

Research in Brief:  
**Effectiveness of Interventions**  
**to Reduce Sedentary Behaviour**  
**in 0-5-Year-Olds**

**Background**

Sedentary behaviour refers to any waking activity characterized by low energy expenditure in a sitting, lying, or reclining posture. During early childhood, sedentary behaviours, such as viewing television and playing video games have been linked with an increased risk of obesity, poor psychosocial health, and delayed cognitive development. As a result, recommendations for limiting sedentary behavior have been introduced in Canada, Australia, and USA to suggest zero screen-time for children under 2 years old, and a maximum screen-time of 1 hour/day for children aged 2-5 years.

Previous evidence has demonstrated that many children engage in suboptimal levels of sedentary behaviour. For example, studies have found that 80% of children aged 3-5 years in Canada and Australia exceed the recommended screen-time limits. Estimates of overall sedentary behaviour for children under 6 years old have also been found to represent 94% of daily time awake.

High levels of sedentary behaviour are possible even when children meet daily physical activity requirements. Therefore, it is important to assess the effectiveness of interventions designed to reduce sedentary behaviour in early childhood for potential policy and practice implications.

***Why does this matter?***

- ⇒ Sedentary behaviour is associated with negative physical and mental health outcomes among children
- ⇒ Many young children exceed the recommended daily limits of screen and sedentary time
- ⇒ Various interventions have been developed in response to high levels of child sedentary behaviour
- ⇒ Evaluating the effectiveness of interventions aimed at reducing sedentary behaviour is essential for considering policy and practice implications



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Communities of practice in the KNSWB include: **Ontario Healthy Schools Coalition, PREVNet, School Mental Health ASSIST, and the Social Planning Network of Ontario**

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# Effectiveness of Interventions to Reduce Sedentary Behaviour in 0-5-Year-Olds

## **What is a systematic review and meta-analysis?**

A systematic review is a type of study that exhaustively summarizes the literature on a specific research question. The purpose of a systematic review is to draw a collective conclusion that provides stronger evidence than any single study. This research method involves: 1) framing a specific research question; 2) running a comprehensive search in the literature; 3) screening the retrieved articles for relevance; 4) assessing the research quality of the relevant articles; 5) abstracting results from the relevant articles; and 6) synthesizing the results of the relevant articles to draw a conclusion. A meta-analysis then combines the statistical results of the relevant articles to provide a pooled estimate of effects.

## **What did the researchers do?**

The researchers performed a systematic review and meta-analysis to evaluate the effectiveness of interventions aimed at reducing sedentary behaviour in children aged 0-5 years. Peer-reviewed studies were retrieved from electronic databases including MEDLINE, PsycINFO, and EMBASE, and SPORTDiscus. Eligible studies were published in English, and employed a randomized controlled trial study design. The studies must have focused on a child sample population with mean age of 5.9 years or younger.

## **What did they learn?**

From 12,104 total articles retrieved, 31 studies met all eligibility criteria and were included in the final systematic review. For studies targeting screen time:

- ◆ 3/9 (33%) studies conducted in a preschool setting reported a reduction in screen time by 13-40 min/day among those receiving a behavioural intervention compared to those who did not.
- ◆ 4/7 (57%) studies conducted in a home setting reported a reduction in screen time by 37-64 min/day among those receiving a behavioural intervention compared to those who did not.

Overall, the results of the meta-analysis revealed that interventions aimed at reducing sedentary behavior had a significant effect. The overall mean reduction in screen time was -17.12 minutes per day, and the overall mean reduction in sedentary time was -18.91 minutes per day.

Furthermore, it was found that the most effective screen time interventions were those greater than or equal to 6 months in duration, and the most effective sedentary time interventions were those that explicitly focused on increasing physical activity rather than decreasing sedentary time. Results should be interpreted with caution due to considerable heterogeneity across included studies' methodology and quality.



This review was prepared from: Downing, K. L., Hnatiuk, J. A., Hinkley, T., Salmon, J., & Hesketh, K. D. (2018). Interventions to reduce sedentary behaviour in 0–5-year-olds: a systematic review and meta-analysis of randomised controlled trials. *Br J Sports Med*, 52(5), 314-321.

Please see the original document for full details. In the case of any disagreement between this summary and the original document, the original document should be seen as authoritative.