

# Analysing interventions to prevent obesity in early childhood



## Key points

- Almost one in four Australian children has overweight or obesity by the time they start school. Children with obesity are more likely to have obesity as adults, increasing their risk of health problems.
- Previous childhood obesity prevention studies have focused mainly on older children. This research fills an urgent need for high-quality evidence on obesity prevention strategies starting very early in life.
- The research combined data from four Australian and New Zealand studies covering more than 2,000 first-time mothers and their children to create the world's largest database on early childhood obesity prevention to date.
- It also unpacked the essential components of each intervention to inform future early childhood obesity prevention interventions.
- The research found that parent-focused strategies that start in pregnancy or in the first few months of life could help children achieve a healthier body weight at age two, particularly in communities where there was less existing support (such as well-child healthcare services).
- Early intervention also helped to establish healthier behaviours in very young children, which may offer health benefits beyond the prevention of overweight and obesity in later childhood.
- Early interventions should be part of a suite of interventions spanning the life course to prevent the impact of interventions fading as children get older.

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## What is the issue?

In Australia, almost one in four children is affected by overweight or obesity by the time they start school.<sup>1</sup> Children who have overweight or obesity early in life are more likely to have obesity as adults, increasing their risk of associated health problems such as type 2 diabetes and cardiovascular disease.<sup>2</sup>

Childhood obesity prevention studies have focused primarily on older children. There is an urgent need for high-quality evidence to determine what strategies are most effective at preventing obesity very early in life, when behaviours are established and biology is easier to change.<sup>3 4</sup>

## What did we do?

We brought together four randomised controlled trials targeting very early childhood obesity prevention in Australia and New Zealand. Together, the trials form the Early Prevention of Obesity in CHildren (EPOCH) Collaboration. The trials agreed to collect the same measures of childhood obesity, weight and habits associated with later obesity, so their data could be combined, using a study method called prospective meta-analysis (see box, page 3).

The combined data for a total of 2,000 first-time mothers and their children is the world's largest database on early childhood obesity prevention to date.

The trials started in pregnancy or early in a baby's life, and included a variety of strategies to support new parents, such as advice about parenting strategies, breastfeeding, healthy eating and physical activity.

The most commonly targeted behaviours across all trials were:

- Healthy eating (introducing solid foods, how much and how often to feed, limiting treat foods and drinks)
- Physical activity (increasing tummy time or active play, limiting TV or screen time)
- Teaching parents how to respond best to their infant's cues that they are hungry or full.

The main aim was to determine if early intervention for childhood obesity has an impact on child weight at two years of age.

We also identified the core components of the four interventions, and interviewed investigators who planned and conducted each of the programs, and staff who delivered the programs to parents.

*"A key to our success has been involving government from the start. We have never been researchers on our own. We've always been co-designing every aspect of the programme."* Obesity prevention investigator

## What did we find?

Our program compared families who received care routinely offered to pregnant women and first-time mothers, such as nurse visits, with families who received both routine care and additional support to prevent obesity.

We found that early prevention starting in pregnancy or the first months of life could reduce unhealthy body weight and help families to establish healthier behaviours that may offer health benefits beyond the prevention of overweight and obesity in later childhood.

At two years of age, infants from families who received the additional support:

- Had a modest reduction in weight, as measured by BMI z-score (a measure of weight that takes into account a child's height and weight relative to their age and sex). The effect would translate to a 2% decrease in the prevalence of overweight/obesity at the population level
- Were breastfed for longer, which has important benefits for children's health and may help prevent obesity
- Spent less time in front of screens (mainly TV).

There were also improvements in feeding practices. For example, parents said they were less likely to use food as a reward, which is thought to promote a better attitude to food.

The reduction in BMI z-score was greater for infants where there was less existing support (fewer well-child healthcare services). The effects decreased as the children got older, known as the 'fade-out effect'.

Interviews highlighted the importance of collaboration between researchers, policy makers and health service practitioners, and the need to consider implementation and scalability issues throughout the study process.

## Research method shows power of collaboration

Our research program is the first prospective meta-analysis (PMA) of large, high-quality trials evaluating obesity prevention interventions starting in pregnancy or very early childhood.

In a PMA, studies are identified and invited to join a collaboration when in their planning stage or in progress. This can help coordinate research efforts around the world, to ensure studies can be combined when completed. The combined data answer research questions with greater certainty.

The PMA methodology is adaptive, efficient and collaborative. It enables researchers around the world to work together to advance their field, instead of competing.

PMAs are suited to high-priority research questions where there is limited previous evidence and where new studies are expected to emerge.

## What does it mean for policy and practice?

- Early childhood obesity prevention interventions are feasible and effective, and parents are receptive to these interventions.
- Early interventions are not enough – they need to be part of a suite of interventions spanning the life course to prevent the fade-out effect.
- Identifying the essential components of the four interventions will inform future early childhood obesity prevention initiatives that can be delivered cost-effectively at scale.
- Policy makers and researchers working on early obesity prevention interventions should engage key stakeholders throughout the planning, delivery, evaluation and implementation stages. Key stakeholders may include other researchers, clinicians, health services, government bodies, parents and the community.

## What did we produce?

- The world's largest database on early childhood obesity prevention to date
- Recommendations for researchers and policy makers for planning future interventions
- A trial repository of all planned and ongoing early obesity prevention trials to date
- Advancements in the use of prospective meta-analysis methodology, and methodology to understand complex interventions
- Seven published papers (details in references), and 10 conference presentations.

## What are the next steps?

Our research program has shown the impact of early intervention, but there are still questions over what types of strategies work best to support families and under what circumstances.

To address this knowledge gap, members of the EPOCH Collaboration have initiated a project called TOPCHILD (Transforming Obesity Prevention for CHILDren) ([www.topchildcollaboration.org](http://www.topchildcollaboration.org)). The TOPCHILD Collaboration has identified more than 60 completed, planned or ongoing studies worldwide that are evaluating different behavioural interventions to prevent very early childhood obesity.

The aim of TOPCHILD is to combine information from these studies to discover the key components of successful interventions. The team will also develop a modelling method to predict what types of prevention programs are effective for different population groups, such as disadvantaged populations.

## References

### Published papers

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<sup>1</sup> Australian Institute of Health and Welfare 2020. Australia's children. Cat. no. CWS 69. Canberra: AIHW

<sup>2</sup> Singh AS, Mulder C, Twisk JW, et al. Tracking of childhood overweight into adulthood: a systematic review of the literature. *Obesity Reviews*. 2008;9(5):474-88. PMID: 18331423

<sup>3</sup> Brown T, Moore THM, Hooper L, et al. Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews*. 2019(7). <https://doi.org/10.1002/14651858.CD001871.pub4>

<sup>4</sup> Redsell SA, Edmonds B, Swift JA, et al. Systematic review of randomised controlled trials of interventions that aim to reduce the risk, either directly or indirectly, of overweight and obesity in infancy and early childhood. *Maternal Child Nutrition*. 2016;12(1):24-38. <https://doi.org/10.1111/mcn.12184>

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