



Q/ Does regular walking improve lipid levels in adults?

EVIDENCE-BASED ANSWER

A/ MINIMALLY. Regular moderate-intensity walking for a period of 4 or more weeks minimally decreased total cholesterol (TC) and low-density lipoprotein (LDL) levels by about 7 mg/dL in women with overweight or obesity (strength of recommendation [SOR]: **C**,

systematic review and meta-analysis on disease-oriented evidence). For adults ages 40 to 65 years, regular walking for 3 or more months inconsistently affected cholesterol and triglyceride levels (SOR: **C**, based on 3 randomized controlled trials [RCTs] with disease-oriented evidence).

Evidence summary

Walking's impact on cholesterol levels is modest, inconsistent

A 2022 systematic review and meta-analysis of 21 studies (n = 1129) evaluated the effects of walking on lipids and lipoproteins in women older than 18 years who were overweight or obese and were not taking any lipid-lowering medications. Median TC was 206 mg/dL and median LDL was 126 mg/dL.¹

The primary outcome found that walking decreased TC and LDL levels independent of diet and weight loss. Twenty studies reported on TC and showed that walking significantly decreased TC levels compared to the control groups (raw mean difference [RMD] = 6.7 mg/dL; 95% CI, 0.4-12.9; *P* = .04). Fifteen studies examined LDL and showed a significant decrease in LDL levels with walking compared to control groups (RMD = 7.4 mg/dL; 95% CI, 0.3-14.5; *P* = .04). However, the small magnitude of the changes may have little clinical impact.¹

There were no significant changes in the walking groups compared to the control groups for triglycerides (17 studies; RMD = 2.2 mg/dL; 95% CI, -8.4 to 12.8; *P* = .68) or high-density lipoprotein (HDL) (18 studies; RMD = 1.5 mg/dL; 95% CI, -0.4 to 3.3; *P* = .12). Included studies were required to be

controlled but were otherwise not described. The overall risk for bias was determined to be low.¹

A 2020 RCT (n = 22) assessed the effects of a walking intervention on cholesterol and cardiovascular disease (CVD) risk in individuals ages 40 to 65 years with moderate CVD risk but without diabetes or CVD.² Moderate CVD risk was defined as a 2% to 5% 10-year risk for a CVD event using the European HeartScore, which incorporates age, sex, blood pressure, lipid levels, and smoking status³; however, study participants were not required to have hyperlipidemia. Participants were enrolled in a 12-week, nurse-led intervention of moderate-paced walking for 30 to 45 minutes 5 times weekly.

Individuals in the intervention group had significant decreases in average TC levels from baseline to follow-up (244.6 mg/dL vs 213.7 mg/dL; *P* = .001). As a result, participants' average 10-year CVD risk was significantly reduced from moderate risk to low risk (2.6% vs 1.8%; *P* = 0.38) and was significantly lower in the intervention group than in the control group at follow-up (1.8% vs 3.1%; *P* = .019). No blinding was used, and the use of lipid-lowering medications was not reported, which could have impacted the results.²

A 2008 RCT (n = 67) examined the effect

Kayla Hatchell, MD;
Emily Chin, DO;
Brian Vukelic, MD;
Katherine Fortenberry,
PhD; Dominick Ose, DrPH;
Eliza Taylor, MPH, BS, CHES;
Rachel Goossen, MD
University of Utah,
Salt Lake City

DEPUTY EDITOR
Rick Guthmann, MD, MPH
Advocate Health Care Illinois
Masonic Medical Center
Program, Chicago

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The lipid reductions achieved from walking—if any—are minimal.

of a home-based walking program (12 weeks of brisk walking, at least 30 min/d and at least 5 d/wk, with at least 300 kcal burned per walk) vs a sedentary control group in men ages 45 to 65 years with hyperlipidemia (TC > 240 mg/dL and/or TC/HDL-C ratio \geq 6) who were not receiving lipid-lowering medication. There were no significant changes from baseline to follow-up in the walking group compared to the control group in TC (adjusted mean difference [AMD] = -9.3 mg/dL; 95% CI, -22.8 to 4.64; $P = .19$), HDL-C (AMD = 2.7 mg/dL; 95% CI, -0.4 to 5.4; $P = .07$) or triglycerides (AMD = -26.6 mg/dL; 95% CI, -56.7 to 2.7; $P = .07$).⁴

A 2002 RCT ($n = 111$) of sedentary men and women (BMI, 25-35; ages, 40-65 years) with dyslipidemia (LDL of 130-190 mg/dL, or HDL < 40 mg/dL for men or < 45 mg/dL for women) examined the impact of various physical activity levels for 8 months when compared to a control group observed for 6 months. The group assigned to low-amount, moderate-intensity physical activity walked an equivalent of 12 miles per week.⁵

In this group, there was a significant decrease in average triglyceride concentrations from baseline to follow-up (mean \pm standard error = 196.8 ± 30.5 mg/dL vs 145.2 ± 16.0 mg/dL; $P < .001$). Significance of the change compared with changes in the control group was not reported, although triglycerides in the control group increased from baseline to follow-up (132.1 ± 11.0 vs 155.8 ± 14.9 mg/dL). There were no significant changes from baseline to follow-up in TC (194 ± 4.8 vs 197.9 ± 5.4 mg/dL), LDL (122.7 ± 4.0 vs 127.8 ± 4.1 mg/dL), or HDL (42.0 ± 1.9 vs 43.1 ± 2.5 mg/dL); P values of pre-post changes and comparison to control group were not reported.⁵

Recommendations from others

The Physical Activity Guidelines for Americans, published by the Department of Health and Human Services and updated in 2018,

cite adherence to the published guidelines as a protective factor against high LDL and total lipids in both adults and children.⁶ The guidelines for adults recommend 150 to 300 minutes of moderate-intensity or 75 to 150 minutes of vigorous-intensity aerobic exercise per week, as well as muscle-strengthening activities of moderate or greater intensity 2 or more days per week. Brisk walking is included as an example of a moderate-intensity activity. These same guidelines are cited and endorsed by the American College of Sports Medicine and the American Heart Association.^{7,8}

Editor's takeaway

The lipid reductions achieved from walking—if any—are minimal. By themselves, these small reductions will not accomplish our lipid-lowering goals. However, cholesterol goals are primarily disease oriented. This evidence does not directly inform us of important patient-oriented outcomes, such as morbidity, mortality, and vitality. **JFP**

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