# Should Endurance Athletes Use Caffeine To Enhance Performance?

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# Ergogenic Aids to Enhance Athletic Performance

Athletes who want to maximize their endurance often research the legal supplements to consume, such as ergogenic aids used in sports. (*Office of Dietary Supplements - Dietary Supplements for Exercise and Athletic Performance*, n.d., *pp. introduction*)

An ergogenic aid refers to any substance or treatment that may help to improve exercise performance, including nutritional, psychological, pharmacological, mechanical, or physiological aids. *(Westfal, 2021)*

Caffeine is a natural stimulant found in coffee, tea, and source of chocolate (cacao). (*Office of Dietary Supplements - Dietary Supplements for Exercise and Athletic Performance*, n.d.)

- Comprehensive nutrition assessment is first step in advising athletes. *(Westfal, 2021)*
- Only after athlete has reached appropriate level of maturity. *(Westfal, 2021)*

|| Robson Hidalgo ||

# Efficacy

## 01

**Differential Effects on Endurance and Power Activities:**

Prolonged endurance and brief, high-intensity activity.

## 02

**Variability in Response to Caffeine**

The response to caffeine ingestion may vary among individuals

## 03

**Carbohydrate-Caffeine Mixtures**

potentially enhance performance.

## 04

**Research on Caffeine and Exercise**

Specific studies examining the effects of caffeine on substrate metabolism and endurance performance time during continuous exercise.

## 05

**Ergogenic Aid in Physical Performance**

heart rate, respiratory rate, blood pressure, and the role of epinephrine.

## 06

**Conclusion**

caffeine's role as an effective ergogenic aid

|| Jose Mendez ||

# Safety

- FDA claims 400mg a day is a safe amount for healthy adults (2)
- Common recommendation is 3-6 mg per kg of body weight (lb/2.2= weight in Kg) (1)
- Dehydration is not as likely as you think
    - No differences in total water loss or sweat rate following consumption of a 7.5 mg/kg dose of caffeine and treadmill walking with a 22-kg backpack (1)
- Sources of caffeine matter (1)
- Responsibility and moderation go a long way


1. *Goldstein, E. R., Ziegenfuss, T., Kalman, D., Kreider, R., Campbell, B., Wilborn, C., ... & Antonio, J. (2010). International society of sports nutrition position stand: caffeine and performance. Journal of the International Society of Sports Nutrition, 7(1), 5. https://doi.org/10.1186/1550-2783-7-5*
2. *Food and Drug Administration. (n.d.). Spilling the Beans: How Much Caffeine is Too Much? Retrieved Month Day, Year, from https://www.fda.gov/consumers/consumer-updates/spilling-beans-how-much-caffeine-too-much#:~:text=For%20healthy%20adults%2C%20the%20FDA,it%20(break%20it%20down).*


|| Matthew Jordan ||

# Implications for use

| Positive Implications | Negative Implications |
| --- | --- |
| Increased alertness and focus | Insomnia and disrupted sleep patterns |
| Improved endurance | Gastrointestinal distress |
| Reduced perceived effort | Increased heart rate and blood pressure |
| Faster reaction time | Dependency and tolerance |

|| Anthony Lopez ||

# Conclusion

"Blocks activity of the neuromodulator adenosine; reduces perceived pain and exertion". *(Office of Dietary Supplements - Dietary Supplements for Exercise and Athletic Performance, n.d., p. Table 1)*

There have been many clinical trials conducted, and the results have been mostly consistent.

"Research findings: Might enhance performance in endurance-type activities (e.g., running) and intermittent, long-duration activities (e.g., soccer) when taken before activity". *(Office of Dietary Supplements - Dietary Supplements for Exercise and Athletic Performance, n.d., p. Table 1)*

"Reasonably safe at up to 400–500 mg/day for adults".

"Reported adverse effects: Insomnia, restlessness, nausea, vomiting, tachycardia, and arrhythmia". *(Office of Dietary Supplements - Dietary Supplements for Exercise and Athletic Performance, n.d., p. Table 1)*

# References


- Office of Dietary Supplements - Dietary Supplements for Exercise and Athletic Performance. (n.d.). https://ods.od.nih.gov/factsheets/ExerciseAndAthleticPerformance-HealthProfessional/

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- Westfal, S. (2021). *Supplements* [PowerPoint slides]. Department of Family, Nutrition and Exercise Sciences, Queens College, City University of New York

- Guest, N. S., VanDusseldorp, T. A., Nelson, M. T., Grgic, J., Schoenfeld, B. J., Jenkins, N. D. M., Arent, S. M., Antonio, J., Stout, J. R., Trexler, E. T., Smith-Ryan, A. E., Goldstein, E. R., Kalman, D. S., & Campbell, B. I. (2021, January 2). *International Society of Sports Nutrition Position Stand: Caffeine and Exercise Performance - Journal of the International Society of Sports Nutrition*. BioMed Central. https://jissn.biomedcentral.com/articles/10.1186/s12970-020-00383-4