



**National Action Plan for Sports Safety®**  
*PROTECTING AMERICA'S STUDENT ATHLETES*

The National Action Plan for Sports Safety has been created to bring to light the benefits and potential risks to student athletes while playing sports.

The United States promotes physical activity and fitness, and youth sports are an essential element in that effort. By all measures, it's working. More children play sports than ever before, with an increase in the number of girls participating of particular note. It is recommended that children and adolescents spend approximately 60 minutes a day engaged in physical activities, most of which should be aerobic exercise.<sup>1</sup> Physical inactivity increases risk for heart disease, diabetes, colon cancer, high blood pressure and premature death.<sup>2</sup>

And, we know that habits formed in youth last a lifetime.

But physical activity is not without risk.<sup>3,4</sup> Brain injury, sudden cardiac arrest, exertional heat stroke, exertional sickling, cervical spine fractures and other injuries and illnesses are all serious and potentially life-threatening. According to the National Athletic Trainers' Association, as many as 50 young athletes die each year, the majority from sudden cardiac arrest. And, it's not just about football. Risk is involved in almost every extra-curricular activity such as cheerleading and marching band.

The inherent risk in sports may result in catastrophic or fatal injuries and illnesses. The majority of these occur in four major areas:

- Cardiac Events
- Neurologic Injuries
- Environmental/Exertional Conditions
- Dietary/Substance-Induced Conditions

Fortunately, risks and adverse outcomes can be minimized or eliminated when secondary school athletes have proper equipment, available health care professionals and a safe environment.

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<sup>1</sup> U.S. Department of Health and Human Services. "Chapter 3: Active Children and Adolescents." *Physical Activity Guidelines for Americans*. U.S. Government, 16 Oct. 2008. Web. 10 Oct. 2012.

<sup>2</sup> "Physical Activity Facts." Centers for Disease Control and Prevention, 07 June 2012. Web. 28 Oct. 2012.  
<http://www.cdc.gov/healthyyouth/physicalactivity/facts.htm>.

<sup>3</sup> In 2011, more than 40 children died during or immediately after sporting practice or play. National Athletic Trainers' Association.

<sup>4</sup> Approximately 8,000 children are treated in Emergency Departments each day for sports-related injuries. Wier L. Miller A. Steiner C. *Sports Injuries in Children Requiring Hospital Emergency Care*, 2006, HCUP Statistical brief #75, June 2009.

## **GENERAL RECOMMENDED ACTIONS:**

1. Require that all schools have a comprehensive athletic health care administrative program and an athletic health care team to prevent and immediately manage injuries and illnesses. The team should consist of a physician, athletic trainer, school nurse or other health care professional and the athletic director.
2. Require that all schools assure safe practice and play facilities appropriate to each sport to reduce accidents and the spread of disease. Safe facilities are regularly inspected and maintained, routinely cleaned to avoid communicable diseases and accessible to treatment and/or transport areas.
3. Require that all schools provide a permanent, appropriately equipped area in which injured athletes may be evaluated and treated by health care professionals, because early assessment and intervention encourages proper healing and decreases the risk of re-injury. Having a designated area is critical in the management of life- or limb-threatening conditions.
4. Require that all schools have a place for confidential conversations with athletes and parents about medical issues.
5. Require that all schools have a plan for selection, fit, function and proper maintenance of athletic equipment, as well as training for school staff.
6. Require that all schools have injury and illness prevention strategies, including protocols for environmental conditions. Educated personnel in every sport should understand and utilize professional guidelines for preventing and treating injuries and sports-related illnesses.
7. Require that all schools inform athletes and parents of the potential risks in sports as well as their individual responsibility to avoid and minimize injuries.
8. Parents should educate themselves in the potential benefits and risks of optional protective equipment.
9. Advocate for the creation of a national fatality registry of secondary school athletes who have died during or as a result of sports-related injuries, such as cardiac arrest, neurologic damage, steroid abuse, etc.

## **SPECIFIC RECOMMENDED ACTIONS PERTAINING TO THE FOUR MAIN AREAS:**

### ➤ Cardiac Events

Comprehensive pre-participation examinations help assure that student athletes are ready for play and must be regularly completed for every athlete. The American Medical Association has estimated that the athletic pre-participation examination serves as the sole routine health maintenance check-up for 80 to 90 percent of adolescents.

However, many deaths from sudden cardiac arrest are the result of previously undiagnosed conditions that may have been present since birth and may not be detected in a routine physical examination. Or, there are rare instances of commotio cordis, a blow to the chest (directly over the left ventricle of the heart) that occurs at a certain point of a person's heartbeat. This type of hit can happen from a ball, puck or even another athlete's body part, hitting the chest in between heartbeats.

It is imperative that on-site personnel involved in sports programs react quickly and appropriately during a cardiac arrest.

#### RECOMMENDED ACTION:

1. Educate coaches, parents and student athletes in the signs and symptoms of sudden cardiac arrest.
2. Require that properly maintained automated external defibrillators (AEDs) be easily and immediately accessible in all venues of practice or competition with a designated person(s) trained in their use.
3. Require that in addition to appropriate health care professionals, coaches and athletic officials be trained in CPR and use of AEDs.
4. Require that every child has a comprehensive pre-participation examination on a regular basis, including questions on cardiac history and symptoms, with a report provided to the athletic program.
5. Require that parents, student athletes and coaches are informed of the school's policies and procedures, including the availability of emergency equipment and the Emergency Action Plan.
6. Require that appropriate health care professionals, such as athletic trainers or sports medicine-trained physicians educated in the evaluation and management of cardiac emergencies, be immediately available at all events.
7. Require that venue-specific Emergency Action Plans (EAPs) be adopted and routinely rehearsed with local emergency personnel under the direction of the athletic health care team. EAPs specific to athletics are critical since sporting events are often held outside normal school hours.
8. Recommend that student athletes attend community heart screenings where available.

## ➤ Neurologic Injuries

Traumatic brain injuries (TBIs) and cervical spine injuries occur in sports and other athletic activities such as cheerleading. Prompt and appropriate action may save the life of the athlete and will almost certainly minimize the long-term consequences of these injuries.

Early recognition of a neurologic injury may improve the outcome. In mild TBI (concussion), the athlete will recuperate with proper rest and management of both physical and cognitive activities. The athlete must not return to physical activity until the brain is healed; to do otherwise risks second impact syndrome, which may be catastrophic.

Cervical spine injuries may not be immediately apparent, and even the athlete may not be aware that a severe injury has occurred. He or she may insist that everything is fine. It is critical that proper assessment occur before any equipment (e.g., helmet) is removed or the athlete is moved.

### RECOMMENDED ACTION:

1. Require that every student athlete has a pre-participation evaluation on a regular basis, including baseline concussion testing where appropriate with a report provided to the athletic program.
2. Require that parents are informed of the school's policies and procedures, including the availability of emergency equipment and the protocol for return-to-play.
3. Require that teachers, school personnel, coaches, parents, student athletes and athletic officials be trained to recognize and report the signs and symptoms of TBI and cervical spine injuries.
4. Require that appropriate medical personnel, such as athletic trainers or physicians educated in the evaluation and management of brain injuries, be available at all practices and competitions.
5. Require that concussed athletes receive clearance by a medical professional specifically trained in concussion management before returning to physical activity.
6. Require that school personnel and parents are educated on the short- and long-term effects of TBI to support student transition back to full academic participation.
7. Require that venue-specific Emergency Action Plans (EAPs) be adopted and routinely rehearsed with local emergency personnel.

## ➤ Environmental/Exertional Conditions

Many sports practices and games are held outdoors. Weather conditions and air quality are of particular importance early in the season when the student athletes are not yet conditioned or acclimatized to the environment, or when their health status may have changed. Storms, including lightning, however, can happen any time.

Athletes with many different chronic diseases can safely play sports. Those with health issues such as sickle cell trait, asthma or obesity may be particularly susceptible to exercise-induced medical emergencies. Therefore, athletes with medical conditions should be monitored during physical exertion.

Protocols for environmental conditions such as heat, cold, lightning, altitude and poor air quality must be in place where appropriate. Exercise can increase the athlete's core body temperature very quickly, and proper equipment must be available for rapid cooling.

### RECOMMENDED ACTION:

1. Require that schools have established protocols for heat acclimatization, lightning and other environmental factors, with those guidelines incorporated into Emergency Action Plans (EAPs).
2. Require that medical equipment, such as an AED, has been placed in the proper location(s), and education on the use of the equipment has been included in annual training for school personnel. Require that coaches and others participate in rehearsal of EAPs.
3. Require that coaches and athletic officials are trained in recognizing signs and symptoms of exertionally- or environmentally-induced distress in athletes.
4. Require that coaches and others who work with athletes are informed of exertionally- or environmentally-induced medical conditions and the dangers and consequences of the "playing through pain" culture.
5. Require that in excessive temperature and/or humidity conditions, appropriate medical personnel, such as athletic trainers or sports medicine-trained physicians who are educated in signs, symptoms and treatment of heat illness, are immediately available. Athletes who suffer heat illness must be treated according to established guidelines.
6. Require that student athletes do not return to physical activity after exertionally- or environmentally-induced medical conditions without medical clearance.

## ➤ Dietary/Substance-Induced Conditions

Many young athletes and even adults accept “conventional wisdom” about what their weight and build should be for a particular sport or think they can alter body type to enhance performance. Some choose supplements, performance enhancement drugs or energy drinks to be a star athlete. They may use products such as creatine, synthetic testosterone and even anabolic steroids. Such drug use is all too common because it may increase the mass and overall strength of the athletes.

Energy drinks are marketed as performance enhancers, with advertising that implies increased endurance and reaction time, as well as improved concentration. The potential side effects, say the experts, are nervousness, anxiety, restlessness, insomnia, nausea, tremors, rapid heart rate and even death. Energy drinks, which are popular and legal, have un-researched ingredients and no known therapeutic benefit.<sup>5</sup>

Gymnasts want to keep their weight down; wrestlers want to gain or lose depending on their weight class; football players want to look big to the opposition. Without guidance on proper nutrition, safe weight gain/loss, and the dangers of supplements, young athletes may unknowingly put their current and future health at risk.

Adolescence is a vulnerable time. Youth athletes may be susceptible to depression, substance abuse or other damaging behaviors and conditions. Conflicts of interest may develop between athletes, coaches and parents. The athlete may fear being unable to play in the “big game” if problems are revealed. They may enter into an unconscious pact with their parents to ignore problems so as not to jeopardize scholarships or reputations. Coaches may insist the athlete participate as usual. Awareness and guidance are essential.

### RECOMMENDED ACTION:

1. Require that every student athlete has a comprehensive pre-participation examination on a regular basis, with a report provided to the athletic program.
2. Require that student athletes are pre-screened for eating disorders, depression, female athlete triad and other nutritional conditions.
3. Require that school personnel are aware of the psychosocial problems of student athletes, including, but not limited to, disordered eating, depression, suicide and substance abuse.
4. Require that a plan is in place that assures referral of student athletes to appropriate health care professionals whenever psychosocial or dietary problems are suspected, not just when they affect athletic performance.
5. Require that coaches, parents, student athletes and members of the health care team are made aware of the potential problems related to the misuse of nutritional supplements, performance enhancement substances and energy drinks.

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<sup>5</sup> Seifert, S., J. Schaechter, E. Hershorin, and S. Lipshultz. “Health Effects of Energy Drinks on Children, Adolescents, and Young Adults.” *Pediatrics*, Official Journal of the American Academy of Pediatrics (2011): 511-28. Print.