OPEN ACCESS
Exercise and Quality of Life Journal (2024) 16(3): A1
DOI: https://doi.org/10.31382/eqol.241299

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Efficacy of Lactobacillus plantarum supplementation on sports performance and intestinal damage (I-FABP) in physically active men

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Exercise and Quality of Life 2024, **16(3)**: A1

Background
The potential benefits of probiotic supplementation have gathered significant interest in sports science. However, there is limited evidence on the efficacy and mechanism of action of Lactobacillus plantarum on sports performance. Therefore, this study aimed to investigate the effects of Lactobacillus plantarum consumption on sports performance and a marker of gut damage.
Materials and methods
Twenty physically active males (34.5±7.4 years; 1.78±0.07 m; 79.20±4.68 kg) volunteered for this double-blind, randomized, placebo-controlled, parallel study. Participants completed an intense exercise session, after which perceived exertion was assessed and blood samples were taken to measure the concentration of intestinal damage marker (I-FABP). Twenty-four hours later, participants rated their perceived recovery and performed sports performance tests, including the Countermovement Jump, Running Anaerobic Sprint Test, and YOYO-IR1. Participants then began a 4-week supplementation period, with 10 participants receiving a placebo (1 capsule per day) and the remaining 10 receiving a capsule containing 10 billion CFU of Lactobacillus plantarum. The initial testing protocol was repeated at the end of the supplementation period.
Results
The study results showed significant improvements in the YOYO IR1 test for the experimental group (PRE: 1253.33 ± 440.91 vs. POST: 1502.22 ± 481.29, $p<0.05$, effect size: -1.33) compared to baseline. Additionally, while other variables did not reach statistical significance, positive trends were observed in BMI, RPE, GI survey results, and I-FABP levels.
Conclusions
The findings indicate that Lactobacillus plantarum may enhance performance and reduce gut damage in athletes involved in aerobic sports, particularly during competition periods with reduced recovery time.