



Available in 60 vegetarian capsules

Discussion

Effektiv™ is an alternative for individuals seeking support for sustained energy, alertness, and motivation but commonly turn to caffeine, a widely consumed central nervous system stimulant. In small quantities, caffeine may boost energy, alertness, and even athletic performance; however, larger amounts of caffeine can cause jitteriness and even more serious problems, such as arrhythmias and changes in blood pressure.^[1] Effektiv contains less caffeine than an average cup of coffee and is combined with a targeted blend of key ingredients designed to promote lasting mental and physical energy and fuel motivation without the undesirable effects of ordinary caffeine.*

PUREENERGY™

Pureenergy is an innovative patent-protected ingredient that combines caffeine with pTeroPure® pterostilbene—a highly bioavailable analog of resveratrol—to form a unique cocrystal structure. Initial reports suggest that the caffeine in Pureenergy may be absorbed more slowly and stay in the body longer than regular caffeine, which may help sustain energy longer. In a preliminary four-week, single-blind, crossover human study (n = 12) that compared 232 mg of Pureenergy (providing 99.76 mg of caffeine) to 100 mg of ordinary caffeine, the absorption of caffeine from Pureenergy was approximately 30% slower and Pureenergy delivered 30% more caffeine to the bloodstream. Furthermore, at six hours, 51% more caffeine from Pureenergy was detected in serum compared to ordinary caffeine.^[2,3] These data point to a potential for reducing total caffeine intake. Additionally, the extended half-life and slower absorption rate of caffeine from Pureenergy may produce a more moderated and gradual finish, thereby preventing the “crash” associated with regular caffeinated energy products. While the results of these studies are promising, larger studies are needed to validate the findings and determine if these findings translate into a lengthened energy effect.*

Taurine

Taurine is a cysteine-derived amino acid that is synthesized in the body and has various functions. It is a major constituent of bile. Studies suggest it is cardioprotective, and it seems to prevent exercise-induced oxidative stress.*^[4-6]

Although clinical studies evaluating its effects are limited, taurine appears to inhibit the potential adverse effects of caffeine. In a double-blind study in college students (N = 14) that investigated the combined effects of the co-administration of caffeine and taurine, researchers observed no effect on short-term memory but did observe a significant decline in heart rate and an increase in mean arterial blood pressure.^[7] Another study explored the impact

Clinical Applications

- » Promotes Mental and Physical Energy and Motivation to Exercise*
- » Promotes Concentration and Focus*
- » Supports Sustained Energy Level and Alertness*
- » Provides an Alternative to Ordinary Caffeine*

*Effektiv™ features ingredients selected for their role in promoting energy, alertness, and enjoyment whether support is needed in the classroom, the gym, or the work world. Theacrine promotes mental and physical energy, stamina, focus, and motivation; taurine calms the sympathetic nervous system and may moderate the effect of caffeine; and Pureenergy™ supports sustained energy levels and alertness.**

of an energy drink containing caffeine and taurine on myocardial contractility in healthy volunteers (N = 32) using cardiac magnetic resonance-based strain analysis. Peak systolic strain was measured at baseline and one hour after consumption of the energy drink; later, a subset (n = 10) consumed a caffeine-only drink. While the caffeine-only drink did not seem to produce any significant cardiovascular effects, individuals who consumed the drink with caffeine and taurine registered a significant increase in peak systolic strain.^[8] Additionally, a review of the literature on the effect that taurine and caffeine have on cardiovascular function concluded that taurine can neutralize several untoward effects of caffeine excess.*^[9]

TeaCrine® (Theacrine)

Theacrine is a purine alkaloid found in certain coffee and tea species. Its chemical structure is similar to caffeine, yet it has very different physiological effects. Both caffeine and theacrine inhibit adenosine activity via the A1 and A2A receptors, but caffeine is known to act as an orthosteric inhibitor whereas theacrine is likely to act as an indirect, allosteric modulator of these receptors and contribute to differences in habituation. Inhibitory action of the adenosine receptors plays a role in the biochemical processes that prevent fatigue. Additionally, theacrine is a dopamine D1 and D2 receptor agonist, and its actions help increase dopamine signaling associated with attention, movement, task initiation and completion, mood, learning, and the brain’s “reward center.”*

Whereas caffeine habituation typically occurs within as few as five days of consumption, a significant attribute of theacrine is the lack of habituation or tachyphylaxis (decrease in response). Following an eight-week study with subjects (N = 60) receiving either 200 mg or 300 mg of Teacrine or placebo, participants demonstrated no signs of the rapid tachyphylaxis typically associated with caffeine and other stimulants. Baseline values for energy, focus, concentration, anxiety, motivation to exercise, and a Profile of Mood States (POMS) questionnaire remained stable across the entire eight-week study period. Additionally, all values for clinical safety markers were within normal limits.*^[10]

In a randomized, double-blind, placebo-controlled, crossover pilot study, subjects (n = 15) ingested 200 mg of Teacrine. Over a three-hour post-dosing period, a visual analogue scale (VAS) was used to detect change in various aspects of physical and mental energy and performance. The 200 mg dose was found to significantly improve concentration and energy and reduce fatigue. No changes were noted in systemic hemodynamics and no side effects were observed. A subset of subjects underwent a separate open-label,

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repeated-dose study comparing 100 mg, 200 mg, and 400 mg of Teacrine. This seven-day assessment demonstrated moderate-to-large effect sizes (0.50 to 0.71) in the 200 mg dose group for the following subjective measures: energy, fatigue, concentration, anxiety, motivation to exercise, and libido.*^[1]

In a small, double-blind, placebo-controlled, crossover study, subjects (n = 8) received 25 or 125 mg of theacrine, 150 mg of caffeine, or a combination of theacrine (125 mg) and caffeine (150 mg). Results suggested that while theacrine had no impact on caffeine pharmacokinetics, the combination of caffeine and theacrine led to enhanced theacrine bioavailability. Additionally, a broad spectrum of clinical safety markers, including heart rate and blood pressure, were unaffected by concomitant use indicating a strong safety profile at the doses administered.*^[1,2]

NOTE: Calcium must be declared on a label when present at greater than 2% daily value. Calcium carbonate is an excipient used in Effektiv to distribute particles evenly and improve flow into the capsule; it does not contribute to the formula's intended function.

Effektiv™ Supplement Facts

Serving Size: 2 Capsules

	Amount Per Serving	%Daily Value
Calcium (as calcium carbonate)	200 mg	15%
Taurine	250 mg	**
TeaCrine® Theacrine	150 mg	**
PUREENERGY™ Caffeine Pterostilbene Cocrysal (50% pterostilbene)	120 mg	**
Caffeine (from PUREENERGY™ caffeine pterostilbene cocrysal and caffeine anhydrous)	80 mg	**

** Daily Value not established.

Other Ingredients: Capsule (hypromellose and water), ascorbyl palmitate, microcrystalline cellulose, silica, maltodextrin, and calcium silicate.

DIRECTIONS: Take one to two capsules in the morning, or as directed by your healthcare practitioner.

Consult your healthcare practitioner prior to use. Individuals taking medication should discuss potential interactions with their healthcare practitioner. Caffeine should not be combined with synephrine or ephedrine. Use cautiously if you have a history of abnormal heart rhythm. Do not use if tamper seal is damaged.

STORAGE: Keep closed in a cool, dry place out of reach of children.

DOES NOT CONTAIN: Wheat, gluten, yeast, soy, animal or dairy products, fish, shellfish, peanuts, tree nuts, egg, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, or artificial preservatives.

TEACRINE is a registered trademark and is protected by Patents Pending, Serial No. 61/903,362, under exclusive global distribution by Compound Solutions, Inc.



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References

- Seifert SM, Schaechter JL, Hershoin ER, et al. Health effects of energy drinks on children, adolescents, and young adults. *Pediatrics*. 2011;127(3):511-528. [PMID: 21321035]
- A crossover, clinical evaluation to determine the relative bioavailability, pharmacokinetics and safety of PUREENERGY™ and pTeroPure® in healthy adult males. PK study summary. Miami, FL/Irvine, CA: Miami Research Associates/ChromaDex Inc.; 2013:1-34. [on file]
- Purenergy™: A novel next-generation caffeine alternative. Irvine, CA: ChromaDex Inc.; September 10, 2014:1-5.
- Zhang M, Izumi I, Kagamimori S, et al. Role of taurine supplementation to prevent exercise-induced oxidative stress in healthy young men. *Amino Acids*. 2004 Mar;26(2):203-7. [PMID: 15042451]
- Xu YJ, Arneja AS, Tappia PS, et al. The potential health benefits of taurine in cardiovascular disease. *Exp Clin Cardiol*. 2008 Summer;13(2):57-65. [PMID: 19343117]
- Ito T, Azuma J. Taurine is a possible anti-atherosclerotic agent [in Japanese]. *Nihon Yakurigaku Zasshi*. 2004 May;123(5):311-17. [PMID: 15118255]
- Bichler A, Swenson A, Harris MA. A combination of caffeine and taurine has no effect on short term memory but induces changes in heart rate and mean arterial blood pressure. *Amino Acids*. 2006 Nov;31(4):471-6. [PMID: 16699827]
- Doerner JM, Kuetting DL, Luetkens JA, et al. Caffeine and taurine containing energy drink increases left ventricular contractility in healthy volunteers. *Int J Cardiovasc Imaging*. 2015 Mar;31(3):595-601. [PMID: 25425431]
- Schaffer SW, Shimada K, Jong CJ, et al. Effect of taurine and potential interactions with caffeine on cardiovascular function. *Amino Acids*. 2014;46:1147-1157. [PMID: 24615238]
- Taylor L, Mumford P, Roberts M, et al. Safety of TeaCrine®, a non-habituating, naturally occurring purine alkaloid over eight weeks of continuous use. *J Int Soc Sports Nutr*. 2016 Jan 13;13:2. [PMID: 26766930]
- Habowski S, Sandrock J, Kedia A, et al. The effects of Teacrine™, a nature identical purine alkaloid, on subjective measures of cognitive function, psychometric and hemodynamic indices in healthy humans: a randomized, double-blinded crossover pilot trial. *J Int Soc Sports Nutr*. 2014;11(Suppl 1):P49. doi:10.1186/1550-2783-11-S1-P49.
- He H, Ma D, Crone LB, et al. Assessment of the drug-drug interaction potential between theacrine and caffeine in humans. *J Caffeine Res*. 2017 Sep 1;7(3):95-102. [PMID: 28875060]

Additional references available upon request

All XYMOGEN® Formulas Meet or Exceed cGMP Quality Standards.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.