

Regular and Consistent Exercise Increases High-Density Lipoprotein (HDL) Quantity and Quality in Middle-Aged Women with Improvements in Lipid and Apolipoprotein

Alissa Murphy*

Department of Science, Centre of Research, Germany

Abstract

HDL-C (high-density lipoprotein cholesterol) levels in the blood can generally be improved with regular aerobic exercise, in particular. Exercise enhances HDL functionality, antioxidants, and cholesterol efflux in addition to raising HDL-C levels. However, middle-aged women must determine the ideal exercise intensity and frequency in order

frequency, and duration on HDL quantity and quality in middle-aged women; There were three groups of participants: a group that is sedentary (group 1), a group that is middle-intensity (group 2), and a group that is high-intensity (group 3). The only anthropometric parameters that did not differ between the groups were blood pressure, muscle mass, and handgrip strength. HDL-C and apolipoprotein (apo)A-I levels in the blood were noticeably elevated in group 3 to 17% and 12%, respectively, despite the lack of a difference in serum total cholesterol (TC). Depending on the intensity of the exercise, the exercise groups saw significant reductions in serum LDL-C, glucose, triglycerides, and the apo-B/apoA-I ratio; Group 3 had lower levels of LDL-C, glucose, and triglycerides (TG) as well as lower levels of LDL particle size (LDLPS) and apoB/A-I capacity (FRA). Group 3's HDL3 particle size was 1.2 times larger than that of group 1, and the TG was 45 percent lower than that of group 1. HDL2 and HDL3 apoA-I expression, PON activity, and FRA were all elevated with increasing exercise intensity ($p < 0.001$). Final outcomes show that middle-aged women who exercise regularly have higher levels of HDL-C and apoA-I in their blood, as well as higher levels of HDL quality and functionality, TC content, particle size, and antioxidant capacity. Regular, intensity-dependent exercise may enhance the anti-atherogenic properties of lipoproteins by reducing TG and oxidized products in LDL and HDL.

Keywords: High-Density Lipoproteins; Apolipoprotein A-I; Exercise; Paraoxonase; Low-Density lipoproteins

Introduction

Sedentary lifestyles are a major risk factor for cardiovascular disease and metabolic syndrome. Insulin resistance, abdominal obesity, low HDL-C, and high triglyceride (TG) levels are frequently linked to sedentary living. Exercise is linked to a lower risk of cardiovascular disease and overall mortality, dose-dependently. Regular exercise

activity were found to have a strong correlation with HDL function in prehypertension. Lifestyle and nonpharmacological interventions like exercise and nutrition can also improve HDL-C quantity and quality. Aerobic sports athletes like runners and wrestlers have the highest HDL-C, largest particle size, HDL content of apoA-I, and paraoxonase (PON) activity among the national Olympic representatives. Regardless

of the type of exercise, these findings suggest that regular exercise may increase HDL-C quantity and HDL functionality [4-7].

In contrast, there are no studies that compare middle-aged, nonsmoking women's HDL quality and functionality in sedentary and exercise groups. As evidenced by decreases in LDL-C and TG and increases in HDL-CO, numerous studies have demonstrated that exercise transformed the pro-atherogenic lipid profile into an anti-atherogenic profile. Middle-aged, healthy, and normolipidemic women who had exercised regularly for at least a year prior to the study were compared to see how exercise intensity affected HDL and LDL properties like particle shape and size, oxidation and glycation extent, and lipid and apolipoprotein compositions [8].

*Corresponding author: Alissa Murphy, Department of Science, Centre of Research, Germany, E-mail: carl.edu@26uppsala.co.in

Received: 07-Jan-2023, Manuscript No: jbc23-85994, **Editor assigned:** 10-Jan-2023, PreQC No: jbc23-85994 (PQ), **Reviewed:** 24-Jan-2023, QC No jbc23-85994, **Revised:** 27-Jan-2023, Manuscript No: jbc23-85994 (R), **Published:** 31-Jan-2023, DOI: 10.4172/jbc23.1000173

Citation: Murphy A (2023) Regular and Consistent Exercise Increases High-Density Lipoprotein (HDL) Quantity and Quality in Middle-Aged Women with Improvements in Lipid and Apolipoprotein. *J Biochem Cell Biol*, 6: 173.

Copyright: © 2023 Murphy A. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Lipoproteins' Electromobility

The agarose electrophoresis migration of each lipoprotein (LDL, HDL2, and HDL3) was used to compare the electromobility of the participant samples. The three-dimensional structure of HDL and its