



Physical activity interventions for children

A meta-analysis reviews the effectiveness of physical activity interventions for children.



Overview: Physical activity is important for the healthy growth and development of children and young people. The NHS initiative [Change4Life](#), recommends that children and young people aged 5 to 16 years should be active for at least 60 minutes each day, and children under 5 years should be active for at least 3 hours a day.

Current advice: NICE has public health guidance on [promoting physical activity for children and young people](#).

This guidance complements and supports NICE guidance on [obesity, physical activity and the environment](#), [depression in children and young people](#), and [social and emotional wellbeing in schools](#).

The [NICE Pathway on physical activity](#) brings together all related NICE guidance and associated products on the condition in a set of interactive topic-based diagrams.

New evidence: [Metcalf et al. 2012](#) did a systematic review and meta-analysis of randomised controlled trials of physical activity interventions in children aged 16 years and under. Included studies had to last at least 4 weeks and report whole-day activity as measured by accelerometry. Of 30 studies in 14,326 children, accelerometer data were available for 6153 children.

Pooled results showed that interventions achieved small-to-negligible increases in children's total activity (standardised mean difference [SMD]=0.12, 95% confidence interval [CI] 0.04 to 0.20, $p<0.01$) and small improvements in time spent in activities of moderate or vigorous intensity (SMD 0.16, 0.08 to 0.24, $p<0.001$). However, the authors noted that both these results seemed to be of limited clinical significance, equal to an additional 4 minutes walking or running per day, which would lead to a 2 mm reduction in waist circumference. No statistically significant differences were seen in subgroup analysis by gender of participants, age, body mass index (BMI) category, quality and size of study, location of intervention, and whether or not physical activity sessions were part of the intervention.

Several reasons have been proposed to explain why past studies of physical activity interventions were unsuccessful, such as poor delivery or uptake of the interventions, or insufficient intensity. However, Metcalf et al. (2012) suggested that the interventions could be replacing periods that children usually spend playing outdoors or other time when the child would usually be active. The authors added that organised physical activity may still offer benefits such as improved coordination skills, greater confidence, team participation, and social inclusivity.

Commentary: "This focused review potentially provides valuable evidence for those concerned with improving children's health. It used rigorous inclusion criteria and thus only included high quality randomised controlled studies that used objective measures of physical activity. This restricted the review to consideration of only 30 interventions.

"Research into physical activity interventions has adopted a wide range of approaches. Controlled trials are just one of these approaches, and are usually conducted on small groups of participants with

carefully controlled interventions that are amenable to inclusion in a trial. However, the greatest population level impacts on physical activity may well be derived from upstream, system-wide policy or environmental approaches. But these kinds of interventions are not amenable to evaluation in a randomised controlled trial. The study's conclusion that physical activity interventions have little effect on obesity seems inappropriate considering the evidence reviewed. It would be more appropriate to question the effectiveness of particular small-scale targeted behavioural interventions delivered over short timescales.

"Promoting physical activity is an important component of any strategy to tackle childhood obesity. This review highlights the importance of moving beyond narrowly focused interventions and of developing greater understanding of the impacts of system-wide approaches to tackling obesity and its determinants, including modifications to the social and physical environment to promote physical activity. Focusing merely on interventions that are easily amenable to assessment risks misleading conclusions, and diverting effort and attention away from a wide range of potentially important approaches." – **Nick Cavill, Research Associate, University of Oxford and Honorary Senior Research Fellow, University of Salford**

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