

A Randomized, Double-Blinded, Placebo-
Controlled, Parallel Study, to Assess the Effect of a
Novel Postbiotic Blend on Exercise Induced
Oxidative Stress Markers and Exercise Performance

IRB #: 24-16

Principal Investigator: Chad Kerksick, PhD

Laboratory: Exercise and Performance Nutrition Laboratory, Lindenwood University

Study Overview

The purpose of this study is to examine whether a postbiotic supplement can help reduce exercise-related oxidative stress and support performance and recovery in healthy, physically active adults. During exercise, the body produces substances that can contribute to fatigue and slower recovery when they build up over time. New research suggests that postbiotics, beneficial compounds produced by probiotic bacteria, may help support the body's natural antioxidant defenses in a different way than traditional antioxidants.

Participants will take either a postbiotic supplement or a placebo daily for approximately eight weeks. Postbiotics are non-living compounds that have been studied for their potential benefits related to immune health, inflammation, and recovery, and are considered safe for healthy adults. 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: 8 Weeks
- Number of Visits: 4 Visits
- Time per Visit: 60-180 min each
- Supplementation: participants are assigned randomly to consume either the active or placebo
 - Active: Proprietary Postbiotic Active Lifestyle Blend (capsule; heat treated blend of 3 bacterial strains)
 - Placebo: Maltodextrin (capsule)
- Participant Pre-Visit Requirements:
 - 8-hour food and caffeine fast
 - Abstain from exercise for 12 hours
 - Abstain from tobacco, nicotine, and alcohol for 12 hours
 - Wear athletic clothing and shoes
- Compensation: \$600 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 Visit 1 (see next section for details).
4. Visit 1 includes: informed consent, intake paperwork (health history, study questionnaires), baseline body composition, heart rate, and blood pressure.

Study Visit(s) Outline

	Visit 1 (≥48 hours before Visit 2)	Visit 2 (≥72 hours before Visit 3)	Visit 3 (Day 0; ≥72 hours post Visit 2)	Visit 4 (Day 56 ± 3)
Visit Length	30-60 mins	30 mins	30-60 mins	
Consent	X			
Screening	X			
Height & Body Mass	X	X	X	X
Resting Heart Rate & Blood Pressure	X	X	X	X
Body Composition (InBody Scan)	X			
2-Day Food Record		X		
Treadmill VO ₂ Peak Assessment		X		
24-hr Urine Sample Collection			X	X
Fecal Sample Collection			X	X
Blood Sample Collection			X	X
Questionnaires: Mood, Sleep, Recovery			X	X
45-Minute Treadmill Exercise Bout			X	X
10-Minute Treadmill Time Trial		X	X	X
Supplement Daily	One daily capsule (maltodextrin placebo or postbiotic blend)			
Daily Supplement Diary	Online/Paper log to track daily study supplement consumption			
Supplementation Compliance	X	X	X	X
Review Adverse Event Monitoring	X	X	X	X
Provide Compensation and Results				X

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.
- **2-Day Food Log** – This log helps researchers understand typical dietary intake. Participants will record all food and drinks consumed over two days using a paper log and an online food record system. Completing the log typically takes 10-15 minutes per day.
- **VO₂Peak Assessment** – This test measures aerobic fitness and how efficiently the body uses oxygen during exercise. Participants walk or run on a treadmill while wearing a mask that measures breathing, with heart rate monitored throughout. The test gradually becomes more challenging and continues until the participant chooses to stop due to fatigue. The test lasts approximately 20 minutes, including warm-up.
- **24-hr Urine Sample Collection** – This procedure measures markers related to metabolism and oxidative stress. Participants will collect all urine produced over a 24-hour period using provided containers and instructions. This will be done for a total of 4 days, the 24-hours before visits 3 and 4 and the 24 hours after visits 3 and 4.
- **Fecal Sample Collection** – This sample helps researchers evaluate how the study supplement may influence gut health. Participants will collect a small fecal sample at home within 24 hours before Visit 3 and again within 24 hours before Visit 4. Samples are collected before any in-lab exercise testing using materials and step-by-step instructions provided by the research team.
- **Blood Sample Collection** – A trained research team member will collect blood from a vein in the arm using standard procedures before and after exercise sessions (Visit 3 and Visit 4). Each blood draw takes about 5-10 minutes, and all samples are handled and stored using approved safety protocols. Blood samples are collected to help researchers understand how the body responds to exercise and supplementation. These samples are used to measure markers related to oxidative stress, immune function, and muscle recovery, including indicators of how the body handles exercise-related stress and inflammation.
- **Questionnaires** – Participants will complete short questionnaires related to mood, sleep quality, gastrointestinal symptoms, soreness, and recovery. These surveys help researchers understand how participants feel throughout the study. Completion time is approximately 10–20 minutes, depending on the visit.
- **45-Minute Treadmill Exercise Bout** – This exercise session evaluates endurance and physiological responses during sustained running. Participants will jog on a treadmill at a moderate intensity while heart rate, breathing, and perceived effort are monitored. The exercise portion lasts 45 minutes, followed by a short cool-down.
- **10-Minute Treadmill Time Trial** – This test measures short-duration exercise performance. After the longer exercise bout, participants will complete a 10-minute treadmill run where they adjust the speed to cover as much distance as possible. The test lasts 10 minutes, followed by recovery time.

Compensation & Benefits

- Total Compensation Amount: \$600

- **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
 - VO₂Peak (aerobic/endurance capacity) 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 Musculoskeletal Injury:* Because you will be performing maximal aerobic exercise testing and completing an exercise bout and a time trial on a treadmill, it is likely that you will experience muscle soreness and fatigue. While it is possible you may experience an injury, this is not likely due to all tests and exercises you will be asked to perform are of an intensity presumed to be safe and able to be safely completed by individuals of good health who complete low to moderate levels of physical activity.
- *Risk of Adverse Events from Supplementation:* Postbiotic supplementation may cause mild gastrointestinal symptoms such as bloating, gas, or changes in digestion. These effects are generally not harmful and may vary between individuals, particularly those who are not accustomed to taking probiotic or postbiotic supplements.
- *Risk from Blood Collection:* You will have blood sampled from your arm four times during the study. Two times each during visits 3 and 4. All blood samples will be collected by research staff members who are trained in phlebotomy. It is possible that blood collection may cause your arm to get sore and/or bruise at the collection site. Blood collection also increases the risk of getting an infection. To minimize any pain, swelling and bruising due to multiple blood collections, an elastic bandage will be placed on your arm after each collection throughout the research protocol. You will also be instructed to avoid activity with that arm for the remainder of the day and to keep all bandages over the collection site, as needed, until the following day. Research team members will also give you instructions on how to prepare a cold pack later in the day when testing is completed.

The total amount of blood collected from you on study visits 3 – 4 will be approximately equal to 2.5 tablespoons of blood.

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 and peak aerobic and endurance capacity (VO₂Peak) 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 or (636) 949-4676; the Principal Investigator, Chad Kerksick, PhD directly at (636) 627-4629 or ckerkicksick@lindenwood.edu. You may also contact the laboratory coordinator, Anthony Hagele at (636) 949-4785 or 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: Do I have to be an athlete or highly trained?

A: No. You do not need to be a competitive athlete to participate. This study is open to physically active individuals who regularly exercise about 2–5 times per week at a moderate or higher effort level (meaning the activity feels at least somewhat hard).

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?

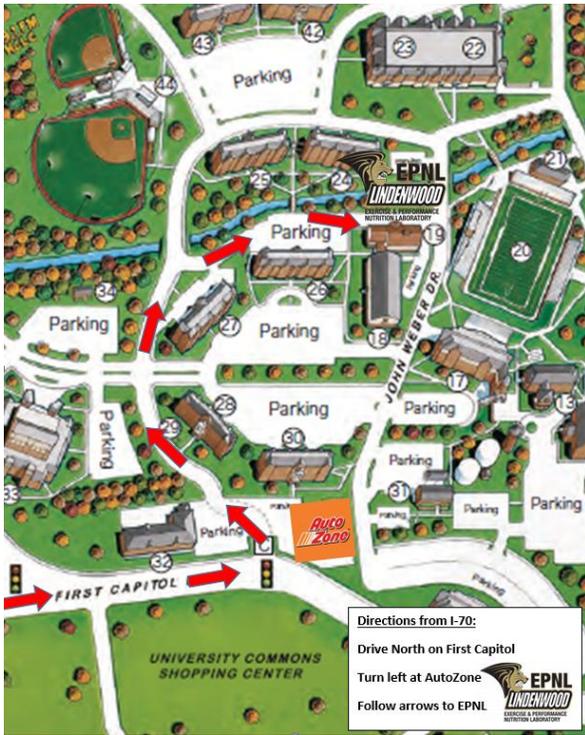
A: If you have dietary restrictions or allergies, please let the research team know. We will review them with you to ensure the study procedures and any provided products are safe and appropriate for you.

References

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2. Sánchez Macarro M, Ávila-Gandía V, Pérez-Piñero S, et al. Antioxidant Effect of a Probiotic Product on a Model of Oxidative Stress Induced by High-Intensity and Duration Physical Exercise. *Antioxidants (Basel)*. 2021;10(2):323. doi:10.3390/antiox10020323
3. Żółkiewicz, J., Marzec, A., Ruszczyński, M., & Feleszko, W. (2020). Postbiotics-A Step Beyond Pre- and Probiotics. *Nutrients*, 12(8), 2189. <https://doi.org/10.3390/nu12082189>
4. Ma, L., Tu, H., & Chen, T. (2023). Postbiotics in Human Health: A Narrative Review. *Nutrients*, 15(2), 291. <https://doi.org/10.3390/nu15020291>
5. Zabriskie HA, Blumkaitis JC, Moon JM, et al. Yeast Beta-Glucan Supplementation Downregulates Markers of Systemic Inflammation after Heated Treadmill Exercise. *Nutrients*. 2020;12(4). doi:10.3390/nu12041144
6. Michailidis Y, Jamurtas AZ, Nikolaidis MG, et al. Sampling time is crucial for measurement of aerobic exercise-induced oxidative stress. *Med Sci Sports Exerc*. 2007;39(7):1107-1113. doi:10.1249/01.mss.0b013e318053e7ba

Location

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



Directions from I-70:

Drive North on First Capitol

Turn left at AutoZone

Follow arrows to EPNL

