during meetings when business related to athletics is conducted.
- e. Chemical dependency is an illness and it may be treated.

**C. Guidelines for Developing a Code of Conduct for Schools**

To this end the RIIL will support its member schools who provide professional leadership and programs to achieve the following purposes:

- a. emphasize the schools' concerns for 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
- b. promote equity and a sense of order and discipline among students
- c. confirm and support existing state laws and local regulations which restrict the use of such mind-altering/performance enhancing chemicals
- d. establish standards of conduct for those students who are leaders and standard-bearers among their peers
- e. assist students who desire to resist peer pressure which directs them toward the use of mind-altering/performance enhancing chemicals
- f. assist students who should be referred for assistance or evaluation regarding their use of mind-altering/performance enhancing chemicals

**Section 8. POSITION STATEMENT ON PRE-PARTICIPATION PHYSICAL EXAMINATIONS**

The RI Interscholastic League endorses the use of a sports-specific Pre-Participation Physical Examination to screen all RI student athletes prior to their inclusion in sports programs. The position of the RIIL is that all school districts in RI utilize the same standard history and physical form to exam and screen athletes prior to their participation in sports. We feel this standardization may improve overall effectiveness.

The Sports Medicine Advisory Committee of the RIIL has produced a comprehensive history and physical form for this purpose.

The Committee is composed of sports medicine specialists in the field of family medicine, orthopedics, athletic training, sports psychology, sports podiatry and dentistry. In addition, other members included high school athletic directors and sports administrators.

The Committee performed an extensive review of the current sports medicine literature and reviewed numerous history and physical forms from other states. It is the opinion of this committee that, at the time of this writing, many districts are performing inadequate and cursory examinations.

The goal of these exams is to identify potential medical and orthopedic problems that could lead to further injury or death. They required a detailed history, specific to sports, which can be completed by the parent. The committee asserts that the medical history is at least as important as the physical exam in its ability to identify past medical problems and family medical history.

The Committee further asserts that a pre-participation physical examination is distinctly different from a routine annual physical exam. The exam must be specific to participation in athletics thorough and with particular attention to the cardiovascular and musculoskeletal systems. Attached is a copy of the pre-participation exam form produced by the RIIL Sports Medicine Advisory Committee. We strongly urge all RI school districts to adopt this form as their own and utilize it with all potential student-athletes.

## **Section 9. POSITION STATEMENT INVASIVE MEDICAL PROCEDURES ON THE DAY OF COMPETITION**

The NFHS SMAC was formed in 1996 to assist the NFHS in ensuring the safety of high school athletes across the nation. The SMAC investigates numerous issues, rules, and situations and considers their potential risks to athletes. Recently, the SMAC (Sports Medicine Advisory Committee) has reviewed the issue of invasive medical procedures such as intravenous (IV) rehydration and the use of injectable anesthetic/analgesic drugs during or before athletic contests and events.

While we believe these practices are not widespread at the high school level, a handful of such incidents have been reported to the SMAC over the past year. It is reported that these procedures are carried out at the college and professional levels. The SMAC is very concerned that occurrence of, or the desire for, such medical procedures will continue to “trickle down” to high school athletics.

The SMAC encourages a philosophy that high school athletics serve the purpose of providing young men and women the opportunity for personal growth in a controlled environment. The pursuit of victory is not, by itself, justification for medical intervention. We believe that invasive procedures such as the administration of IV fluids and the use of injectable anesthetic/analgesic drugs performed on the day of competition with the sole purpose of enabling a student athlete to participate are inconsistent with the philosophy of high school sports.

This position applies to any athlete requiring a local (example: lidocaine) or systemic (example: Toradol) pain-killing medication to enable him or her to play. This practice increases the risk of further injury to the affected body part. The use of prescription medication this is administered by injection for chronic medical conditions (such as insulin for diabetes or Imitrex for migraine headaches) is appropriate, and will not be affected.

Second, performing medical procedures in a locker room, training room, or other facility is fraught with the potential for infection and other complications. The placement of an intravenous catheter or the administration of an intramuscular or subcutaneous injection is a medical procedure and should be treated as such. Thus, a medical facility is the proper venue for any such invasive procedures to be carried out.

Finally, while our primary concern is with protecting the health of the young athlete, we believe this is also a matter of participation equity. Due to a variety of factors, few high school sports programs have team physicians attending the competitions and in many instances these volunteers do not have special training in sports medicine. Thus, teams and individuals who have a physician or other medical provider willing and able to provide such services will have a significant competitive advantage over their opponents who may not have such a specialist available.

After a review of the potential risks, consequences, and limited medical benefits of these invasive procedures, the NFHS Sports Medicine Advisory Committee takes the position that there is no proper role for these procedures in high school athletics. We strongly recommend to coaches, school administrators, athletic trainers, and team physicians that athletes should not be allowed to participate in athletic contests or events if they have received IV hydration or been injected with an anesthetic or analgesic medication on that same day.

## **Section 10. NFHS STATEMENT OF MEDICAL APPLIANCES**

Although still relatively rare, the use of insulin pumps by athletes with diabetes has become more commonplace over the past few years. With the wider use of insulin pumps, as well as other medical devices such as heart monitoring equipment, concerns have been raised regarding the safety of the athlete wearing the device, teammates, opponents, and the device itself. The NFHS SMAC has discussed these issues and come to the following conclusion:

When it is necessary for an athlete to wear a medical appliance (such 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 shall be 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.

## **Section 11. SUPPLEMENTS POSITION STATEMENT**

The NFHS Sports Medicine Advisory Committee (SMAC) strongly opposes the use of dietary supplements for the purpose of athletic advantage. Research data shows widespread use of dietary supplements by adolescent and high school athletes, despite considerable safety concerns. Dietary supplements are marketed as an easy way to enhance athletic performance, increase energy levels, lose weight and feel better. It is proven that adolescents are more susceptible to advertising messages and peer pressure, increasing the risk of dietary supplement usage. This can create a culture more concerned about short term performance rather than overall long term health.

The Dietary Supplement Health and Education Act of 1994 removed dietary supplements from pre-market regulation by the Food and Drug Administration (FDA). Thus, many of the substances that can be obtained from nutrition stores and the internet are not subject to the same strict tests and regulation as “over the counter” and prescription medications. The companies that produce dietary supplements do not need to test their safety or effectiveness before they are available to consumers. In fact, dietary supplements cannot be removed from the marketplace unless they present a significant or unreasonable risk of illness or injury.

- **MYTHS** regarding dietary supplements:
  - If a substance is natural, it must be safe and beneficial.
  - Athletes that consume a well balance diet still have nutritional deficiencies
  - Since dietary supplements may be purchased at a store or over the internet, they must be safe and legal

The NFHS SMAC discourages the use of supplements by athletes due to the lack of published, reproducible scientific research addressing the benefits and documenting long term adverse health effects of the supplements, particularly in the adolescent age group. Dietary supplements should be used only upon the advice of one’s health care provider. School personnel and coaches should never recommend, endorse or encourage the use of any dietary supplement, drug, or medication for performance enhancement.

We recommend that coaches, athletic directors, and school personnel develop strategies that address the growing concerns of using dietary supplements. Such strategies may include conversations with athletes and their parents about the potential dangers of dietary supplement use. Athletes should be encouraged to pursue their goals through hard work and good nutrition, not dietary shortcuts.

- Dietary supplements receive no FDA regulation:
  - There is no guarantee the true amount or concentration of ingredients is listed on the label
  - There is no guarantee the substance is pure, as studies have found lead and arsenic in supplements.
  - There may be other compounds not listed on the label in the dietary supplement which may be illegal or banned substances.
- There is minimal evidence that dietary supplements enhance performance for most high school sports.
  - There is even less evidence supporting their use in adolescents.
- In order to help prevent dietary supplement use:
  - School personnel, coaches and parents should allow for open discussion about supplement use, but strongly encourage optimal nutrition and a well balanced diet.
  - Remind athletes that no supplement is harmless and free from consequences.
  - Remind athletes that there is no short cut to improved performance, it takes hard work.
  - Because they are not regulated, dietary supplements may contain impurities and illegal substances not listed on the label.
  - Adolescents that use dietary supplements are more likely to use steroids, continue usage into adulthood, and to engage in other high risk behaviors like smoking, drinking and using drugs.

## **Section 12. POSITION STATEMENT ON ANABOLIC STEROIDS**

### **A. EXISTING POLICIES/STAND**

The NFHS strongly opposes the use of anabolic steroids and other performance-enhancing substances by high school student-athletes. Such use violates legal, ethical and competitive equity standards, and imposes unreasonable long-term health risks. The NFHS supports prohibitions by educational institutions, amateur and professional organizations and governmental regulators on the use of anabolic steroids and other controlled substances, except as specifically prescribed by physicians for therapeutic purposes.

### **B. BACKGROUND**

Anabolic, androgenic steroids (AAS) are synthetic derivatives of the male hormone testosterone. Natural testosterone regulates, promotes and maintains physical and sexual development, primarily in the male, but with effects in the female as well. Like testosterone, AAS have both an anabolic effect (increase in muscle tissue) and an androgenic effect (masculinizing effects that boys experience during puberty). No AAS is purely anabolic. As a result, the use of AAS won't lead to muscle growth without also leading to the other unintended, undesirable side effects.

According to national surveys, the use of AAS among high school students has been decreasing since about 2001. There are no national studies that measure the extent of AAS use by high school student-athletes, although some states publish statewide prevalence data. Nearly one-third of high school age steroid users do not participate in organized athletics and are taking AAS primarily to modify their physical appearance. Athletes who use AAS do so for two main reasons: 1) to gain strength and (2) to recover more quickly from injury.

AAS are controlled substances and are illegal to use or possess without a prescription from a physician for a legitimate medical diagnosis. Some AAS are used by veterinarians to treat pigs, horses and cows. In humans, medical uses of AAS include weight gain in wasting diseases such as HIV-infection or muscular dystrophy, absent gonadal function in males, and metastatic breast cancer in women. AAS should not be confused with corticosteroids, which are steroids that doctors prescribe for medical conditions such as asthma and inflammation. AAS are prohibited by all sports governing organizations.

### **C. FACTS ABOUT ANABOLIC STEROIDS**

- Anabolic steroids are controlled substances and are illegal to possess or sell without a prescription for a legitimate medical condition by the prescribing physician.
- Androstenedione, norandrostenedione and other similar prohormones, at one time available over the counter as dietary supplements, are now defined as controlled anabolic steroids.
- Athletes who have injected anabolic steroids in high school have tested positive in collegiate drug tests – months after they stopped injecting.
- Athletes who have injected anabolic steroids are at greater risk for infections, HIV and hepatitis.

### **D. POTENTIAL NEGATIVE SIDE EFFECTS FROM THE USE OF ANABOLIC STEROIDS**

- Decreased eventual height if consumed before growth plates have fused in pre-pubertal youngsters
- Secondary sex characteristic changes
- Increased acne
- Growth of body/facial hair in girls
- Loss of hair in boys
- Permanent voice-lowering in girls
- Violent, combative behavior
- Sexual dysfunction and impotence
- Mood swings, loss of sleep, paranoia
- Depression upon stopping use
- Organ damage and death from heavy use

## **E. PREVENTING ATHLETES FROM TAKING ANABOLIC STEROIDS**

- School personnel, coaches and parents can reduce steroid abuse by speaking out against such use
- Talk with your athletes about frustrations they may have about how they look or how they are performing in their sport. Help them establish healthy expectations of their bodies.
- Talk to athletes about realistic performance standards
- Focus on proper nutrition and hydration. Work with a registered dietician to develop a plan for appropriate weight gain and/or weight loss
- Don't trust Internet marketing messages about quick fixes
- Restrict athletes' access to environments where steroid use might occur and to people who are involved with anabolic steroids
- Don't subscribe to publications such as muscle magazines that depict unrealistic pictures of men and women
- Help athletes understand that using anabolic steroids not only is illegal, but also cheating
- Consider imitating a formal performance-enhancing, drug-education program to educate athletes and deter use.

## **Section 13. POSITION STATEMENT AND RECOMMENDATIONS FOR MAINTAINING HYDRATION TO OPTIMIZE PERFORMANCE AND MINIMIZE THE RISK FOR EXERTIONAL HEAT ILLNESS**

### **A. DEHYDRATION – ITS EFFECTS ON PERFORMANCE AND ITS RELATIONSHIP TO EXERTIONAL HEAT ILLNESS RISK:**

- Appropriate hydration before, during, and after physical activity is integral to healthy, safe and successful sport participation.
- Weight loss during exercise and other physical activity represents primarily a loss of body water. A loss of just 1 to 2 percent of body weight (1.5 to 3 pounds for a 150-pound athlete) can negatively impact performance. A loss of 3 percent or more of body weight during vigorous exercise can also significantly increase the risk for exertional heat-related illness. If an athlete is already dehydrated prior to beginning activity, these effects will occur even sooner.
- Athletes should be weighed (in shorts and T-shirt) before and after warm or hot weather practice sessions and contests to assess their estimated change in hydration status.
- Athletes with high body fat percentages can become significantly dehydrated and over-heat faster than athletes with lower body fat percentages, while working out under the same environmental conditions at the same or similar workload.
- Athletes have different sweating rates and some lose much more water and salt through their sweat than others. "Salty sweaters" will often have noticeable salt stains on their clothing and skin after workouts, and they often have a higher risk of developing exertional muscle cramps.
- Poor heat acclimatization/fitness levels can greatly contribute to an athlete's heat intolerance and exertional heat illness risk.
- Certain medications or current/recent illness, especially for illnesses involving gastrointestinal distress (e.g., vomiting, diarrhea) and/or fever, can negatively affect an athlete's hydration status and temperature regulation, increasing the risk for exertional heat illness.
- Environmental temperature and humidity each independently contribute to dehydration and exertional heat illness risk.
- Clothing that is dark or bulky, as well as protective equipment (such as helmets, shoulder pads and other padding and coverings), can increase body temperature, sweat loss and subsequent dehydration and exertional heat illness risk.
- Even naturally dry climates can have high humidity on the field if irrigation systems are run prior to early morning practices start. This temporary increase in humidity will continue until the water completely soaks into the ground or evaporates.
- A heat index chart should be followed to help determine if practices/contests should be modified or canceled. The NOAA National Weather Service's heat index chart can be found at: <http://www.weather.gov/om/heat/index.shtml>
  - On-site wet-bulb temperature should be measured 10-15 minutes before practices or contests. The results should be used with a heat index to determine if practices or contests should be started, modified or stopped.
  - If wet-bulb temperature measurement is not available, the heat index for your



approximate location can be determined by entering your postal zip code:  
<http://www.osaa.org/heatindex/>

**The interplay of relative humidity and temperature on sweating and the risk for exertional heat illness:**

- A combined relative humidity of 40 percent and a temperature of 95 degrees Fahrenheit are associated with a *likely risk* of incurring significant sweat loss and exertional heat illness during strenuous physical activity. However, even with a *lower air temperature* of only 85 degrees Fahrenheit, for example, the risk for extensive sweating and exertional heat illness would likely be the *same or greater with a higher relative humidity* of 70 percent or more.

**WHAT TO DRINK DURING EXERCISE AND OTHER PHYSICAL ACTIVITY:**

- For most exercising athletes in most scenarios, water is appropriate and sufficient for pre-hydration and rehydration. Water is quickly absorbed, well-tolerated, an excellent thirst quencher and cost-effective.
- Traditional sports drinks with an appropriate carbohydrate and sodium formulation may provide additional benefit in the following general situations:
  - Prolonged continuous or intermittent activity of greater than 60 minutes
  - Multiple, same-day bouts of intense, continuous or repeated exertion
  - Warm-to-hot and humid conditions
- Traditional sports drinks with an appropriate carbohydrate and sodium formulation may provide additional benefit for the following individual conditions:
  - Poor hydration prior to participation
  - A high sweat rate and/or “salty sweater”
  - Poor caloric intake prior to participation
  - Poor acclimatization to heat and humidity
- A 6 to 8 percent carbohydrate formulation is the maximum that should be utilized in a sports drink. Any greater concentration will slow stomach emptying and potentially cause the athlete to feel bloated. An appropriate sodium concentration (0.4-1.2 grams per liter) will help with fluid retention and distribution and decrease the risk of exertional muscle cramping.

**WHAT NOT TO DRINK DURING EXERCISE AND OTHER PHYSICAL ACTIVITY:**

- Fruit juices with greater than 8 percent carbohydrate content and carbonated soda can both result in a bloated feeling and abdominal cramping.
- Athletes should be aware that nutritional supplements are not limited to pills and powders as many of the new “energy” drinks contain stimulants such as caffeine and/or ephedrine.
  - These stimulants may increase the risk of heat illness and/or heart problems with exercise. They can also cause anxiety, jitteriness, nausea, and upset stomach or diarrhea.
  - Many of these drinks are being produced by traditional water, soft drink and sports drink companies which can cause confusion in the sports community. As is true with other forms of supplements, these “power drinks”, “energy drinks” or “fluid supplements” are not regulated by the FDA. Thus, the purity and accuracy of contents on the label is not guaranteed.
  - Many of these beverages which claim to increase power, energy, and endurance, among other claims, may have additional ingredients that are not listed. Such ingredients may be harmful and may be banned by governing bodies like the NCAA, USOC, or individual state athletic associations.
  - See the **NFHS Position Statement and Recommendations for the use of Energy Drinks by Young Athletes** for further information.

**HYDRATION AND FLUID INTAKE TIPS AND GUIDELINES:**

- Many athletes do not voluntarily drink enough water to prevent significant dehydration during physical activity.
- Drink regularly throughout all physical activities. An athlete cannot always rely on his or her sense of thirst to sufficiently maintain proper hydration.

- Drink before, during, and after practices and games. For example:
  - Drink 16 ounces of fluid 2 hours before physical activity.
  - Drink another 8 to 16 ounces 15 minutes before physical activity.
  - During physical activity, drink 4 to 8 ounces of fluid every 15 to 20 minutes (some athletes who sweat considerable can safely and comfortably tolerate up to 48 ounces per hour).
  - After physical activity, drink 16 to 20 ounces of fluid for every pound lost during physical activity to achieve normal hydration status before the next practice or competition (if there is sufficient time to do this safely and comfortably). Importantly, excessive fluid intake in a short period of time can be dangerous to one's health (see below on hyponatremia).
- The volume and color of your urine is an excellent way of determining if you're well hydrated. Small amounts of dark urine mean that you need to drink more, while a "regular" amount of light-colored or nearly clear urine generally means you are well hydrated. A Urine Color Chart can be accessed at: <http://at.uwa.edu/admin/UM/urinecolorchart.doc>
- Hyponatremia is a rare, but potentially deadly disorder resulting from the over-consumption of water or other low-sodium fluid (including most sports drinks). It is most commonly seen during endurance events, such as marathons, when participants consume large amounts of water or other beverages over several hours, far exceeding fluid lost through sweating. The opposite of dehydrations, hyponatremia is a condition where there is an excessive amount of water in the blood and the sodium content of the blood is consequently diluted to dangerous levels. Affected individuals may exhibit disorientation, altered mental status, headache, lethargy and seizures. A confirmed diagnosis can only be made by testing blood sodium levels. Suspected hyponatremia is a medical emergency and EMS (Emergency Medical Services) must be activated. It is treated by administering intravenous fluids containing high levels of sodium.

#### **SECTION 14. POSITION STATEMENT AND RECOMMENDATIONS FOR THE USE OF ENERGY DRINKS BY YOUNG ATHLETES**

**Background:** Energy drinks are popular among adolescents and young adults. These beverages are particularly popular among young athletes who see the consumption of energy drinks as a quick and easy way to maximize athletic and academic performance. In a recent survey of over 8,000 adolescents, 62 percent report consuming energy drinks at least once in the past year; 20 percent report consuming at least once per month. The marketing of these beverages to the younger populations through social media and advertisements has significantly increased. In 2006, nearly 500 new brands were introduced to the market place, and over 7 million adolescents reported that they had consumed an energy drink. Estimated sales of energy drinks for 2011 are expected to exceed \$9 billion and are projected to increase to over \$20 billion by 2017.

#### **THE NFHS SMAC strongly recommends that:**

1. Water and appropriate sports drinks should be used for rehydration as outlined in the NFHS **"Position Statement and Recommendations for Maintaining Hydration to Optimize Performance and Minimize the Risk for Exertional Heat Illness."**
2. Energy drinks should not be used for hydration prior to, during, or after physical activity.
3. Information about the absence of benefit and the presence of potential risk associates with energy drinks should be widely shared among all individuals who interact with young athletes.
4. Athletes taking over the counter or prescription medications should not consume energy drinks without the approval of their physician.
5. Energy drinks ARE NOT sports drinks and should not be used by athletes in training or competition.

**WARNING:** The exact content and purity of energy drinks cannot be insured, as there are no regulatory controls over these products. Thus, there is the risk for negative side effects (see below), potentially harmful interactions with prescription medications (particularly stimulant medications used to treat Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD)), or resultant positive drug tests due to impurities with banned substances.

## Frequently Asked Questions

### What is an energy drink?

- An energy drink is a beverage marketed to both athletes and the general public as a quick and easy means of relieving fatigue and improving performance. In addition to water, nearly all energy drinks contain carbohydrates and caffeine as their main ingredients. The carbohydrates provide nutrient energy while the caffeine acts as a stimulant to the central nervous system.

### What are the differences between an energy drink and a sports drink?

- Sports drinks are designed to provide rehydration during or after athletic activity. While contents vary, most sports drinks contain a 6 to 8 percent carbohydrate solution and a mixture of electrolytes. The carbohydrate and electrolyte concentrations are formulated to allow maximal absorption of the fluid by the gastrointestinal tract. Energy drinks often contain a higher concentration of carbohydrate (usually 8 to 11 percent), and thus a larger number of calories than sports drinks. They also contain high amounts of caffeine and, in some cases, other nutritional supplements. Other ingredients with caffeine-like effects may be present; yet, typically their caffeine content is not noted. **Energy drinks are not appropriate for hydrating or rehydrating athletes during physical activity and should not be used in such circumstances.**

### What ingredients are found in energy drinks?

- *Carbohydrates* – Most energy drinks have from 18g to 25g of carbohydrate per 8 ounces. The high carbohydrate concentration can delay gastric emptying and impede absorption of fluid in the gastrointestinal tract.
- *Caffeine* – Nearly all energy drinks contain some quantity of “natural” or synthetic caffeine. The caffeine concentration may range from the equivalent to an 8 ounce cup of coffee (85mg) to more than three times that amount.
- *Herbs* – Many energy drinks include herbal forms of caffeine such as guarana seeds, kola nuts, and Yerba mate leaves, in addition to synthetic caffeine. The “performance enhancing” effects, safety, and health benefits of other herbs like Astragalus, Echinacea, Ginko biloba, ginseng, and countless others have not been well established by scientific studies.
- *Vitamins* – Athletes with reasonable good diets should be assured that they are at low risk for vitamin deficiency and typically do not need supplementation. There is no evidence to suggest that vitamin supplementation improves athletic performance. Female athletes may benefit from iron and calcium supplements; but, those are more easily and inexpensively obtained in supplement form rather than from energy drinks.
- *Protein and amino acids* – Only a small amount of protein is used as fuel for exercise. Carbohydrates are utilized as the primary fuel source. To date, there is no definitive evidence that amino acid supplementation enhances athletic performance.
- *Other ingredients* – With the hundreds of energy drink brands that are available, the potential ingredients which they may contain are virtually unlimited. Possible additions include pyruvate, creatine, carnitine, medium-chain triglycerides, taurine and even oxygen.
- Recent manufacturer trends to mix energy drinks in alcoholic beverages is specifically concerning for the potential abuse of alcohol and the resultant higher amounts of alcohol consumption.

### What are the possible negative effects of using energy drinks?

- *Central nervous system* – Caffeine often has the effect of making a person feel “energized.” Studies have shown some performance-enhancing benefits from caffeine at doses of 6mg/kg of body weight. However, these and higher doses of caffeine may produce light headedness, tremors, impaired sleep, suppression of appetite, and difficulty with fine motor control.
- *Gastrointestinal system* – The high concentrations of carbohydrates often found in energy drinks may delay gastric emptying, resulting in a feeling of being bloated. Abdominal cramping may also occur. Both carbohydrates and caffeine in the high concentrations found in most energy drinks may cause diarrhea.
- *Dehydration* – Energy drinks should not be used for pre- or rehydration. The high carbohydrate concentration can delay gastric emptying and slow absorption from the gastrointestinal tract, and, may cause diarrhea. Caffeine can act as a diuretic and, therefore, may result in increased fluid loss.
- *Positive drug tests* – Like all nutritional supplements, there is little or no regulatory oversight of energy drinks. The purity of the products cannot be assured and it is possible that they may contain substances

banned by some sports organizations.

- Consumption of energy drinks by adolescents and young adults has been linked to heart arrhythmia (irregular and/or rapid heart rate), other cardiovascular events such as high blood pressure and heart attacks, and liver problems.
- Sales of certain energy drinks have been banned in Denmark, Turkey, Uruguay, Germany and Austria. Some states in the U.S. have introduced legislation to restrict sales of energy drinks to adolescents and children. Recently, healthcare providers have voiced increasing concerns about the consumption of energy drinks in association with alcohol because of the interaction of the stimulant effects of energy drinks and the depressant effects of alcohol.

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