

The Use of Energy Drinks by Young Athletes

BY MICHAEL C. KOESTER, MD, ATC, FAAP

Energy drinks have become increasingly popular among high school students in recent years. Hundreds of brands have been introduced to the marketplace, and the drinks are consumed by millions of adolescents on a daily basis. These beverages are particularly popular among young athletes who see the consumption of energy drinks as a readily available and convenient way to maximize athletic performance. The drinks are also often used to provide an "academic" boost for a late night of studying or preparing a project.

Energy Drinks vs. Sports Drinks

Some confusion exists over where exactly the difference lies between an "energy drink" and a "sports drink." Simply put, 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. "Sports drinks" are designed to provide rehydration during or after sustained physical activity, thus the contents of the two drinks differ in several important ways.

Nearly all energy drinks contain carbohydrates (sugar) and caffeine as their main ingredients. Prior to its being banned, many of these drinks also contained ephedra. The carbohydrates provide nutrient energy and the caffeine acts as a stimulant to the central nervous system. While contents may vary somewhat, most sports drinks contain a low percentage carbohydrate solution and a mixture of electrolytes such as sodium and potassium. The carbohydrate and electrolyte concentrations are specifically formulated to allow maximal absorption by the stomach, aiding in re-hydration.

Energy drinks should not be used for the purposes of hydration or re-hydration by athletes. The high carbohydrate concentration results in slow absorption from the gastrointestinal tract and may cause bloating and diarrhea. In addition, caffeine acts as a diuretic and, therefore, results in increased fluid loss during and after exercise secondary to increased urine output.

Energy Drink Contents

Since energy drinks contain a higher concentration of carbohy-

drates than sports drinks, they also contain more calories. The high caffeine level may come from large amounts of synthetic caffeine or "natural" forms of caffeine like guarana and kola nuts. Other nutritional supplements like Echinacea, Ginko biloba, and ginseng are often included. Some brands also include vitamins, proteins, and amino acids.

Manufacturers make claims that these added ingredients have special benefits, typically related to maximizing the effects of the caffeine and carbohydrates in providing a boost of energy. However, none of the aforementioned herbs or nutrients has any beneficial effect that has been scientifically proven.

Potential Side Effects of Consuming Energy Drinks

As we all know, caffeine often has the effect of making a person feel "energized." Studies have shown some performance-enhancing benefits from caffeine, but only at very high concentrations. It would require the consumption of as many as five energy drinks in a short period of time to achieve these doses. Such high amounts of caffeine may produce light-headedness, tremors, impaired sleep and difficulty with fine motor control, and may exceed drug-testing thresholds for caffeine.

The high concentrations of carbohydrates found in energy drinks may also be a source of trouble. Delayed emptying of the stomach, due to the high sugar load, may result in a feeling of being bloated. Abdominal cramping may also occur. Both carbohydrates and caffeine in the high concentrations found in most energy drinks can cause diarrhea. Also, some athletes, and many non-athletes, may see an unwanted weight gain due to the high calorie content of many of these beverages.

An important point to remember is that like all nutritional supplements, there are currently no regulatory controls over energy drinks, thus their contents and purity cannot be assured. This may lead to a variety of adverse consequences. The most concerning is the potential for harmful interactions with prescription medications that the athlete may be already be taking. There is particular danger for those taking stimulant medications for ADHD. For athletes

who are subject to drug testing, there is also the possibility of a positive drug screen if the manufacturer knowingly, or unknowingly, adds banned substances to the beverage.

Discouraging Use by Athletes

In addition to educating athletes about the lack of benefits and potential risks of energy drinks, teachers, coaches and administrators should consider their own habits. Discouraging the use of "energy drinks" while downing your second latte of the morning or sipping on your third caffeinated soda of the day will be perceived as hypocritical at best. Thus, adults in positions of responsibility should model behaviors that they would like to see in their students and athletes.

You must also be prepared to educate young athletes regarding the use of energy drinks. Such efforts should focus upon the potential harms and side effects of use as discussed above, in addition to the financial costs (\$2-3 per bottle or can). This message can be coupled with the explanation that there are no proven performance benefits to consuming these drinks prior to practices or games.

NFHS Sports Medicine Advisory Committee's Position on Energy Drinks

Following a review of the medical literature and in consideration of the issues discussed above, the NFHS Sports Medicine Advisory Committee has created and endorsed the following position statement regarding the use of energy drinks by young athletes:

1. Water and appropriate sports drinks should be used for re-hydration as outlined in the NFHS Document "Recommendations for Hydration to Prevent Dehydration and Heat Illness."
2. Energy drinks should not be used for hydration.
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. Energy drinks should not be consumed by athletes who are dehydrated.
5. Energy drinks should not be consumed without prior medical approval by athletes taking over-the-counter or prescription medications. ©

The position statement is available in its entirety at www.nfhs.org.

Dr. Michael C. Koester is a pediatric and adult sports medicine physician at the Slocum Center for Orthopedic and Sports Medicine in Eugene, Oregon. He is a member of the NFHS Sports Medicine Advisory Committee.

SPORTSMANSHIP

Sportsmanship Comes from Within

Editor's Note: This article was distributed as a press release by the Iowa High School Athletic Association.

You all may have heard the sportsmanship announcement that is read at the start of high school events. Often it is appreciated. And for the last quarter of a century, the Iowa High School Athletic Association has sharpened its focus on this one trait that makes educational athletics truly special in Iowa.

By all reports, sportsmanship has gotten better among the athletes and coaches. Spectators, perhaps, have lagged behind, but ever so often an event happens that tugs at your heart to be told and causes even the most blustery fan to cease yelling and to reflect that there is a higher purpose to interscholastic competition. Such events have a positive effect on spectator sportsmanship.

One occurred in the PGM - Monroe vs. Albia junior varsity game Monday, September 8 at Monroe.

Late in the game PGM was winning handily. Coaches from both schools had made sure all of their players had participated. With 90 seconds remaining, Wyatt Lagergren, a PGM ball carrier, sustained a broken ankle. An ambulance was called and it took several minutes to stabilize the young man and to transport him.

In the interim, the Albia coaches talked with the PGM coaches and offered to terminate the game, but some PGM players disagreed.

They told the coaches from both schools they wanted Albia player Kile Weiss, a sophomore student with special needs, to have a chance to score. PGM quarterback Brandon Kain visited with the Albia coaches and officials. Then with time running down, he fumbled in Kile's direction.

Players, coaches and fans on both sides cheered as Kile scooped up the ball and ran 60 yards for a touchdown. It was a special moment to treasure for Kile, all players, coaches and fans.

Albia has started a tradition this fall under new but veteran coach Jerry Staton to give the opposing team a sportsmanship cheer following the game. This time it was more special, and as they ended, the PGM players in unison shouted "Thanks!"

There is more to educational athletics than winning and this situation was initiated by some good young men who understand that. It reinforces the fact that when it comes to doing the right thing that "the kids get it," and moreover, by their deed, they can sell it.

From the coaches, administrators and officials who shared the story with us, they each added that there weren't many dry eyes after the game. The adults "got it" also. ©