

Performance-Enhancing Supplements

The most effective way young athletes can improve their sports performance is to pay close attention to the basics: fluids, calories, training, conditioning, and rest. Shortcuts, such as the use of performance-enhancing substances and supplements, are of little benefit and are potentially damaging to young athletes.

The following is information from the American Academy of Pediatrics (AAP) about nutrition for the athlete and an overview of performance-enhancing substances and supplements.

Nutrition basics

Athletes should

- Eat breakfast, especially before events. Breakfast is an essential part of a well-balanced diet and may be a busy athlete's only pre-event meal. Multigrain cereals are great, especially for endurance sports. Sugary cereals should be avoided. Nutrition information from the US Department of Agriculture and other federal government agencies is available at www.nutrition.gov.
- Avoid solid foods and heavy drinks (milk shakes, fruit juices) before practices and competitions—2 hours prior to event time. It's important that food is properly digested before the start of practice or competition.
- Stay hydrated. Managing fluid and electrolytes correctly can enhance sports performance, especially if the practice or game lasts more than 60 minutes. The following are a few guidelines:
 - 2 hours prior to the event—Drink about 16 ounces of water or sports drinks.
 - 30 minutes prior to the event—Drink at least 8 ounces of water or sports drinks.
 - During practice and competition—Drink 4 to 8 ounces of water or sports drinks every 15 minutes throughout the practice or competition to keep the body hydrated and performing at its best level.
- Reload. Athletes need to remember to replenish their bodies with fluids and food within 1 to 2 hours after a practice or game. Reloading is especially critical if the sport involves multiple games in a short time frame, like during a basketball or soccer tournament. A well-

balanced meal with the right kinds of proteins and carbohydrates will help the muscles recover between practices and games. Proper nutrition also reduces the risk that muscle fatigue will carry over from one game to the next. Well-balanced meals are especially important if athletes are recovering from an injury and want to return to practice and competition.

Performance-enhancing supplements

The following is information about dietary supplements, energy drinks and stimulants, vitamins and minerals, and anabolic steroids.

Dietary supplements

Many young athletes consider taking protein supplements or nucleic acid supplements (creatine) to help improve their sports performance; however, studies have not shown these supplements to be very helpful in enhancing sports performance in younger athletes. Also, protein supplements and creatine may actually decrease sports performance, especially in endurance sports (like running, cycling, or swimming) or sports with practices that last longer than 60 minutes. Supplements are not necessary if an athlete is eating a well-balanced diet.

Energy drinks and stimulants

Stimulants, including soft drinks with caffeine, are used by some young athletes to enhance sports performance. This category also includes energy drinks that contain taurine, caffeine, glucuronolactone, guarana, and ginseng. While athletes may gain a little boost in sports performance for a very short time, these products carry a major risk for increasing risk for heat-related illness, dehydration, and even heart problems. Using stimulants can also lead to decreased sports performance in endurance sports and in sports where fine motor coordination is important (muscle tremors and coordination problems).

Illegal stimulants (like methamphetamine) will cause a brief surge in sports performance but also carry major risks for heart and heat problems that could be fatal. Young athletes who take medicine for attention-deficit/hyperactivity disorder should very carefully monitor their fluid intake and how they respond to severe temperature and humidity conditions when exercising or competing.

They also need to be very cautious when using energy drinks that contain stimulants.

Vitamins and minerals

Vitamin and mineral supplements are not necessary if an athlete is eating a well-balanced diet.

Specifically, supplements that contain chromium do not help athletes improve sports performance or muscle growth. This also applies to the wide variety of products that claim to improve performance. For young women, however, close attention to calcium, vitamin D, and iron intake is crucial for sports and overall health, and taking a multivitamin plus iron may be helpful in allowing athletes to play their best.

Anabolic steroids

Anabolic steroids are prescription drugs that are illegal to use to enhance sports performance. This category now includes the steroid building blocks that formerly were

classified as dietary supplements (DHEA, androstenediol, and androstenedione). In young athletes these products will enhance muscle strength and mass *but* may stop growth in athletes who are still growing in height. Long-term problems with your heart, skin, and other organs can be severe and get worse with prolonged use, with use at younger ages, and with use of high doses of these drugs. Athletes need to know that anti-inflammatory steroids that are used for asthma and other conditions are in a different category of steroids and are safe and often necessary for young athletes.

Additional information on performance-enhancing substances from the AAP can be found through their Sports Shorts publications and through publications provided by the AAP Council on Sports Medicine and Fitness.

NOTES

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