



Impact of Aerobic Training and Probiotic Intervention on Nrf2 and GLUT4 mRNA Levels in Non-Alcoholic Fatty Liver Disease: An Experimental Study in Male Wistar Rats

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1. Round 1

1.1 Reviewer 1

Reviewer:

In the Introduction, paragraph 2, the sentence “Nrf2 acts as a master regulator of antioxidant enzyme transcription...” would benefit from citing recent mechanistic studies confirming this role specifically in NAFLD contexts.

In the Introduction, paragraph 4, the sentence “These SCFAs exert systemic effects...” is compelling but lacks citation of primary studies demonstrating this mechanism in NAFLD models.

In Statistical Evaluation, you mention Tukey’s test was used for post-hoc comparisons; clarify whether assumptions of normality and homogeneity of variance were tested prior to ANOVA.

In Findings and Results, paragraph 1, the statement “Nrf2 in the NAE group showing the largest increase but still significantly different...” is confusing; clarify whether differences from healthy controls were statistically significant, including p-values.

In Discussion and Conclusion, paragraph 3, the sentence “Statistical comparisons among the experimental groups revealed significant differences...” would benefit from summarizing key p-values and effect sizes to substantiate the conclusion.

In Discussion and Conclusion, paragraph 5, the claim “These interventions also counteract several pathological features...” is broad; consider specifying which features (e.g., lipid peroxidation, inflammatory cytokines) were most affected, referencing literature.

Authors revised the manuscript and uploaded the updated document.

1.2 Reviewer 2

Reviewer:

In Methods and Materials, under “Fatty Liver Model Induction”, you state “Fatty liver (steatosis) was verified by measuring liver enzymes...” but do not provide enzyme data; consider including specific values or referencing supplementary data.

In Methods and Materials, the description of “Aerobic Exercise Protocol” could be improved by including standard references for the VO_2 max formula used, enhancing reproducibility.

In Methods and Materials, the Tissue Collection and Processing section states that tissues were homogenized but does not mention how RNA integrity was confirmed (e.g., RIN values); this detail is essential for validating gene expression findings.

The Quantitative Real-Time PCR section describes primer sequences but does not provide validation data (e.g., efficiency curves). Including this would improve methodological robustness.

In Findings and Results, Table 2 reports means \pm SD, but lacks clear units or normalization method (e.g., fold change vs control). Add these details for interpretability.

In Discussion and Conclusion, paragraph 1, you reference “recent studies” indicating reduction of Nrf2 and GLUT4 in NAFLD but do not cite them directly; adding citations would strengthen this claim.

Authors revised the manuscript and uploaded the updated document.

2. Revised

Editor’s decision after revisions: Accepted.

Editor in Chief’s decision: Accepted.