

Examining Impact of Acute Paraxanthine Ingestion  
on Energy, Satiety, and Cognitive Function  
Outcomes in Healthy Men and Women: A  
Randomized, Double-Blind, Placebo-Controlled,  
Crossover Study

IRB #: 26-81

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Laboratory: Exercise and Performance Nutrition Laboratory, Lindenwood University

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## Study Overview

The purpose of this study is to examine how paraxanthine, a compound produced when the body metabolizes caffeine, affects mood, energy, focus, and cognitive performance in healthy adults. Paraxanthine is the primary metabolite of caffeine and may play a key role in many of caffeine's well-known effects on alertness and mental performance. Interest in paraxanthine has grown due to its potential to provide similar cognitive and energy-related benefits, possibly with fewer unwanted side effects such as jitteriness or anxiety.

Paraxanthine is considered safe for healthy adults and has been shown in early research to improve measures of attention, reaction time, and memory. However, most studies to date have been conducted under fasted conditions or over longer time periods, which may not reflect how paraxanthine is typically consumed. This study aims to better understand the short-term effects of paraxanthine when taken after a standardized meal.

Participants will consume either paraxanthine or a placebo on separate days and complete cognitive tasks and questionnaires over a 3-hour period. All study visits and testing are supervised by trained research staff, and participant safety is a priority throughout the study.

## Participation at a Glance

- Total Study Duration: 1-2 Weeks
- Number of Visits: Screening Visit + 2 Visits
- Time per Visit: 45-60 minutes (Screening Visit), 3.5-4 hours (Visit 2 and 3)
- Supplementation: Participants will consume one dose of both the active supplement and the placebo during the study, but in a random order. Supplements are provided in capsule form and will be consumed with a standardized meal. There will be a 3–14-day washout period in between before switching to the other condition.
  - Active: Paraxanthine (200 mg)
  - Placebo: Resistant Starch (200 mg)
  - Standardized Meal: S'mores flavored Overnight Oats + 8 oz of a plant-based milk
- Participant Pre-Visit Requirements:
  - 8-hour food and calorie fast
  - Abstain from exercise/caffeine/alcohol/nicotine for 24 hours
  - Replicate your diet the day before Visit 2 and 3
- Compensation: \$300 with Direct Deposit

## How to Get Started

1. Complete the [screening form](#).
2. Our team will review your info and contact you with eligibility.
3. If eligible, we will schedule the Screening Visit (see next section for details).
4. Screening Visit includes: informed consent, intake paperwork (health history, baseline diet recall), body composition scan (InBody), and practice the cognition tests/games that you will be completing at Visits 2 and 3.

## Study Visit(s) Outline

		Consume Placebo OR Paraxanthine	3-14 Day Washout Period	Consume Placebo OR Paraxanthine
	Screening Visit	Visit 2		Visit 3
<b>Visit Length</b>	~45-60 mins	~3.5-4 hours		~3.5-4 hours
<b>Consent</b>	X			
<b>Screening</b>	X			
<b>Height &amp; Body Mass</b>	X	X		X
<b>Resting Heart Rate/Blood Pressure</b>	X	X		X
<b>Body Composition (InBody)</b>	X			
<b>24-hour Food Recall</b>	X			
<b>Consume Standardized Meal</b>		X		X
<b>Cognition Tests/Games</b>	X	X*	X*	
<b>Questionnaires: Mood</b>		X*	X*	
<b>Adverse Event Monitoring</b>		X	X	
<b>Provide Compensation</b>			X	

*\*During visits 2&3, the cognition tests and the questionnaires will be completed 30 minutes and immediately before consuming the supplement, then 30-, 60-, 120-, and 180-minutes after consuming the supplement*

## Procedure Details

- **InBody Scan** – This scan measures body composition, including body fat, muscle mass, and total body water. Participants stand barefoot on the device and hold handles while remaining still for the test. The test takes approximately 1-2 minutes to complete.
- **Cognition Tests/Games** – This is a set of 3 tasks or games that take a total of about 10 minutes to complete. The purpose of these tasks is to evaluate your attention, memory, reaction time, cognitive control, and decision making. These will be practiced during the screening visit and completed a total of 6 times during each Visit 2 and 3.
- **Questionnaires** – Participants will complete short questionnaires related to mood, energy, focus, appetite/satiety, fullness. These surveys help researchers understand how participants feel throughout the study. Completion time is approximately 5–10 minutes and will be completed a total of 6 times during each Visit 2 and 3.

## Compensation & Benefits

- Total Compensation Amount: \$300
- Compensation Distribution: paperwork will be completed and filed during the final research visit. It typically takes 2-4 weeks for the university and your bank account to process.
- Non-monetary Benefits: Body Composition Results
- You will receive no direct benefits for completing this study. We hope what we learn may benefit other people in the future.

## Risks & Safety

- *Privacy and Confidentiality:* We are collecting data that could identify you, such as name, phone number, and email address. Every effort will be made to keep your information secure. Only research team members can see any data that may identify you.
- *Risk of Adverse Events from Supplementation:* Although the supplement used in this study is not expected to cause adverse effects when taken as directed, there is always a possibility of an unexpected reaction. Possible risks may include mild to moderate stimulant-related effects such as increased heart rate, elevated blood pressure, restlessness, jitteriness, anxiety, headache, dizziness, and gastrointestinal discomfort (e.g., nausea).

## Frequently Asked Questions (FAQs)

### **Q: Will I receive my test results?**

A: Yes. You will be provided with a summary of your results for body composition at the end of your participation.

**Q: Can I withdraw from the study at any time?**

A: It is always your choice to participate in this study. You may withdraw at any time. You may choose not to answer any questions or perform tasks that make you uncomfortable. If you decide to withdraw, you will not receive any penalty or loss of benefits. If you would like to withdraw from a study, you can contact the research team at [epnl@lindenwood.edu](mailto:epnl@lindenwood.edu) or (636) 949-4676; the Principal Investigator, Chad Kerksick, PhD directly at (636) 627-4629 or [ckerkicksick@lindenwood.edu](mailto:ckerkicksick@lindenwood.edu). You may also contact the laboratory coordinator, Anthony Hagele at (636) 949-4785 or [ahagele@lindenwood.edu](mailto:ahagele@lindenwood.edu).

**Q: Will my information be kept private?**

A: We will do everything we can to protect your privacy. We do not intend to include information that could identify you in any publication or presentation. Any information we collect will be stored by the researcher in a secure location. The only people who will be able to see your data are: members of the research team, qualified staff of Lindenwood University, representatives of state or federal agencies.

**Q: What if I miss a visit?**

A: Contact the research team as soon as possible. We will attempt to reschedule within the study timeframe, when possible.

**Q: Can I bring a friend or family member to visits?**

A: Yes, you are welcome to bring a friend or family member to your visits. They will not take part in the study procedures, but they are welcome to wait in the designated areas during your appointment.

**Q: What if I have dietary restrictions or allergies?**

A: If you have dietary restrictions or allergies, please let the research team know. We will review them with you to ensure the study procedures and any provided products are safe and appropriate for you.

## Location

Lindenwood University  
Exercise and Performance Nutrition Laboratory (EPNL)  
Fieldhouse, Rm 126  
209 S Kingshighway St., Saint Charles, MO 63301

