



## The effect of a single-course aerobic exercise on function of cardiac muscle's hemorheologic, hemodynamic, and biomechanical selective variables in middle-aged male patients with cardiovascular disease

### Poster Presentation

1Mohadese Yavar \* ; 2Heidar Sadeghi

<sup>1</sup>M.S in Sports Biomechanics, Department of Sports Biomechanics and Injuries, Faculty of Physical Education and Sports Science, Kharazmi University, Tehran, Iran(mohadese.yavar@gmail.com)

<sup>2</sup>Full Professor, Department of Sports Biomechanics and Injuries, Faculty of Physical Education and Sports Science, Kharazmi University, Tehran, Iran

### Abstract

**Introduction:** Considering that one of the main reasons of global mortality, especially in third-world countries, is cardiovascular diseases and heart stroke, it is claimed that regular physical activity leaves a direct effect on cardiac function. This study aims to examine the effect of a single-course aerobic exercise on function of cardiac muscle's hemorheologic, hemodynamic, and selected biomechanical variables in middle-aged male patients with cardiovascular disease.

**Methods:** In this semi-laboratory research, 34 middle-aged (aged 45-65) males with cardio-vascular disease participated in MI, GABG, and PCI. They were selected based on nonrandom convenience sampling and were randomly divided into aerobic exercise and control groups. The experimental group did submaximal aerobic exercises three times a week for eight weeks. Mean and standard deviation were used to describe data. Kolmogrov-Smirnov test was used to examine the normal distribution of data. Leven's test was used to determine groups' variance homogeneity. The covariance analysis, dependent t-test as well as Wilcoxon test were used to compare the inter-group and intra-group data. Pre- and post-test was used in empirical and control groups at a significance level  $p \leq 0.05$ .

**Results:** The results revealed that a significant increase in hemorheologic variables (white blood cells, ESR, hematocrit, and lipoproteins), hemodynamic variables (stroke volume, RHR, diastolic blood pressure) and biomechanical variables of cardiac function (Ejection Fraction, heart's chambers' size, heart's chambers' volume) following the aerobic exercise program.

**Conclusion:** Taking the effectiveness of aerobic exercise on various blood variables, the empirical protocol applied in this study can be recommended to improve the function of hemorheologic, hemodynamic, and biomechanical variables of patients' cardiac muscle.

### Keywords

Cardiovascular disease; aerobic exercise; middle aged male patients; hemorheologic; hemodynamic; biomechanical; cardiac

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