

THE ENDURANCE COACH.COM

Review of the effects of caffeine ingestion upon running performance, taken from:

Bridge et al (2005) **The effect of caffeine ingestion on 8km run performance in a field setting**. Journal of Sports Sciences, 2006, 1-7.

It has been known for some time that caffeine has the capability to affect endurance performance. In the past, caffeine has been accredited with the ability to enhance fat burning, but more recently, attention has been focused towards its potential effects upon the Central Nervous System (CNS).

Several studies have set out to determine if caffeine in some way 'dampens' the pain signals during exercise, allowing athletes to compete harder. Much research is currently focused upon the 'central governor theory', which suggests that our brain is primarily responsible for deciding when we slow down. If this is the case, some stimulants may allow us to perform at a higher rate by 'scrambling' messages within the CNS.

Bridge (2005) set out to determine if caffeine ingestion would benefit runners over a distance of 8km. Run time, perceived exertion, heart rate and lactate levels were monitored and the results analysed. The study involved athletes racing on a track, as opposed to testing in a lab. They completed the 8km distance on 3 different occasions, consuming either 3mg of glucose per kg body weight, 3mg caffeine per kg body weight or a placebo.

Findings:

Following caffeine ingestion, athletes ran an average of 23.8 seconds faster (these athletes were competitive runners, averaging approx. 6 minutes per mile). Lactate levels & heart rate were slightly higher following caffeine ingestion and perceived exertion was slightly lower (although not statistically significant).

So, they ran 23.8 seconds faster, but had higher lactate, does that make sense? We associate lactate with pain and failure to make our muscles work, how can lactate be higher and performance be better?

One possible explanation is CNS control, when lactate levels and heart rate rise to a large extent, your brain detects these changes and may inhibit your muscles by reducing signals via motor nerves. It's a protection mechanism to stop you 'frying' yourself. Maybe the caffeine 'raised the bar', allowing higher lactate and heart rate, before the brain started to put a halt on the runners. An important thing to note is that although lactate and heart rate were higher, 'perceived exertion' was lower!!

Practical terms:

Caffeine may help you to improve performance taken in the correct dosage. It should be taken in 'neat' form, such as pro-plus, as opposed to mocha or latte.

Stay off the coffee for a couple of days prior, if you drink coffee regularly, it's likely you will have some kind of tolerance.

Marc Laithwaite

marc@TheEnduranceCoach.com