
Response of blood lipids to exercise training alone or combined with dietary intervention

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Setting the scene:

The purpose of this study is to review the effects of aerobic exercise training (AET) on blood lipids and assess dose-response relationships and diet interactions.

What did they do?

Researchers reviewed papers published over the past three decades pertaining to intervention trials on the effects of 12 wk of AET on blood lipids and lipoprotein outcomes in adult men and women. Included were studies with simultaneous dietary and AET interventions, if they had appropriate comparison groups. Studies were classified by the participants' relative weights expressed as mean BMIs. Information was extracted on baseline characteristics of study subjects, including age, sex, and relative baseline cholesterol levels; details on the training programs; and the responses to training of body weight, $\dot{V}O_{2\max}$, and blood total cholesterol (TC) and low-density lipoprotein-cholesterol (LDL-C), high-density lipoprotein-cholesterol (HDL-C), and triglyceride (TG). AET was generally performed at a moderate to hard intensity, with weekly energy expenditures ranging from 2,090 to 20,000 kJ. A marked inconsistency was observed in responsiveness of blood lipids. The most commonly observed change was an increase in HDL-C (with reductions in TC, LDL-C, and TG less frequently observed). The increase in HDL-C with AET was inversely associated with its baseline level, but no significant associations were found with age, sex, weekly volume of exercise, or with exercise-induced changes in body weight or $\dot{V}O_{2\max}$.

Takeaway message:

Moderate- to hard-intensity AET inconsistently results in an improvement in the blood lipid profile, with the data insufficient to establish dose-response relationships.