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Walking to improve cardiovascular health: a meta-analysis of randomised control trials

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Abstract

Background: Physical inactivity causes approximately 17% of premature mortality in the UK. Walking offers a promising method for lowering risk of cardiovascular disease at population level, though a recent synthesis of evidence is lacking. This study aimed to conduct a meta-analysis of randomised controlled trials that have assessed the effect of walking on risk factors for cardiovascular disease in previously inactive adults.

Methods: We searched PubMed, Web of Science, ScienceDirect, and the Cochrane Central Register of Controlled Trials for studies published in English between Jan 1, 1970, and May 31, 2012, using the following search terms: "walking", "exercise", "health", and "cardiovascular risk". Two authors identified randomised controlled trials of interventions (>4 weeks' duration) that included at least one group with walking as the only treatment and a comparator no-exercise group. Participants were inactive but otherwise healthy at baseline. Pooled results were reported as weighted mean treatment effects and 95% CIs in a random effects model.

Findings: 32 articles reported the effects of walking interventions on risk factors for cardiovascular disease in participants aged 30–83 years. Mean length of interventions was 18・7 weeks (range 8–52). Duration of walking was 20–60 min on 2–7 days per week. Walking interventions reduced systolic and diastolic blood pressure (–3・6 mm Hg, 95% CI 5・19 to –1・97; –1・5 mm Hg, –2・83 to –0・26). Interventions also improved waist circumference (–1・5 cm, –2・34 to –0・68), weight (–1・4 kg, –1・75 to –1・00), body fat (–1・2%, –1・70 to –0・73), and body-mass index (BMI) (–0・5 kg/m2 , –0・72 to –0 35). Walking improved aerobic fitness (3・2 mL/kg per min, 95% CI 2・57 to 3・80) but did not alter blood lipids. Significant heterogeneity (*I*2 statistic) was noted for aerobic fitness, BMI, weight, and percentage body fat. Many studies did not provide sufficient information to make firm judgments about risk of bias.

Interpretation: These findings support the important role of walking in physical activity for health promotion. Health professionals involved in the primary prevention of cardiovascular disease should prescribe walking confident of the benefits it can provide in fitness, blood pressure, and adiposity.

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