

How to catch the kick with caffeine

Recent research has shown that caffeine stimulates the central nervous system via the brain. The brain is the "powerhouse" of the body from where signals are sent to activate muscles. When you exercise, changes in neurotransmitter levels occur in the brain, which can influence a person's level of fatigue. These levels can be manipulated using nutrition, which is a great opportunity to enhance your performance.



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It was previously thought that caffeine, consumed with carbohydrates, increased the rate of carbohydrate oxidation (the burning of carbohydrates for fuel) presumably by improved glucose absorption. Additionally, it was thought that caffeine increases lipolysis - the breakdown of fat for use as a fuel source. However, new research has shown that caffeine is unlikely to have a metabolic role in increasing performance (such as sparing muscle glycogen or increasing fat oxidation) and instead alters the athlete's perception of fatigue and through this helping to improve physical performance.

Not everyone has the same results when they use caffeine, but most people find that they are more alert, energised, focused, and experience a perceived sense of ease in racing effort. The potential positive and negative side effects of caffeine are much individualised so it is recommended that all athletes choosing to use caffeine test their nutrition plan in a non-competitive/training event. If you experience a negative reaction to caffeine during training, it is obviously not the right nutrition choice for you.

As any endurance athlete knows, getting through the last few kilometres of a long race can be a challenging task. Despite all the training, the closer you get to the finish line, the harder it is to keep going, thanks to depleted energy stores and fatigue setting in from the brain. This is when caffeine - a naturally occurring chemical compound - becomes an athlete's best friend. Caffeine is a legal performance-enhancing stimulant that can improve mental focus and therefore performance. (The World Anti-Doping Agency (WADA) approved its use in January 2004*)

Most endurance athletes seem to benefit from a dosage of between 2-5mg/kg. Performance benefits do not necessarily increase if the dosage is increased - effectiveness has been shown to level off at 5mg/kg - so avoid drinking too much coffee or ingesting too many caffeine supplements. On average, a 70kg athlete would need between 140-210mg of caffeine.

There does seem to be potential in the strategic timing of caffeine before and during exercise. Some studies have shown that divided doses of caffeine during exercise are most effective, whereas others have shown benefits in consuming caffeine an hour before exercise and in the last third of an event. Regular doses of caffeine throughout a longer race can be just as beneficial as a single greater dose before the event.

Caffeine is still on the WADA monitoring list as a substance to screen in athletes' blood and watch to determine patterns of use. Caffeine remains a restricted drug by the International Olympic Committee (IOC). However, an athlete would have to ingest a vast amount of caffeine before reaching the legal limit. It is virtually unknown for an athlete being banned due to high levels of urinary caffeine.

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