



AMATEA[®]

MAX

organic guayusa extract by **AFS**

***THIS AMAZONIAN ‘SUPER-LEAF’ WAS
STUDIED ON GAMERS TO HELP COGNITIVE
PERFORMANCE IN ESPORTS***

Encouraging new research suggests caffeine & antioxidants from guayusa “gwhy-you-sah”, may help improve gaming performance with more focus and fewer jitters.

Living in the upper regions of Ecuador and Peru are a group of indigenous people called the Amazonian Kichwa. Regarded as the guardians of the rainforest, the Kichwa have an elite group of warriors known as the “Vigilante Nocturno,” or Night Watchmen.

For centuries these specialized hunters would drink a tincture of brewed guayusa leaves to help sharpen their alertness. The Kichwa share stories about how the guayusa would provide enhanced mental focus, stamina, and reaction time yet allow them to sit perfectly still at night. Scientific research may validate these experiences revealing that the active compounds in guayusa may be a timely addition to today’s natural energy market thanks to its many nootropic benefits.



What is Guayusa?

Guayusa, pronounced “gwhy-you-sah,” is a caffeinated holly species that grows only in the upper Amazon basin of Ecuador and Peru. Historical records suggest that leaves from guayusa have been used and traded since at least 500 CE^[1]. Traditionally brewed guayusa leaves are consumed much like tea. However, guayusa is not related to *camellia sinensis* used to make green or black tea varieties. Instead, guayusa is a cousin plant to yerba mate and contains an intricate makeup of antioxidants and caffeine.

Guayusa for Nootropic Performance

Centuries of anecdotal data illustrating the effects of guayusa within the indigenous Kichwa communities inspired Texas-based ingredient company, Applied Food Sciences (AFS), to see how guayusa would

stack up against other more popular forms of caffeine. Over the last eight years, AFS has been studying the active compounds in guayusa to prove the ingredient’s safety and efficacy for use in food and nutritional supplement applications.

Applied Food Sciences recently launched its branded AmaTea® Max organic guayusa extract. Using a patented process to enhance the naturally occurring antioxidants and caffeine from guayusa leaves, AmaTea® Max may help improve cognitive performance by increasing mental focus, stamina, and reaction time with fewer jitters than other forms of caffeine. In addition, AFS achieved a historical first ‘no questions letter’ from the FDA’s Office of Food Additive Safety (OFAS) for a natural caffeine-containing botanical ingredient in response to its GRAS petition. As a result, the ingredient is attracting a lot of interest from the premium energy market, which caters to sports nutrition, nootropics, and esports products.

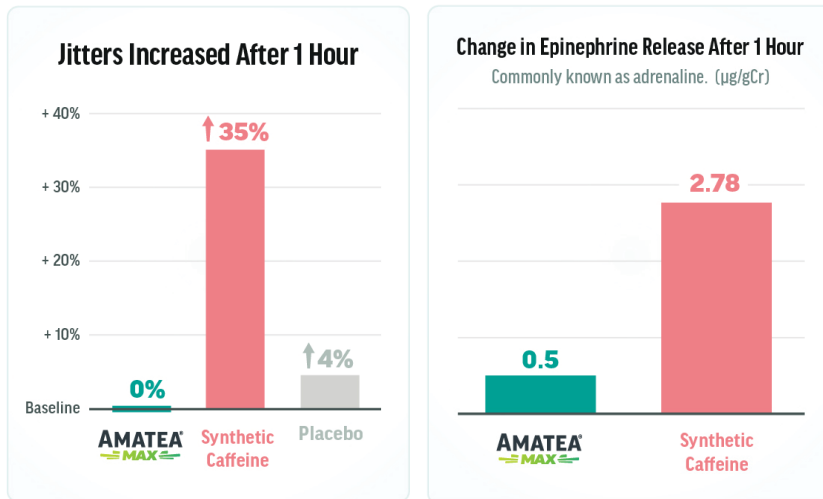


Elevating Gaming Performance

At the University of Memphis College of Health Sciences, Dr. Bloomer and his colleagues recently concluded a first-of-its-kind gaming study to determine the effect of AmaTea® Max on mood, cognitive measures, and gaming performance while being mentally fatigued throughout 4 hours of gameplay. The investigators hypothesized that both AmaTea® Max and caffeine would improve outcome measures more than the placebo. This ended up being the case.

No Increase in Jitters

One of the most substantial outcomes of the Dr. Bloomer study was that active gamers using AmaTea® Max revealed no increase in jitters after one hour of gameplay. Comparatively, gamers using

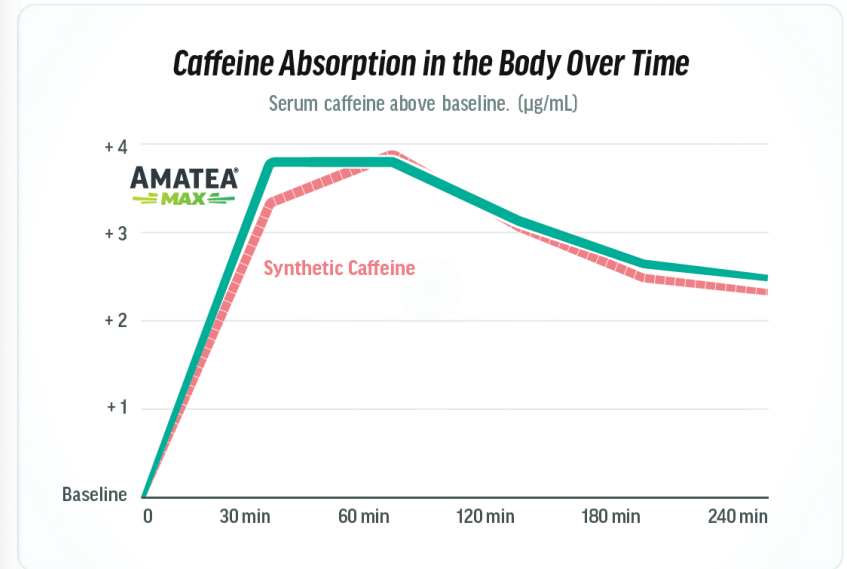


synthetic caffeine noted a statistically significant rise in jittery sensations^[ii]. Most likely, this is a result of AmaTea® Max's unique ability to modulate adrenal hormones commonly induced by caffeine

alone. In a separate double-blind crossover study by Dr. Krieger et al. (QPS MRA), subjects were given AmaTea® Max compared to synthetic caffeine. The study revealed that AmaTea® Max stimulates significantly lower amounts of the "fight or flight" hormone, called epinephrine (commonly known as adrenaline), compared to other forms of caffeine.^[iii]

Lasting Energy & Stamina

Fewer jitters do not mean less energy. In fact, the caffeine in AmaTea® Max has an absorption rate and sustained energy that rivals all sources of caffeine.



Throughout the gaming study, subjects took baseline measurements and then played the game Fortnite in four one-hour periods. During that time, nearly two-thirds of the participants consuming AmaTea® Max reported an increase in vigor (defined as sensations of energy, effort, and enthusiasm) after one hour of gameplay.

Despite the rigors of the test, similar to caffeine, AmaTea® Max subjects also reported a decrease in mental fatigue, particularly after two hours of gameplay, over the placebo.^[iii]



Participants showed less fatigue with AmaTea® Max

44% of participants had a decrease in mental fatigue after 2 hours of gameplay with AmaTea® Max.



Experienced More Vigor

59% of participants given AmaTea® Max reported higher ratings of vigor, sensations of energy, effort, and enthusiasm after one hour of game play.

Enhanced Focus, Reaction Time, and Scores

Determining the effect of AmaTea® Max on cognitive measures and gaming performance required a multitude of tests over 4 hours of gameplay. The total testing session time was approximately six hours in duration when considering the additional time needed for obtaining outcome measures. In addition to the data captured within the game, the study performed tests for blood pressure, heart rate, Digit Symbol Substitution Test, Brunel Mood Scale, Subjective Feelings, Reaction Time (Go/No-Go), and a mental performance test (AX-CPT).

The AX-CPT, or AX-Continuous Performance Test, is a cognitive test that includes a series of cues and probe sequences^[iv]. Prior to gameplay, subjects underwent the AX-CPT for 30 minutes. This helped to ensure the subjects reached mental fatigue within the 4 hours of gameplay. Subjects again took the AX-CPT for 30 minutes after gaming. The results showed that more than half of the participants

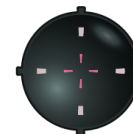
using AmaTea® Max preserved more focus with improvements in their AX-CPT scores. Though not statistically significant, it is notable that the AmaTea® Max subjects were the only group to see an increase in performance on the AX-CPT after the 4 hours of gameplay.^[iii]

Reaction time is an important performance indicator for gaming performance. Beyond the analysis within the game itself, the study utilized a go/no-go task to capture data more accurately. Impressively, around two-thirds of AmaTea® Max subjects showed improvement in reaction time after one hour of gameplay. After four hours of gameplay, the study revealed a consistent pattern as 65% percent of participants improved reaction time after taking AmaTea® Max.^[ii]



Cognitive Improvement

55% of participants had an improvement in AX-Continuous Performance Scores (AX-CPT) after AmaTea® Max.



Better Scores

Participants who took AmaTea® Max had 21% more kills per match over the placebo, and 12% over synthetic caffeine.



Faster Reaction Time

65% of participants had an improvement in reaction time after taking AmaTea® Max.

In gaming, however, it is all about winning. After all, a nootropic energy ingredient that aids in focus, stamina, and reaction time, all with zero changes in jitters, should result in better gaming performance, right? Well, the numbers don't lie. On the condition effect for kills per match in Fortnite, nearly a quarter of active gamers using AmaTea® Max increased their kills relative to placebo, with over twelve percent higher kills for AmaTea® Max compared to caffeine.^[iii]



Conclusion

In the end, active gamers who look to use a dietary supplement for gaming performance may benefit from AmaTea® Max prior to gameplay while experiencing greater vigor and lower fatigue than the placebo, all with fewer jitters than caffeine alone. It is possible that a different gaming stimulus, varied time of gameplay, or different dosage of the supplement may have yielded different results.

Energize gaming performance with more focus and fewer jitters. AmaTea® Max is caffeine with antioxidants, a perfect combo for work, sports, and gaming. This ingredient is ideal for supplement, food, and premium energy drink manufacturers that want to get even more functionality out of a naturally derived caffeine source. In addition, the guayusa for AmaTea® Max is sustainably grown in the Amazon, supporting thousands of indigenous farming families. To learn more about Applied Food Sciences and AmaTea® Max, visit the company's website [AppliedFoods.com](https://www.AppliedFoods.com).

Sources:

- ^[i] Lorence, David H., 1999, *Monographs in Systematic Botany of the Missouri Botanical Garden*, Vol. 75. Missouri Botanical Garden, St. Louis, Missouri
- ^[ii] Bloomer, Richard, et al. 2021 University of Memphis College of Health Sciences. *Impact of AMATEA™ on Physiological Measures and Gaming Performance in Active Gamers: A Placebo Controlled, Double-blind, Randomized Study*. JCTRES | Online first
- ^[iii] Krieger DR, Kalman DS, Feldman S, et al. *The Safety, Pharmacokinetics, and Nervous System Effects of Two Natural Sources of Caffeine in Healthy Adult Males*. Clin Transl Sci. 2016;9(5):246-251. doi:10.1111/cts.12403
- ^[iv] Cognitive Control & Psychopathology Laboratory. AX-CPT Task. Washington University in St. Louis. 2022



A Nootropic Caffeine for Work, Sports, & Gaming



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***Energize esports with more focus
and fewer jitters.***

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