

Caffeine and Athletic Performance

I've heard that caffeine can give that extra boost during a workout to improve my performance, but I know that in high amounts it can also lead to testing positive for a banned substance.

Is caffeine something I should incorporate into my nutrition plan? Are there certain forms that are better than others?

THE BASICS

In the form of food, beverage and/or supplements, daily caffeine consumption in moderate amounts (200-300 milligrams) is considered safe and well tolerated. There is evidence to support caffeine's benefits for both physical and mental performance, but the timing of consumption, the amount and the source must be carefully considered.

| How Much Caffeine Are You Consuming? | |
|---|---|
| Caffeine-Containing Food Product | Amount of Caffeine Milligrams |
| 8 ounces of home-brewed drip coffee | 80-100 |
| 8 ounces of instant coffee | 65-100 |
| 2 ounces of espresso (latte, cappuccino, Americano) | 100 |
| 8 ounces of decaffeinated coffee | 5 |
| 8 ounces of brewed tea | 50 |
| 12 ounces of caffeine-containing soft drinks | 35-55 |
| 12-20 ounces per serving of energy drink | Varies, check the label for drinks and bars! Typical doses range from 80-350 milligrams. |
| Energy bar with caffeine | 50 or 100 |
| 1.5 ounces of dark chocolate | 30 |
| 1 caffeine tablet | 200 |

Written by ASPDA and SHPN Registered Dietitian Nutritionists (RDNs). For more information on individualized fueling and supplementation, consult a RDN who specializes in sports, particularly a Board Certified Specialist in Sports Dietetics (CSSD) or an athletics health care provider.





CONSIDERATIONS FOR CAFFEINE USE FOR PERFORMANCE

- **Food first.** The perception of having increased energy from caffeine will not replace the actual energy provided from food. The potential performance benefits of caffeine can't overcome poor dietary and lifestyle choices (e.g., inadequate sleep). Consult a sports dietitian or your primary athletics health care provider to help create an individualized nutrition plan that meets your energy, nutrient and recovery needs.
- **Amount and timing.** When considering caffeine use for potential performance benefits, you should consult with your athletics health care provider or dietitian to determine the appropriate amount and timing. Performance-enhancing effects may last up to four hours. Note, caffeinated chewing gum has been shown to enter the bloodstream faster, as it is absorbed in your mouth.
- **Form.** The amount of caffeine in supplements and medications tends to be standardized, while the amount in coffee, tea and energy drinks can vary considerably. Be sure to read labels and know how much you are consuming.
- **Usual habits.** Before adding a new caffeinated product to your routine, be aware of the caffeinated products you're already consuming throughout the day. Stacking products like coffee, energy drinks and supplements can add up quickly and lead to adverse reactions.
- **Individual variability.** Some people metabolize caffeine more quickly than others and tend to experience more positive performance effects. In contrast, slower metabolizers may experience stronger side effects and fewer benefits. Be sure to start with a conservative dose and trial new fueling strategies like caffeine BEFORE competition so you are confident in your body's response.

POTENTIAL RISKS

- At higher doses, caffeine is classified as a banned substance by the NCAA. A urinary concentration equal to or greater than 15 micrograms per milliliter results in a positive drug test.
- While people metabolize caffeine differently, 15 micrograms per milliliter is generally considered to be the equivalent of six to eight cups of coffee.
- The rise in popularity of energy drinks has been met with a rise in multi-ingredient products mixing vitamins and other herbal combinations, which may not all be considered safe. Unlike medications, supplements do not require FDA approval prior to their release on the market. Consulting with the athletics health care provider or dietitian is always advisable before trying an unfamiliar caffeine source.
- High doses of caffeine can cause gastrointestinal issues, nausea or shaking, as well as "overstimulation" that can negatively impact mental health, training, sleep and performance.
- For regular consumers, withdrawal symptoms from caffeine may include headache, fatigue, depression, irritability, insomnia, increased or irregular heart rate, and increased blood pressure.
- Caffeine consumed without adequate fluids can negatively impact thermal regulation in athletes training in hot environments.

POTENTIAL BENEFITS

- Improvements in muscular endurance, strength, power and sprint performance.
- Decreased pain and perception of fatigue, allowing for training at higher intensities.
- Increased body coordination, improved focus and concentration, and greater ability to sustain training intensity.

