The relationship between exercise training and cardiovascular risk factors has been investigated extensively in type 2 diabetes; however, less is known about this relationship in persons living with type 1 diabetes (T1D). The aim of this study was to conduct a systematic review and meta-analysis of published clinical randomized, controlled trials on exercise training for cardiovascular risk factors in T1D. Electronic databases were systematically searched (from their inceptions to May 2017) and key reviews cross-referenced to identify articles for inclusion. Both randomized and non-randomized controlled trials reporting associations for exercise training and cardiovascular risk factors in T1D were included. Weighted mean differences (WMD) of each cardiovascular risk factor between exercise groups and control groups were calculated using a random effects model. Subgroup analyses were performed using the following variables, age, exercise frequency, type of exercise, and program duration to explore sources of heterogeneity. A total of 24 studies reported the effects of exercise training on cardiovascular disease risk factors. Exercise training increased and reduced glycated hemoglobin daily insulin, and total cholesterol. Subgroup analyses showed greater beneficial effects in higher volume exercise interventions. Exercise training did not lead to consistent changes in body mass index, blood pressure, triglycerides, HDL-C, or LDL-C. In persons living with Type 1 diabetes, aerobic exercise training is associated with a beneficial cardiovascular profile, such as lower total cholesterol, daily insulin dosage and with better glycemic control and aerobic fitness.

Themes:
Check (highlight) the most applicable theme according to the abstract.

| Innovation and Technology | Health and Wellness | Individual and Society | Sustainability and Conservation |

Comments:
 Latino [WS1]: Is there a specific reason why this is the case?
 Latino [WS2]: What does this mean for future studies?