



COFFEE AND THE ENDURANCE RUNNER.

By Ian Harries.



Coffee is a drink made from coffee beans, which are the roasted fruit of the *Coffea arabica* bush.

Coffee is a potent stimulant and one of the most readily available "drugs" in the world. Moreover, research suggests **moderate** caffeine consumption can actually increase endurance during exercise, allowing runners to conserve energy stores and push through mental barriers.

Not only can coffee be linked to health benefits, but it's also a potent source of caffeine.

People drink coffee to relieve mental and physical fatigue and to increase mental alertness. Coffee is also used to prevent Parkinson's disease, gallstones, type 2 diabetes, gastrointestinal cancer, lung cancer, and breast cancer. Other uses include treatment of headache, low blood pressure, obesity, and attention deficit-hyperactivity disorder (ADHD).

Caffeine slows glycogen depletion by encouraging the body to use more fat as fuel helping conserve energy for the long run. While caffeine's endurance boost may be relatively well established, it is possible it also has a positive effect on shorter bouts of anaerobic exercise.

How might caffeine help high-intensity workouts? Caffeine is known to increase circulation of free fatty acids, which means that it's glycogen sparing. And studies show that supplementation of caffeine (between 3-6mg/kg) is effective in reducing perceived exertion (meaning that six-minute mile feels like a seven-minute mile). In fact, studies have found that swimmers are faster after 6mg/kg body weight administered in a fruit juice drink two- to five hours before the swim and reported lower perceived exertion. And cyclists' time to exhaustion was nearly 15 minutes longer while caffeinated with 330mg caffeine one hour before exercise.

Taken **one hour** before racing results in the greatest performance improvements.

Two-thirds of Olympic athletes/runners use **caffeine** to increase their performance.

Caffeine is one of the most popular ergogenic aids in the world for good reason—it works.

How does caffeine affect exercise? It can be more than just a morning pick-me-up. Caffeine has a number of physiologic effects that can help improve athletic performance. It is rapidly absorbed in the gastrointestinal tract and is a mild stimulant that affects multiple organ systems

As for when and how much you should take in, a new study suggests consuming six milligrams of caffeine per kilogram of body weight. That means for a 150-pound person, that's roughly 12 ounces of strong coffee.

Higher doses don't do more to improve performance, and you run the risk of developing negative side effects like dizziness, anxiety, and heart palpitations.

Is it possible to have too much? Other research shows that three to six milligrams of caffeine per kilogram of body weight is all you need to see the benefits.

Coffee boosts your brain. A review published earlier this year examined the difference between the effects of caffeine on its own and the effects of consuming it in coffee. Coffee contains a number of substances (including polyphenols) that have been shown to help people with dementia, stave off Alzheimer's disease, and positively influence brain health.

Coffee isn't proven to dehydrate you as studies have found drinking up to about five cups of coffee has little to no effect on hydration. However, if coffee tends to "get things moving" for you before the run, consider replenishing what you've lost with an electrolyte-rich drink.

But you may not need to swallow it to reap benefits. A recent study in the journal *Applied Physiology, Nutrition, and Metabolism* suggests that receptors in your mouth can sense the presence of caffeine and boost your performance, even when you spit out the drink. This might be helpful in the later miles of a long race, when you're not feeling up to ingesting any more gels.

Coffee may help post-exercise recovery. One study had cyclists ride hard for two days in a row to put them in a glycogen-depleted state. Those who drank a recovery drink with carbs and caffeine rebuilt their glycogen stores by 66 percent more than those who drank only carbs.

You can do more than just drink coffee. If a morning cup just isn't enough, try topping your pancakes with coffee butter, whipping some coffee into a smoothie, or freezing coffee with herbs for a cold, caffeine-laced treat.

Can you get too much of a good thing? While there is no consistent evidence for adverse effects on a healthy cardiovascular system, some athletes—like those with pre-existing heart conditions, pregnant women, or those on certain medications—should limit their intake. And just like you discovered in college while pulling an all-nighter, if you consume too much caffeine, sleeplessness and jitters are likely to occur (especially in people not used to caffeine). As for leaching the calcium out of your bones? No convincing research links caffeine to osteoporosis.

How much do I need? As previously stated 3 to 6mg/kg body weight is recommended for endurance exercise (and more is not necessarily better—benefits do not rise with higher dosages). More pronounced effects might be perceived if you abstain from caffeine for several days before the exercise, but if you simply can't live without your morning cup, the research isn't compelling enough to force you to forego it.

Where can I find it? According to Center for Science in the Public Interest, Starbucks espresso (75mg/shot), black tea (30-80mg/8oz), green tea (35-60mg/8oz), and even in novel product like flavor enhancers like Mio Energy drops. (One squeeze = 60mg.)

Many runners rely on caffeine-laced gels, blocks, and beans for a mid-run pick me up. Because there are many levels of caffeine in these products, always be careful to check the label of your favourite flavour to see how much it might contain. In general, if a product contains caffeine, it likely offers somewhere between 25-100mg per serving. Athletes who don't often use caffeine but want to try out a mid-run fuel with some kick would do well to start with a conservative 25mg dose and see how they respond.

Remember, while you may find that caffeinated fuel is just the kick you need to make it through a long run or race, the effect of this ergogenic aid can be cumulative. So if you consume double-espresso gels every hour of a long run, you should plan on staying up past your bedtime or until the post-run jitters wear off.

The negatives. Coffee containing caffeine can cause insomnia, nervousness and restlessness, stomach upset, nausea and vomiting, increased heart and breathing rate, and other side effects. Consuming **large amounts** of coffee might also cause headache, anxiety, agitation, ringing in the ears, and irregular heartbeats.

In conclusion stay with the recommended dosage. Everything in moderation. Be sensible.

(from Google and Runners World)

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