YOUR PRE-WORKOUT PICK ME UP

The effects of caffeine on exercise performance

Many sports supplements make bold claims about boosting performance but only a few are backed up by credible research. One of these is caffeine. Since its removal from the World Anti-Doping Agency's (WADA) banned substance list in 2004, caffeine has become the performance-enhancing drug of choice by competitive athletes. In a study of ironman triathletes competing in the World Championships, 73% reported that they used caffeine in an effort to improve their performance in the race. But it's also widely used by gym regulars and those just wanting a bit of pre-workout motivation.

What is it?

Caffeine is a stimulant that's legal, relatively safe and found in many everyday foods and drinks, such as coffee, tea, cola and chocolate. It's also added to certain energy drinks, gels and chewing gums and is widely available in pill form.

What does it do?

Exactly how caffeine works is not fully understood, but it's believed to act on the brain, blocking a sleep-inducing brain chemical called adenosine. So, instead of feeling tired, you feel more alert and energetic, you react faster and you don't feel like you're working so hard. It may also enhance the ability of muscles to contract.

What's the evidence?

Caffeine is one of the best-tested supplements and the vast majority of studies have found that it enhances both endurance exercise as well as short-term, higher-intensity exercise performance (shaving an average of 3% off of athletes' finish times) and makes exercise feel easier. Three percent is about 2 minutes an hour.

In a study published in 2016, University of Guelph researchers found that cyclists who consumed caffeine mid-way during a 2 hour cycle challenge went on to complete a time trial significantly faster than those who took a placebo. In 2009, in a study at the University of Texas, cyclists who consumed caffeine in the form of an energy drink completed a 1 hour time trial 3 minutes 4 seconds faster than those who took a placebo.

A study at the University of Saskatchewan found that consuming caffeine in amounts equivalent to 2mg caffeine/kg of body weight one hour before exercise significantly increased bench press muscle endurance. Another study with footballers also found that consuming a caffeinated drink one hour before training improved sprinting performance and reduced the perception of fatigue.

However, caffeine may be less beneficial for those doing strength and power sports, such as weight lifting or a single sprint, according to the International Society of Sports Nutrition, but it may

help with sports involving repeated sprints, such as football.

How much and when?

If you're looking for an easy way to increase your stamina you could do worse than drinking a cup of coffee before a workout. Caffeine is one of the few supplements that may actually help you exercise longer and harder. You only need 1–3 mg/kg to get a performance boosting effect, which is less than once believed (6 -9 mg/kg). For a 70 kg person, this would be 210 mg, equivalent to a double expresso, 2 – 3 gels or 2 cans of energy drink.

Don't use it for every workout however; habitual use may reduce immune cells. Save it for when it matters most. For the best results on race day, take it 30 – 60 minutes before your event starts. It will stay in your bloodstream for a long time – its half life is around 5 - 6 hours, meaning that you've only managed to clear half of it out of your body by then.

For events longer than 2-3 hours, you may prefer to take it during the latter stages as fatigue is beginning to occur.

It makes little difference to performance whether you take your caffeine in the form of pills, gels, energy drinks or coffee, according to a 2015 review of studies by University of Georgia researchers.

It is also a myth that caffeine dehydrates you. In a study at Ohio State University, researchers found no difference in hydration status between athletes consuming a sports drink with or without caffeine over a 3-hour cycle ride.

Individual responses vary, and not everyone performs better with a caffeine boost. Take too much and you might end up feeling nauseous, or suffering caffeine jitters at a time when you are already nervous and anxious. Experiment in training, not on race day, to find the dose and protocol that suits you – or even whether plain water is your best bet.

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