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Effect of High-Intensity Interval Training and High-Fat Diet on Nrg-1 And Pgc-1 α in Aging Rats' Heart Tissue



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1. Round 1

1.1 Reviewer 1

Reviewer:

The introduction begins with an overview of the Neuregulin (NRG) growth factor. However, the term "euregulin (NRG) growth factor" seems to be a typographical error. Please correct it to "Neuregulin (NRG) growth factor."

"The expression of its isoforms happens in cells of endothelial, mesenchymal, and neuronal origin..." The phrase "happens in" is informal. Consider revising to "occurs in."

"Hearts without PGC-1 α enjoy normal volume density of their mitochondria but reduced mitochondrial gene expression..." The word "enjoy" is colloquial. Consider using "maintain" instead.

"Exercise is believed to have protect against a variety of cardiovascular diseases." This is a grammatical error. Revise to: "Exercise is believed to protect against a variety of cardiovascular diseases."

"The results of a study by Cai et al. (2016) pointed to beneficial effects for only four weeks of endurance training on health regeneration." The term "health regeneration" is vague. Consider specifying what aspect of health was regenerated.

"It has been hypothesized that nutrition is an influential factor in NRG1 signaling." Include a brief mention of the specific nutritional factors involved, as mentioned later in the paragraph.

"For Example, treatment using palmitate causes impaired activation of AKT by NRG1in isolated rat cardiac myocytes..." There is a typographical error in "NRG1in." Please correct to "NRG1 in."

"Research findings point to higher effectiveness of HIT compared to moderate-intensity continuous training for promoting aerobic power..." Provide references to specific studies to support this claim.

"All care and ethical principles were fully observed based on the guidelines for using and caring for laboratory animals." Please specify the guidelines or the organization that provided these guidelines.

"The protocol began with a 5-minute warm-up on the treadmill at a speed of 6 meters per minute and 0% incline..." Provide a reference for this protocol if it is based on a previously established method.

"All primers were designed using Allele IDv7.8 software..." Include more detail on the primer design criteria and validation process.

Authors revised the manuscript and uploaded the document.

1.2 Reviewer 2

Reviewer:

"Based on previous research, the mice which have disruption in the expression of NRG1, ErbB2, or ErbB4 die in the uterus failing in the development their cardiac..." The sentence structure is unclear. Consider revising to: "Previous research has shown that mice with disruptions in the expression of NRG1, ErbB2, or ErbB4 die in utero due to failed cardiac development."

"They suggest that weakened NRG-ErbB signaling in cardiomyocytes..." It's unclear who "they" refers to. Replace "they" with the specific authors or studies.

"The transcriptional coactivator PGC-1a is the major regulator of mitochondrial biogenesis..." Please provide a brief explanation of what PGC-1a is to help readers unfamiliar with the term.

"Mean standard error of the means (SEM) represents the data values, which were analyzed using a two-way ANOVA (DIET×HIIT)." Clarify whether post-hoc tests were performed after the ANOVA to identify specific group differences.

"Based on the findings, diet had a significant effect ($p=0.0001$, $F=49.67$), decreasing PGC1 levels..." Specify whether these values are mean differences and provide the confidence intervals.

Authors revised the manuscript and uploaded the document.

2. Revised

Editor's decision: Accepted.

Editor in Chief's decision: Accepted.