

WHAT YOU NEED TO KNOW ABOUT "ENERGY DRINKS"

Energy is the capacity to do work, including synthesizing proteins, fats, and carbohydrates, producing nerve stimuli and muscle contractions, and performing sports. Biochemical energy is derived from food and is optimized when athletes get adequate rest and sleep and when they engage in effective training programs. The feeling of being "energized" also requires the correct balance of neurochemicals in the brain; this, too, requires the appropriate amounts of food, fluids, rest and sleep, and physical activity, plus other psychological factors about which we know little.

Eating an optimal amount of calories and being well hydrated are certainly critical components of athletic success. Energy drinks can supply energy and fluid, and they may have a role to play in carbohydrate loading during recovery from exercise. But energy drinks typically are not optimally formulated to work best to improve strength, speed, stamina, and other requirements for sport performance when consumed shortly before or during exercise. Here are some of the concerns experts have with energy drinks:

- Doses of ingredients are often not standardized, so it is impossible to know if you are getting too little or too much of a particular ingredient.
- Some supplements do not contain the ingredients stated on the package; some contain banned ingredients not stated.
- Some products may have side effects that detract from performance.
- Energy drinks are a costly way to acquire carbohydrate and fluid.

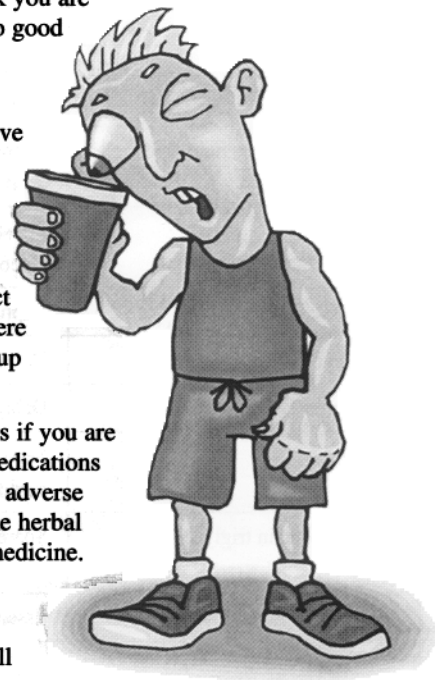
The table on back lists some of the ingredients added to energy drinks with claims and facts.

BOTTOM LINE

Athletes need to be well rested, well fueled, and well hydrated for optimal energy and performance. Supplemental beverages should have a beneficial, not negative effect on the body. Examine energy drinks carefully and think before you buy, keeping the following points in mind:

- Is there anything about your present eating, hydrating, or lifestyle patterns that you should improve before trying a costly energy drink?

- Does the energy drink you are considering sound too good to be true? If so, it probably is.
- Does the beverage have a Nutrition Facts or Supplement Facts Panel? If not, avoid it.
- What does the product claim to do, and is there any research to back up those claims?
- Avoid herbal additives if you are taking prescription medications because there may be adverse interactions among the herbal chemicals and your medicine.
- Avoid products containing ephedra, yohimbe, and mate, all of which are unsafe.



REFERENCES

- Casa, D.J., L.E. Armstrong, S.K. Hillman, S.J. Montain, R.V. Reiff, B.S.E. Rich, W.O. Roberts, and J.A. Stone (2000). National Athletic Trainers' Association Position Statement: Fluid Replacement for Athletes. *J. Athl. Train.* 35: 212-224.
- Horswill, C.A. (2001). Other Ingredients: Role in the Nutrition of Athletes. In: R.J. Maughan and R. Murray (eds.) *Sports Drinks: Basic Science and Practical Aspects*. Boca Raton, FL: CRC Press, pp. 225-255.
- Skinner, R.E., E. Coleman, and C.A. Rosenbloom (2000). Ergogenic Aids. In: Rosenbloom C. (ed.) *Sports Nutrition: A Guide for the Professional Working with Active People 3rd ed.* Chicago: The American Dietetic Association, pp. 107-146.

INGREDIENTS OF ENERGY DRINKS

| INGREDIENT | CLAIMS | FACTS |
|--|---|--|
| Royal jelly/bee pollen | Improved exercise performance | No effect on performance; dangerous for those allergic to bee stings |
| Glucose, sucrose, fructose, galactose | Carbohydrate is the preferred fuel source; enhanced performance | Carbohydrate supplements often improve performance. Carbohydrate-rich drinks can be effective for carbohydrate loading up to 2 hours before exercise. If consumed shortly before or during exercise, carbohydrate amounts in energy drinks are usually too much or too little; drinks containing only galactose or fructose can cause digestive problems |
| Pyruvate | Enhance aerobic metabolism; delay fatigue; decrease body fat | Amount needed is far in excess of what current products provide; larger quantities cause GI distress |
| Branched-chain amino acids (BCAAs) | Decrease brain serotonin; delay fatigue; expedite recovery | No effect on athletic performance when compared to carbohydrate; may cause digestive distress |
| Glutamine | Boost immune system; increase glycogen storage | No effect on an athlete's immune system or on performance |
| Arginine | Improve muscle glycogen stores | No benefit; can cause digestive distress |
| | Delay fatigue in high-intensity exercise | Insufficient amount in energy drinks to be effective |
| | Delay fatigue, burn body fat | No effect on athletic performance |
| Taurine | Serves as antioxidant; enhances cardiac function | No effect on athletic performance |
| Medium-chain triglycerides (MCTs) | Spare glycogen; enhance endurance | No effect on athletic performance; causes digestive distress |
| Vitamins and minerals | Essential for normal body functions | Amounts in energy drinks range from trace to megadoses; no effect on athletic performance |
| Oxygen dissolved in beverage | Increased aerobic metabolism; decreased lactic acid; improved endurance | No effect on metabolism or athletic performance in typical athletes, who have no deficiency of vitamins |
| Caffeine | Stimulates brain function and metabolism; Improves performance | May improve athletic performance; may stimulate urine production and contribute to dehydration if ingested before exercise; may cause nervousness; laxative effect |
| Guarana extract; Kola nut extract; Yerba mate extract ("natural" caffeine sources) | Similar to caffeine | Similar to caffeine; often unknown quantities of active ingredients; could lead to anti-doping violation if too much caffeine |
| "Fat burners" such as Ciwujia, hydroxycitrate, ephedra | Stimulate metabolism and brain function; reduce fat | Little or no evidence of athletic performance effect; ephedra can cause cardiovascular dysfunction and death in sensitive individuals |
| Kava-Kava and St. John's Wort | Calm the nervous system | No athletic performance effect; kava-kava associated with liver failure |
| Amino acids from hornet's saliva | Increase endurance | No evidence of effect on athletic performance in humans |

For additional information: In the U.S.A. and Canada: 1-800-616-GSSI (4774) ■ Outside the U.S.A.: 847-967-6092
www.gssiweb.com

This article may be reproduced for non-profit, educational purposes only.