



The Effect of Aerobic Exercise and Ethanolic Extract of Rice Bran on The Expression of Acetyl-CoA Carboxylase and HMGCR Genes in the Liver Tissue of Rats Fed with a High-Fat Diet

Shokofe Maleki¹, Mohammad Ali Azarbayjani^{1*}, Shahin Riyahi Malayeri³, Maghsoud Peeri³, Saleh Rahmati Ahmadabad⁴

¹ Department of Exercise Physiology, Central Tehran Branch, Islamic Azad University, Tehran, Iran

² Department of Physical Education and Sport Sciences, East Tehran Branch, Islamic Azad University, Tehran, Iran

³ Department of Exercise Physiology, Central Tehran Branch, Islamic Azad University, Tehran, Iran

⁴ Department of Sports Physiology, Pardis Branch, Islamic Azad University, Pardis, Iran

* Corresponding author email address: m_azarbayjani@iauctb.ac.ir

Editor	Reviewers
Luis Felipe Reynoso-Sánchez ¹ Department of Social Sciences and Humanities, Autonomous University of Occident, Los Mochis, Sinaloa, Mexico felipe.reynoso@uadeo.mx	Reviewer 1: Hooman Namvar ¹ Assistant Professor, Department of Psychology, Saveh Branch, Islamic Azad University, Saveh, Iran. Email: hnamvar@iau-saveh.ac.ir Reviewer 2: Seyed Mohammad Hosseini ¹ Assistant Professor, Department of Health and Rehabilitation in Sports, Shahid Beheshti University, Tehran, Iran. Email: moh_hosseini@sbu.ac.ir

1. Round 1

1.1 Reviewer 1

Date: 09 June 2024

Reviewer:

"The abstract lacks specific details on the methodology, particularly the dosage and administration route of the ethanolic extract of rice bran. Including these details would enhance clarity."

"The description of the animal housing conditions and ethical considerations is thorough, but the justification for choosing female rats specifically is not provided. Including this information would strengthen the study design rationale."

"The composition of the high-fat diet is provided, but consider including a reference or a standard source for the diet composition to ensure reproducibility."

"Details about how the exercise intensity was monitored and adjusted for each rat would be beneficial. This can help replicate the exercise protocol in future studies."

"The extraction process is described well. However, it would be helpful to specify the method used to ensure the consistency of the administered dose."

"The primer sequences are provided, but the methods section would benefit from more detail on the PCR conditions (e.g., annealing temperatures, cycle numbers) used for the amplification."

"The results are clearly presented in Table 2, but adding a footnote to explain the statistical significance indicators (e.g., what $P \leq 0.05$ indicates) would enhance understanding."

"In the statement 'The results also showed that the reduction in HMGCR expression in the aerobic exercise-high-fat diet group compared to the high-fat diet control group was significant ($P = 0.000$)', consider specifying the fold change observed to give a quantitative sense of the results."

Authors revised the manuscript and uploaded the updated document.

1.2 Reviewer 2

Date: 07 June 2024

Reviewer:

"The statement 'Obesity is strongly associated with many chronic diseases such as dyslipidemia, hypertension, diabetes...' should include recent references to support these claims and provide a broader context."

"The sentence 'It has been shown that liver tissue plays a vital role in regulating cholesterol homeostasis in the body...' needs citation for the claims made about the role of liver tissue in cholesterol regulation."

"The phrase 'pharmaceutical, dietary, and physical activity strategies' could be expanded to briefly describe what these strategies entail to give the reader a quick overview."

"The hypothesis is clearly stated, but the introduction could benefit from a brief mention of why acetyl-CoA carboxylase and HMGCR genes were specifically chosen as markers."

"The discussion mentions 'liver damage caused by a high-fat diet', but does not discuss potential mechanisms in detail. Adding a brief discussion on the mechanistic insights would strengthen the section."

"The role of SREBP-2 in regulating HMGCR is mentioned, but the discussion would benefit from a diagram or a figure summarizing the signaling pathways involved."

"The comparison with other studies is thorough. However, consider discussing potential limitations of the current study, such as the duration of the interventions or the choice of the animal model, to provide a balanced view."

Authors revised the manuscript and uploaded the updated document.

2. Revised

Editor's decision after revisions: Accepted.

Editor in Chief's decision: Accepted.