RAPID RESEARCH

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Caffeine & Sports Performance

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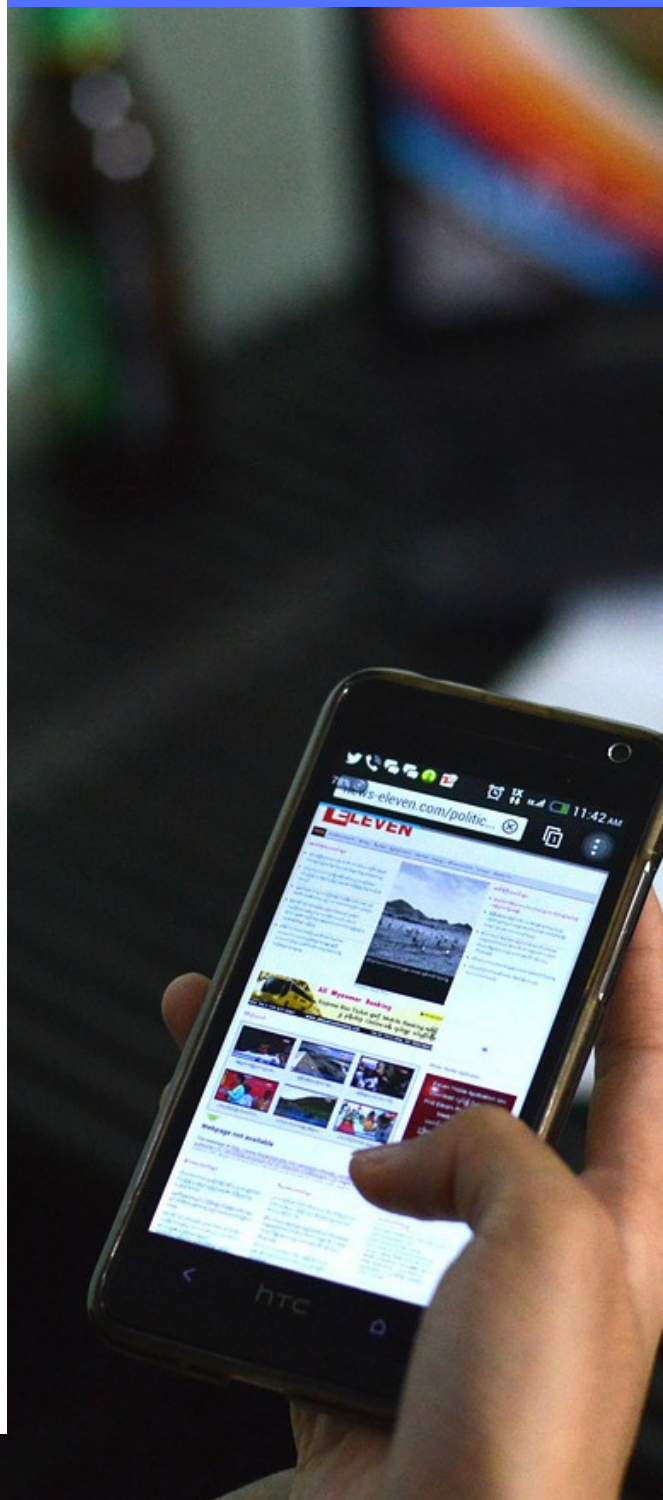

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ISSN'S POSITION ON CAFFEINE & EXERCISE PERFORMANCE

Click for Full Text (Guest et al. 2021)

This article summarizes the International Society of Sports Nutrition (ISSN) position on caffeine and exercise performance following their critical review of the available evidence.

KEY FINDINGS

- Benefits of caffeine include improved muscular endurance & strength, sprinting, jumping, and throwing performance.
- Aerobic endurance most consistently benefits from caffeine use.
- Doses of 3–6 mg/ kg body mass is most effective, 60 min pre-exercise.
- Performance improvements are seen in both trained and untrained individuals.
- Differences in performance benefits and adverse effects may be attributed to genetic variation associated with caffeine metabolism.
- Positive effects on cognitive function, attention and vigilance are common, and in some individuals under sleep deprivation.
- Use for endurance exercise in the heat and at altitude is well supported when dosages range from 3 to 6 mg/kg and 4–6 mg/kg, respectively.
- Energy drinks and pre-workout supplements containing caffeine have been demonstrated to enhance both anaerobic and aerobic performance.

MAIN TAKEAWAYS

Caffeine is frequently used in military, athletic and fitness populations which acutely enhance many aspects of exercise performance in most, but not all studies.

Caffeine is ergogenic when consumed in doses of 3–6 mg/kg body mass, 60 min pre-exercise.

Caffeine at the recommended doses does not appear significantly influence hydration.

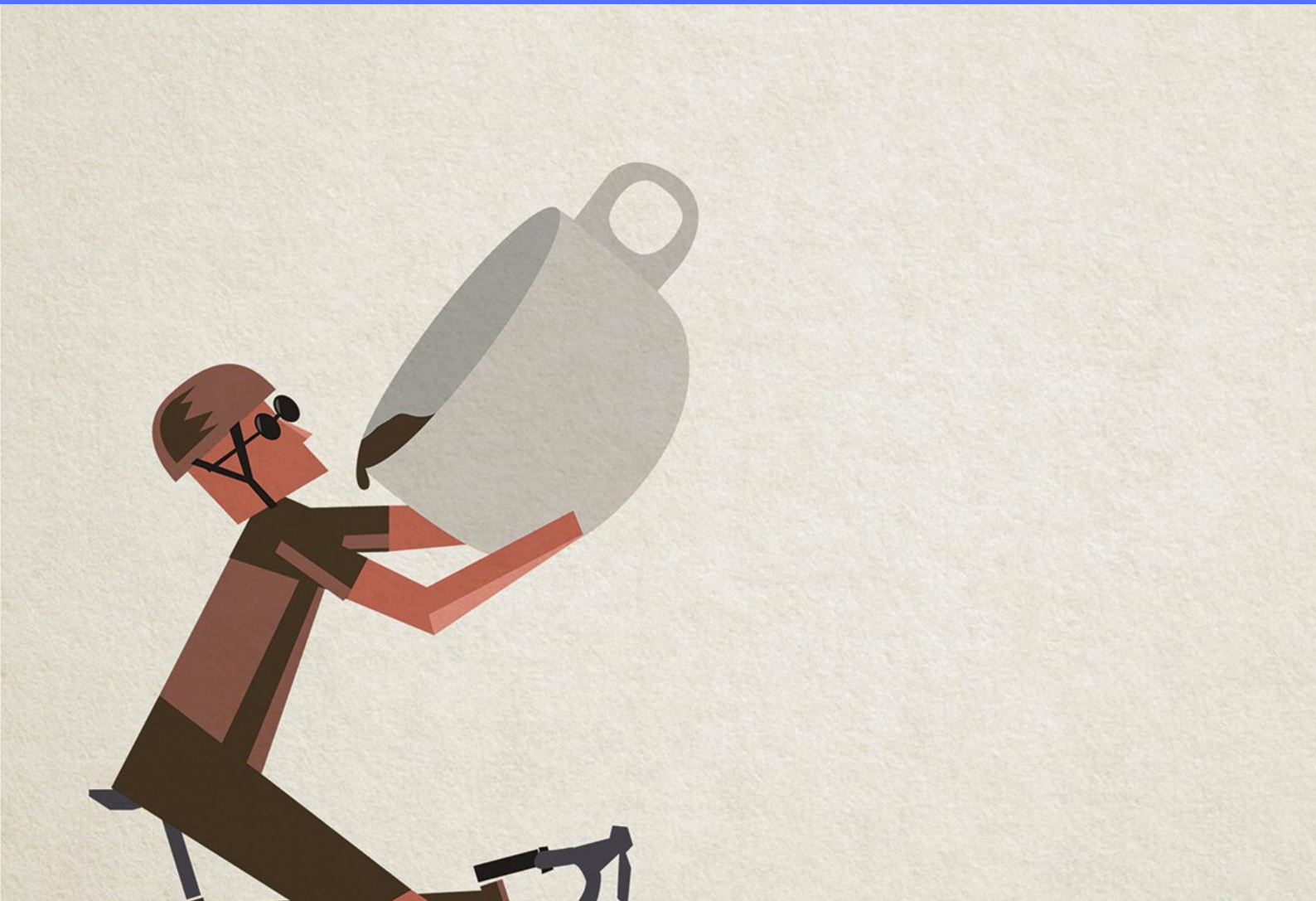
Side-effects can include sleep disturbance and anxiety, which are often linearly dose-dependent.

CAFFEINE V. COFFEE FOR ENDURANCE EXERCISE

MAY 2022

Click for Full Text (Hodgson et al. 2012)

This research investigated whether acute intake of coffee and anhydrous caffeine are ergogenic to cycling performance compared to decaffeinated coffee or placebo beverages.



KEY FINDINGS

8 cyclists completed 30 min of steady-state (SS) cycling at approximately 55% VO2max followed by a 45 min energy based target time trial (TT).

1 hour prior to exercise each athlete consumed either:
Caffeine (5 mg CAF/kg BW) | Instant coffee (5 mg CAF/kg BW)
Instant decaffeinated coffee |Placebo.

No observed difference in carbohydrate or fat oxidation.

Performance times during the TT were **significantly faster (5.0%) for both caffeine and coffee** when compared to placebo and decaf.

Similar time **improvements were seen for both caffeine and coffee.**

No significant differences between placebo & decaf during the TT.

MAIN TAKEAWAYS

Caffeine and coffee (5 mg CAF/kg BW) were both able to improve exercise performance to the same extent, when compared to decaffeinated coffee and placebo.

Compounds found in **coffee may alter the metabolic effects,** as the current study observed differences between caffeine and coffee at rest and during exercise.

It is yet to be determined if lower doses of caffeine, when ingested as coffee, offer the same ergogenic effects.

MAY 2022

CAFFEINE & COGNITIVE FUNCTION IN SPORT

Click for Full Text (Calvo et al. 2021)

This systematic review assessed the effect of caffeine administered in the form of gum, capsules, drinks, or energy bars on several measures of cognitive performance in sports.

KEY FINDINGS

13 studies included; 5 subjected to meta-analysis (988 participants)

After pooling data in the meta-analysis, the significant impacts of caffeine only emerged on attention, accuracy, and speed.

ATTENTION:

Multiple studies showed caffeine groups had better accuracy of attention v. placebo.

ACCURACY:

No significant difference in response accuracy for inhibitory control v. placebo.

SPEED:

No significant difference in simple reaction time or choice reaction time between the caffeine and placebo groups.

No significant difference in response speed between the groups

MAIN TAKEAWAYS

Intake of an acute low/moderate dose of caffeine before and/or during exercise can improve cognitive functions, such as attention, along with energy and mood.

Single acute dose of caffeine has no detrimental effects on measures of some aspects of cognitive function during exercise.

Acute caffeine supplementation affects neither target tracking nor multiple objects tracking, or ratings of perceived exertion during any form of exercise.

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