

The association between serum remnant cholesterol and type of physical activity in Korean adults: A nationwide population-based study

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Background: Recently, serum remnant cholesterol (RC) is important contributors to atherosclerosis and development of cardiovascular diseases (CVD). There are many studies showing that physical activity (PA) lowers traditional cholesterol in relation to CVD risk, but there is no study on the relationship between RC and PA. Therefore, we aimed to investigate the association between serum RC and type of PA in Korean adults.

Methods: This study used data from the 2016–2021 Korea National Health and Nutrition Examination Survey. Overall, 32,877 adults were included. Serum RC was calculated by subtracting the low-density lipoprotein-cholesterol and high-density lipoprotein-cholesterol from the total cholesterol level, and hyper-remnant cholesterolemia was defined as serum RC ≥ 30 mg/dL. The PA was classified into aerobic exercise, resistance exercise, and walking exercise. Aerobic exercise is defined as practicing 150 min of moderate or 75 min of high-intensity physical activity, or time equivalent by a combination of the two, per week, and resistance exercise was assessed by number of days of resistant exercise per week. Walking exercise as more than 150 minutes of walking per week. Multivariate logistic regression analysis was performed to examine the association between serum RC and type of PA.

Results: In the group with age < 65 years, the odds ratio (OR) of hyper-remnant cholesterolemia was 1.23-times higher in the group with not doing resistance exercise than in the group with more than two times resistance exercise per week (95% confidence interval [CI] 1.12-1.36, $P < .01$). In the group with age ≥ 65 years, the OR of hyper-remnant cholesterolemia was 1.33-times higher in the group with not doing walking exercise than in the group with more than 150 minutes walking exercise per week (95% CI 1.13-1.57, $P < .01$).

Conclusions: This study revealed that resistance exercise in < 65 years and walking exercise ≥ 65 years were significantly associated with low RC in Korean adults.