



Child care centre adherence to infant physical activity and screen time recommendations in Australia, Canada and the United States: An observational study



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ARTICLE INFO

Keywords:

Child care
Infant
Obesity
Recommendation
Physical activity
Screen time
Tummy time

ABSTRACT

Objective: The aim of this study was to compare adherence to physical activity and sedentary behaviour recommendations within the 2011 Institute of Medicine Early Childhood Obesity Prevention Policies as well as screen time recommendations from the 2013 American Academy of Pediatrics for samples of infants in child care centres in Australia, Canada, and the United States (US).

Methods: This cross-sectional study used data from: the Australian 2013 Standing Preschools (N = 9) and the 2014–2017 Early Start Baseline (N = 22) studies; the 2011 Canadian Healthy Living Habits in Pre-School Children study (N = 14); and the American 2008 (N = 31) and 2013–2017 (N = 31) Baby Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) trials. Data were compared on the above infant recommendations. Percentages were used to describe compliance to the recommendations and chi-square tests to determine whether compliance differed by country.

Results: Child care centres were most compliant (74%–95%) with recommendations to: provide daily indoor opportunities for infants to move freely under adult supervision, daily tummy time for infants less than 6 months of age, indoor and outdoor recreation areas that encourage infants to be physically active, and discourage screen time. Centres were least compliant (38%–41%) with adhering to recommendations to: limit the use of equipment that restricts an infant's movement and provide education about physical activity to families. Compared with Canadian and US centres, Australian centres were less compliant (46%) with the recommendation to engage with infants on the ground each day, to optimize adult-infant interactions and to limit the use of equipment that restricts the infant's movement. Canadian centres were less compliant (39%) with the recommendation to provide training to staff and education to parents about children's physical activity. US centres were less compliant (25%–41%) with the recommendations to provide daily opportunities for infants to explore their outdoor environment, limit the

Abbreviations: IOM, Institute of Medicine; AAP, American Academy of Pediatrics; US, United States; LSAC, longitudinal study of Australian children; NAP SACC, nutrition and physical activity self-assessment for child care; STROBE, strengthening the reporting of observational studies in epidemiology; SPSS, statistical package for the social sciences; IBM, international business machines; Corp, corporation; NY, New York; US, United States; SES, socio-economic status; SEIFA, socio-economic indexes for areas

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<https://doi.org/10.1016/j.infbeh.2017.11.008>

Received 12 July 2017; Received in revised form 29 November 2017; Accepted 29 November 2017

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use of equipment that restricts the infant's movement and provide education to families about children's physical activity.

Conclusions: Assisting child care centres on limiting the use of equipment that restricts an infant's movement, and providing education about children's physical activity to families may be important targets for future interventions.

1. Background

The global prevalence of 0- to 5-year-old children who are overweight or obese has increased from 4.2% in 1990–7.8% in 2015 and this trend is expected to continue to rise to 9.1% by 2020 (de Onis, 2010). For developed countries such as the United Kingdom, United States, Canada, Australia, New Zealand and Japan, the prevalence is even higher. In 1990, 7.9% of children aged 0–5 years in these countries were overweight or obese; this rose to 12.9% in 2015 and is expected to reach 14.1% by 2020 (de Onis, 2010). The early years are strongly predictive of obesity in later childhood and subsequently adulthood (Ong & Loos, 2006). It is also well known that excess weight in infancy is associated with delayed gross motor development (Slining et al., 2010), and leads to other adverse health outcomes, such as coronary heart disease in adulthood (Must et al., 1992). Therefore, the early years provide an important opportunity for obesity prevention (Campbell et al., 2016).

A moderate proportion of very young children attend formal child care across developed countries. For instance, the Longitudinal Study of Australian Children (LSAC) reported that 35% of parents used regular child care for their infants (Harrison et al., 2010). Likewise, 17% of American children aged birth to 2 years are in some type of formal child care, (Blaine et al., 2015) and 54% of Canadian children from 6 months to 5 years are cared for in some type of non-parental care (Hinkley, Carson, & Hesketh, 2015). Recent evidence has shown attending child care in the first year of life was associated with slightly higher weight at 12 months of age (Benjamin Neelon et al., 2015). With a large number of infants attending such settings, there is a need to understand the factors contributing to obesity prevention while in these environments and review child care practices in the first 12 months of life.

To assist in the prevention of obesity in infancy and early childhood, in 2011 the National Academy of Medicine, previously known as the Institute of Medicine, published recommendations aimed at promoting healthy environments in child care settings (Institute of Medicine, 2011). These recommendations provide guidance on appropriate quantities and types of physical activity, sleep, and sedentary behaviour. In addition, as the use of recreational electronic media plays an important role in the development of childhood obesity (Strasburger et al., 2011), in 2013 The American Academy of Pediatrics published updated recommendations on the use of television and other entertainment media for infants and young children (Strasburger et al., 2011; Strasburger & Hogan, 2013).

Table 1
2011 IOM^a physical activity (Institute of Medicine, 2011) and 2013 AAP screen time recommendations (Brown et al., 2011).

IOM ^a recommendation number	Description of recommendation	Potential actions for infants
3.1	“Child care regulatory agencies should require child care providers and early childhood educators to provide infants, toddlers, and preschool children with opportunities to be physically active throughout the day”	<ol style="list-style-type: none"> 1) Providing daily opportunities for infants to move freely under adult supervision to explore their indoor and outdoor environments 2) Engaging with infants on the ground each day to optimize adult-infant interactions 3) Providing daily “tummy time” (time in the prone position) for infants less than six months of age.
3.2	“The community and its built environment should promote physical activity for children from birth to age five”	<ol style="list-style-type: none"> 1) To ensure that indoor and outdoor recreation areas encourage all children, including infants, to be physically active.
3.3	“Child care regulatory agencies should require child care providers and early childhood educators to allow infants, toddlers, and preschoolers to move freely by limiting the use of equipment that restricts infants' movement and by implementing appropriate strategies to ensure that the amount of time toddlers and preschoolers spend sitting or standing still is limited”	<ol style="list-style-type: none"> 1) Using cribs, car seats, and high chairs for their primary purpose only – cribs for sleeping, car seats for vehicle travel, and high chairs for eating 2) Limiting the use of equipment such as strollers, swings, and bouncer seats/chairs for holding infants while they are awake.
3.4	“Health and education professionals providing guidance to parents of young children and those working with young children should be trained in ways to increase children's physical activity and decrease their sedentary behaviour, and in how to counsel parents about their children's physical activity”	<ol style="list-style-type: none"> 1) Child care regulatory agencies requiring child care providers and early childhood educators to be trained in ways to encourage physical activity and decrease sedentary behaviour in young children through certification and continuing education.
AAP recommendation 2013	Description “Screen media exposure should be discouraged for children under 2 years of age”	Potential actions for infants No screen media exposure for infants

^a IOM, from 2015, known as the National Academy of Medicine.

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