

This section features a recent systematic review that is indexed on PEDro, the Physiotherapy Evidence Database (<http://www.pedro.org.au>). PEDro is a free, web-based database of evidence relevant to physiotherapy.

Interventions to increase physical activity among older adults (PEDro synthesis)

► Chase JA. Interventions to increase physical activity among older adults: a meta-analysis. *Gerontologist* 2015;55:706–18.

BACKGROUND

Chronic illness are responsible for 84% of all healthcare expenditure and are highly prevalent among the older population.^{1–3} Physical activity (PA) has beneficial effects on cardiovascular risk factors, physical function, pain and depressive symptoms.^{4–7} There is an urgent need to understand more about how to increase PA levels in older adults.

AIM

This study aimed to investigate the effect of interventions designed to increase PA behaviour among older adults.

SEARCHES AND INCLUSION CRITERIA

The databases searched were: PubMed, MEDLINE, CINAHL, SPORTDiscus, PsychInfo, Google Scholar and Dissertation Abstracts International. The search strategy included the following combination of terms: ‘exercise’, ‘physical activity’, ‘physical exertion’, ‘physical endurance’, ‘leisure activity’, ‘recreation’, ‘physical fitness’ and ‘physical education and training’. Studies published between 1960 and 2013, investigating PA interventions among community-dwelling older adults (aged 65 and older or with a sample mean age of 70), were considered eligible.

INTERVENTION

Two-arm and single-arm studies investigating any intervention designed to increase PA behaviour among older adults, such as cognitive and behavioural strategies, motivational-type interventions, theory-driven interventions and problem-solving techniques were included.

MAIN OUTCOMES

Primary outcomes included self-reported (eg, questionnaires, activity logs) and objective measures (eg, accelerometer) of PA behaviour.

STATISTICAL METHODS

The meta-analysis included two-arm studies using post-treatment scores (final values). Comprehensive Meta-Analysis Software was used to calculate standardised mean differences (SMDs) and 95% CIs using random-effects models. The magnitude of the SMDs were interpreted as: ≤ 0.20 represents a small effect, $= 0.50$ a medium effect or ≥ 0.80 a large effect. Moderator analyses were used to determine the impact of sample, study and intervention characteristics on the overall SMD.

RESULTS

A total of 53 two-arm studies were included in the main analysis. These studies investigated behavioural type interventions using strategies such as self-monitoring, goal setting and prompting; and/or cognitive-based interventions, including barriers management strategies, problem-solving techniques, education and counselling. More than half of these studies ($n=24$) offered supervised exercise sessions to participants.

Overall, the results showed a small effect favouring PA interventions over control interventions with an SMD for the main analysis of 0.18 (95% CI 0.10 to 0.26). Significantly heterogeneity ($Q=122.9$, $p<0.001$ and $I^2=57.7\%$) was found across included studies. Funnel plot inspection showed little evidence of publication bias.

Moderator analyses suggested that: (1) the effect of PA interventions was higher among healthier participants (SMD=0.30) than in those with history of chronic illness (SMD=0.11) (p for comparison=0.03); (2) interventions delivered through audiovisual media (SMD=0.48) were more effective than those that did not use this delivery method (SMD=0.14) (p for comparison=0.01); (3) interventions delivered via mailed materials (SMD=0.34) were more effective than those without this delivery method (SMD=0.14) (p for comparison=0.03); (4) interventions including behavioural and cognitive strategies were more effective (SMD=0.23) than interventions using only one strategy (SMD=0.02) (p for comparison=0.03); (5) the effect of studies using theory-driven interventions (SMD=0.28) was higher than studies without a stated theoretical basis (SMD=0.05) (p for comparison <0.01); and (6) studies including motivational-type interventions were more effective (SMD=0.20) than studies that did not use this type of interventions (SMD=−0.15) (p for comparison=0.02).

CONSIDERATIONS/LIMITATIONS

The results of the main meta-analysis revealed a significant small effect favouring PA interventions over control. However, the high heterogeneity ($I^2=57.7\%$) associated with the pooled treatment suggests that the effects reported by individual trials are variable and interpretation of the pooled effect should be made with caution. As the authors included non-randomised trials, it is possible that the effect reported is overestimated. In addition, there was no attempt to assess the risk of bias among included studies and to assess the overall quality of evidence.

CLINICAL IMPLICATIONS

Interventions specifically designed to improve PA behaviour among older adults appear to be effective, but some caution is required, given the limitations of this review. Future high-quality studies are needed, and further reviews in this area should try to incorporate current recommended methods to assess the overall quality of evidence to provide robust evidence regarding the effect of interventions designed to promote PA among older adults.

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