

National Federation of State
High School Associations



SUPPLEMENTS POSITION STATEMENT

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

The NFHS Sports Medicine Advisory Committee (SMAC) strongly opposes the use of dietary supplements for the purpose of obtaining a competitive advantage. Research shows that there continues to be 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. Adolescents are more susceptible to peer pressure and these advertising messages, which may increase the incidence of dietary supplement usage and reinforce a culture more concerned about short-term performance rather than overall long-term athletic development and good health.

The Dietary Supplement Health and Education Act (DSHEA) of 1994 removes dietary supplements from pre-market regulation by the Food and Drug Administration (FDA). Under DSHEA, a manufacturing firm is responsible for determining that the dietary supplements it manufactures or distributes are safe and that any representations or claims made about them are substantiated by adequate evidence to show that they are not false or misleading. This essentially classifies dietary supplements as a food and not a drug, and as such, they are not subject to the same strict tests and regulations as prescription and "over-the-counter" medications by the FDA. Only the companies that produce dietary supplements are responsible for ensuring that their products are pure, safe and effective for their intended use. As the FDA has limited resources to analyze the composition of dietary supplements, there is often no guarantee concerning the true amount, concentration or purity of the ingredients as listed on the label. In fact, the FDA cannot remove a dietary supplement from the marketplace unless the supplement has been shown to be "unsafe."

The NFHS SMAC strongly opposes the use of supplements by high school athletes for performance enhancement, due to the lack of published, reproducible scientific research documenting the benefits of their use and confirming no potential long-term adverse health effects with their use, particularly in the adolescent age group. Dietary supplements should be used only upon the advice of one's health care provider for health-related reasons – not for the purpose of gaining a possible competitive advantage. School personnel and coaches should never recommend, endorse or encourage the use of any dietary supplement, drug, or medication for performance enhancement.

We recommend that coaches, athletic directors, and other school personnel develop strategies that address the prevalence and 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 athletic goals through hard work, appropriate rest and good nutrition, not unsubstantiated dietary shortcuts.

In order to discourage dietary supplement use for athletic performance:

- School personnel, coaches, and parents should allow for open discussion about dietary supplement use, and strongly encourage obtaining optimal nutrition through a well-balanced diet.
- Remind athletes that no supplement is harmless or free from consequences and that there are no short cuts to improve athletic performance.
- Because they are not strictly regulated, dietary supplements may contain impurities and banned substances not listed on the label.

References/Resources:

- American College of Sports Medicine (ACSM). Nutrition and Athletic Performance Position Statement. March 2009.
- Dietary Supplement Health and Education Act of 1994 (DSHEA). <http://www.fda.gov/opacom/laws/DSHEA.html>
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- Mellion MB, Walsh, WM, et al. *The Team Physician's Handbook*. 3rd ed. Philadelphia: Hanley & Belfus, 2001.
- McKeag DB, Moeller JL. *ACSM's Primary Care Sports Medicine*. 2nd ed. Philadelphia: Lippincott Williams & Wilkins, 2007.
- National Federation of State High School Associations. <http://www.nfhs.org>.
- Overview of Dietary Supplements. <http://www.fda.gov/Food/DietarySupplements/ConsumerInformation/ucm110417.htm>
- The National Center for Drug Free Sport, Inc. <http://www.drugfreesport.com>.
- United States Anti-Doping Agency. <http://www.usantidoping.org/>.

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DISCLAIMER – NFHS Position Statements and Guidelines

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Position Statement and Recommendations for the Use of Energy Drinks by Young Athletes

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

Background: Energy drinks have become increasingly popular among adolescents and young adults in recent years. 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. 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.

The NFHS SMAC strongly recommends that:

1. Water and appropriate sports drinks should be used for rehydration as outlined in “**NFHS Position Statement and Recommendations for Hydration to Minimize the Risk for Dehydration and 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 associated 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 primary care provider.

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 adverse side-effects, potentially harmful interactions with prescription medications (particularly stimulant medications used to treat ADHD), or positive drug tests.

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 re-hydration during or after athletic activity. While contents vary, most sports drinks contain a 6 to 8% 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.

- 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.

References:

American Academy of Pediatrics. Clinical Report. Sports drinks and energy drinks for children and adolescents: Are they appropriate? *Pediatrics* 2011;6:1182-1189.

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Proper Nutrition, Hydration – Not Energy Drinks – Lead to Athletic Success

BY KATHERINE DEC, M.D., AND STEVE MCINERNEY, ATC

The use of energy drinks by high school athletes has become increasingly prevalent. Testimonials by notable athletes, easy access, peer pressure and a misunderstanding of athletes' nutritional needs are a few of the reasons behind this increased use.

While many athletes are looking for the "quick fix" that will lead to success on the courts and playing fields, the use of energy drinks is not limited to athletic endeavors. Students involved in music, theatre or forensic activities also seek that extra boost to be able to perform at their peak.

In many cases, it is the confusion between a "sports drink" and an "energy drink" that leads to the initial use by high school athletes. Each athlete has his or her own energy needs in order to be competitive in their chosen sport. However, proper nutrition, consisting of proper hydration and the optimal balance of proteins, carbohydrates and fats, provides the basic foundation for athletic success.

Within the realm of athletics, energy can be defined in two ways. First, it is the strength and vitality required for sustained physical or mental activity. Second, it may be viewed as a feeling of possessing such strength and vitality. The latter is most commonly associated with the concept of energy – the ability to stay awake and alert for tests, to feel a burst of strength or speed in order to complete a workout or to finish a game. Promotional advertising for energy drinks appeals to this concept.

The primary energy source for the human body is glucose. The building blocks of proteins and fats are essential catalysts for the increased availability of glucose. Through advertising, many high school athletes and coaches are led to believe that a magic combination of minerals, vitamins and other supplements provide the eu-

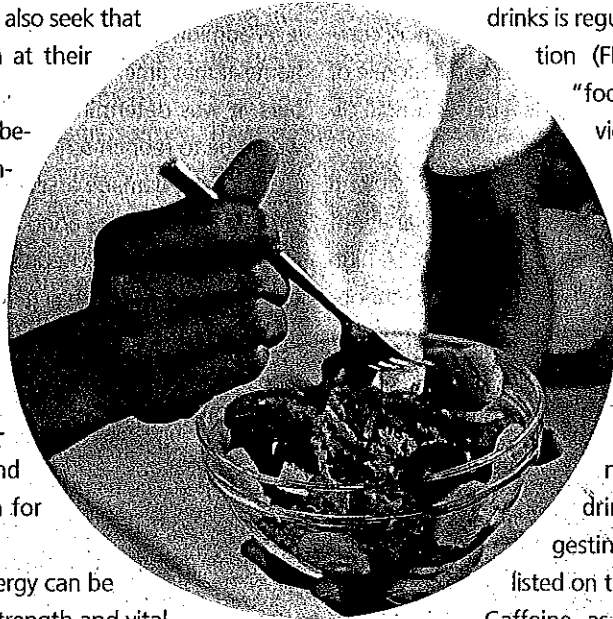
phoric burst touted by these energy drinks. In many cases, this feeling of increased energy is provided by caffeine and other supplements with the same stimulating effects as caffeine.

The goal of sports drinks is to provide fluids and certain nutrients that are lost in sweating and exercise. Most commonly, sports drinks are used prior to, during and after athletic practices or competitions. The caffeine content in sports drinks and soft

drinks is regulated by the Federal Drug Administration (FDA), due to their classification as "food." However, energy drinks are viewed as a supplement; therefore, they are not regulated by the FDA. These drinks typically include various supplements, amino acids or minerals to appear as a replenishment drink, but they may also have high levels of sugar and caffeine. Labeling of these drinks can be misleading. One container may actually contain two or more servings. Young athletes will drink the whole container, thereby ingesting two to three times the milligrams listed on the label.

Caffeine, as well as supplements that create caffeine-like effects such as Guarana, Green tea extract and Tuarine, create specific physiological reactions within the body. Caffeine attaches to specific receptor sites in the brain that are normally reserved for another molecule that prepares the body for sleep. Because this molecule cannot bind with its receptor, there is a continuing circulation of the other molecules that act as natural stimulants for the brain. The result may be increased alertness or wakefulness and the feeling of being more energetic.

Caffeine may have some positive effects on performance when consumed by particular athletes involved in specific sports. It may delay the feeling of muscle fatigue by helping to decrease the buildup of lactic acid and raising the lactate threshold. In addition to in-



creasing the feeling of energy, caffeine may quicken reaction time and enhance mental awareness in some athletes.

However, there can be negative effects from caffeine use as well. Common side effects may include rapid heart rate, shaking, restlessness, gastrointestinal upset, headache and possibly fainting. Caffeine can act as a diuretic, which may hasten the onset of dehydration and not only reduce athletic performance, but lead to catastrophic effects as well.

In addition, too much caffeine can mask fatigue and hinder performance, which may lead to injury. Fatigue is an important signal in order to achieve proper rest and recovery intervals. Because of caffeine's effect on moods, dependence can be created involving the "need" to achieve the feeling of alertness that becomes associated with successful workouts. In order to maintain this feeling, greater amounts of caffeine must be ingested in order to continue the effect once the athlete develops a tolerance.

There is research to suggest that males less than 17 years of age who consume these energy drinks may be affecting the reward-addiction area of the brain that may, in turn, influence future food preferences. Due to caffeine's effect of delaying the body's natural sleep rhythms, there can be a negative effect for athletes who only have a short recovery interval or are traveling for

competition. This lack of sleep will negatively affect the body's ability to repair, grow and recover.

As advertisers target high school students, it becomes increasingly important that high school coaches, teachers and administrators continue to stay abreast of the latest trends in sports nutrition. Employing proper nutrition will allow their bodies to function at peak capacity – not only on the playing field but in the classroom as well. A proper combination of nutrition and hydration enhances the body's ability to perform and will enable high school students to continue to lead productive lives. ☉

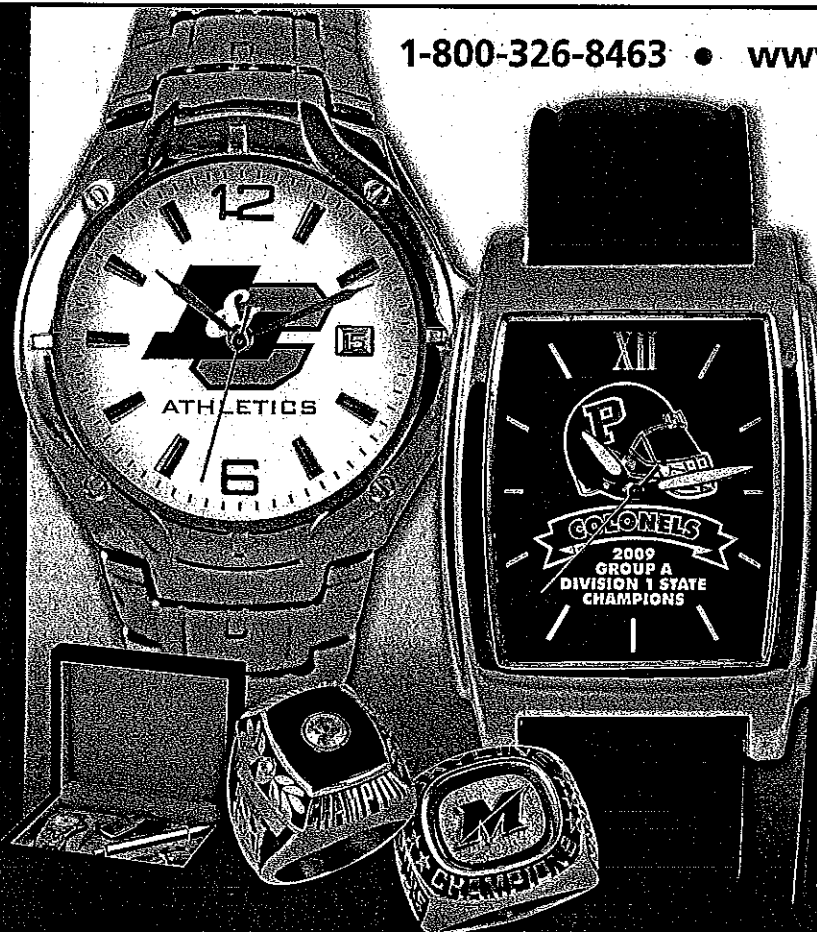
Editor's Note: Additional information may be obtained by reading the NFHS Position Statement and Recommendations for the Use of Energy Drinks by Young Adults.

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Teen girl dies of 'caffeine toxicity' after downing 2 energy drinks

By TODAY.com staff

Fourteen-year-old Anais Fournier downed two 24-ounce energy drinks on one December day, while hanging out with her friends at the mall. The next day, the Maryland teenager went into cardiac arrest -- and just six days later, she was dead. Her family stayed at her bedside as doctors induced a coma to keep the teen's brain from swelling. "We stayed up all night," says her mother, Wendy Crossland of Hagerstown, Md., told NBC's Tom Costello. "I laid in bed next to her all night long. ... We talked to her and stayed with her. "She never ever regained consciousness and we never got to say goodbye," her mother says. The official cause of death, according to the teenager's death certificate, was cardiac arrhythmia due to caffeine toxicity. Anais and her family knew she had a common heart condition called mitral valve prolapse, which causes one of the heart's valves to malfunction. The condition, which affects up to 1 in 20 Americans, usually doesn't cause people any problems, and the teenager's doctor felt her case posed little health risk. The day before she went into cardiac arrest, Anais's family says she drank two 24-ounce Monster energy drinks, unwittingly guzzling 480 milligrams of caffeine -- that's nearly five times the limit recommended by the American Academy of Pediatrics. To put it another way: By drinking just two large energy drinks, Anais drank as much caffeine as you'd find in about 14 cans of Coke. Monster tells NBC News, "we vehemently deny that drinking two cans of Monster Energy by itself can cause a death from caffeine toxicity." The company also points out that their beverages contain less caffeine than some of the drinks sold at Starbucks and other coffee shops. But whatever the source of the caffeine buzz, some health experts question how much of the stuff kids should be drinking -- if they should be drinking it at all. "Between the caffeine, the sugar, its effects on blood pressure, potential adverse effects, I think it's really difficult to justify a case for children, young adults to be using these substances right now," Dr. Allen Taylor, chief of cardiology at Georgetown University Hospital, told NBC News. Emergency rooms across the country have seen a dramatic spike in caffeine overdoses, up from 1,128 in 2005 to 16,055 in 2008 and 13,114 in 2009, according to a recent report by the Substance Abuse and Mental Health Services Administration. Critics of the energy drink craze have argued that the marketing of the beverages, with names like Monster, Red Bull and Rockstar, seems designed to appeal to teenagers and young adults. Costello spoke to University of Maryland researcher Amelia Arria, who has studied the effects of energy drinks on young people. "Individuals don't really know how much caffeine they're consuming because the label does not require disclosure of caffeine content," Arria says. The Food and Drug Administration regulates the amount of caffeine in soda, but not in

energy drinks -- the latter are considered a dietary supplement, not a food. But the American Beverage Association says it has adopted voluntary policies when it comes to issues like nutritional labeling, and marketing energy drinks toward kids. Some energy drink makers do label their beverages with warnings. But doctors like Taylor, at Georgetown University, have warnings of their own for concerned parents: "Is your child the one who has a predisposing condition where these could be truly dangerous? Is it worth the call from the emergency room?"

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