

Web-based physical activity interventions: a systematic review and meta-analysis of randomized controlled trials.

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Abstract

OBJECTIVES:

It was estimated that approximately 60% of the world's population is classified as inactive or insufficiently active. This meta-analysis investigated the effect of web-based interventions on different types of physical activity (PA) measurements in general population and potential moderating variables.

STUDY DESIGN:

PubMed, CINAHL, EBSCOhost, PsycINFO, Scopus, Ovid, and ScienceDirect literature searches were conducted to identify studies investigating the effect of web-based interventions on PA.

METHODS:

Randomized controlled trials on PA changes reported in moderate to vigorous intensity, walking, and step count in the intervention group in comparison with the control group were pooled with a fixed-effects model separately.

RESULTS:

A total of 22 studies comprising 16,476 and 14,475 subjects in intervention and control groups respectively were included. Web-based interventions had positive and significant effect on increasing PA. Of 14 trials reporting moderate to vigorous physical activity (MVPA), five showed a significant increase in the MVPA level after the intervention. There was significant heterogeneity between studies ($P < 0.001$ and $I^2 = 67.8\%$). Of six trials that reported the number of steps by using the pedometer, three showed a significant increase for the step counts in intervention groups ($P < 0.001$ and $I^2 = 93.3\%$), of 14 trials assessed PA level by reporting walking minutes per week, four studies showed a significant increase in walking minutes. There was significant heterogeneity between studies ($P < 0.001$, $I^2 = 68.1\%$). Overall, the effect of web-based interventions seemed to be influenced by the characteristics of mean age of participants, trial duration, and study quality ($P < 0.05$).

CONCLUSION:

The web-based PA interventions had a positive significant effect on increasing all the three types of PA among the general population. However, the effects appear to depend on the design of the study, age, and duration of studies.

KEYWORDS:

Meta-analyses; Physical activity; Walking; Web-based intervention