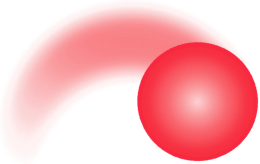


What the Research Says

About Physical Activity and the Early Years



There is an abundance of research describing the relationship between physical activity and health in adults, with an emerging focus on its effects during childhood and adolescence. This overview highlights some **key areas** related to physical activity and the early years (0 to 6 years).

What the Research says...

... about the benefits of physical activity

The early years are a critical period for growth and development (Active Healthy Kids Canada, 2010). Regular physical activity provides many short and long-term health-related and social benefits.

Regular physical activity:

- Encourages muscle growth and helps develop strong bones (PHAC, 2002; as cited in Department of Health and Human Services, 2009).
- Helps achieve and maintain a healthy weight (Health Canada, 2009; as cited in Active Healthy Kids Canada, 2009).
- Makes the heart and lungs stronger (Health Canada, 2009).
- Maintains a healthy blood pressure (PHAC, 2007; as cited in Active Healthy Kids Canada, 2009).
- Increases flexibility (PHAC, 2002).
- Improves coordination (PHAC, 2002).
- Is associated with improved self-esteem (Ekeland, Heian, & Hagen, 2005).
- Helps improve sleeping habits and relaxation (PHAC, 2002).
- Helps children feel good about themselves (PHAC, 2002; as cited in Active Healthy Kids Canada, 2009).
- Presents opportunities to practise self-discipline (Government of Nova Scotia, 2010).
- Helps increase creativity, learning and academic performance through improvements in cognitive function (e.g., concentration, memory, problem-solving skills/abilities), reduced misconduct behaviours, and increased attention span (as cited in Active Healthy Kids Canada, 2009).
- Provides opportunities to develop motor/sports skills and life skills (PHAC, 2002).
- Provides opportunities to socialize and make friendships (PHAC, 2002).
- Improves physical competency and global self-esteem, and is helpful in the short-term management of anxiety and depression in children and youth (Active Health Kids Canada, 2010).
- Plays a role in the prevention and risk management for type 2 diabetes, cardiovascular disease, and metabolic syndrome (as cited in Active Healthy Kids Canada, 2009).



What the Research Says

... about the relevance of physical activity for the young child.

According to Active Healthy Kids Canada (2010) physical activity and its importance to health in the early years represent a knowledge gap in Canada and around the world. However, we do know that:

- As little as an additional 60 minutes per week of physical activity has been associated with improved:
 - bone properties (Janz et al., 2001; Specker & Binkley, 2003);
 - aerobic fitness (Alpert, Field, Goldstein, & Perry, 1990); and
 - motor skills in young children (Alpert, Field, Goldstein, & Perry, 1990; Fisher et al., 2005; Haywood, & Getchell, 2005; Saakslanti et al., 1999).
- The majority of the evidence points to the role of physical activity during early years on improving motor skill development, a key factor in the likelihood of participation in physical activity during later childhood and adolescent years (Barnett, van Beurden, Morgan, Brooks, & Beard, 2009; Fisher et al., 2005; Okely, Booth, & Patterson, 2001).
- Movement is an important part of a child's physical, mental and emotional development and one of the important mediums through which young children form impressions about themselves and their surroundings (as cited in Active Healthy Kids Canada, 2009).
- Whatever the setting, children under five require adequate unstructured play and time outdoors for physical, cognitive and emotional development (as cited in Active Healthy Kids Canada, 2010).
- Activity satisfies a child's curiosity of movement (Eastman, 1997).
- Positive feelings are experienced when early childhood educators, parents, and children are involved in physical activity including active play (Eastman, 1997).
- Games and activities encourage interaction among children (as cited in Active Healthy Kids Canada, 2009; PHAC, 2002).
- Enjoyable physical activity experiences promote a positive attitude about active lifestyles (Eastman, 1997; Lawlis, Mikhailovich & Morrison, 2009).



What the Research Says

- Young children solve problems and gain success through challenges and explorations (Eastman, 1997).
- Activities that enhance motor competence (more structured than free play opportunities) among very young children may have tremendous physical and emotional health benefits (as cited in Active Healthy Kids Canada, 2009; Eastman, 1997).
- There is a connection between physical activity and self-esteem among very young children (as cited in Active Healthy Kids Canada, 2009; Ekeland, Heian, & Hagen, 2005).
- Children who have not developed basic movement skills to a point where they are experiencing success are less likely to choose to be physically active. The best time for basic movement skill development is during the early years (as cited in University of Winnipeg, 2004).
- During the first five to seven years of life, children attain basic movement skills initially through maturational changes: e.g. postural adjustments, sitting, crawling, walking, running (Gallahue & Ozmun, 2006).
- Some aspects of activity and fitness levels early on in childhood may carry over into adulthood, when sedentary habits have their impact (Blair, 1992).
- In toddlers, the transition from crawling to standing and walking is a natural and normal part of growing and experiencing movement. Preschoolers explore a broader range of movement as they learn to run, jump, climb, and throw. Informal and friendly play will do much to nurture their love of physical activity (Canadian Fitness and Lifestyle Research Institute, 2005).
- Play and games provide an opportunity for children to learn the consequences of their behaviour (Schaefer & Reid, 2001).



What the Research Says

... about how active young Canadian children are.

Most of the statistics we have relate to children five and over, as it is difficult to assess the activity habits of children less than five years old. However, we do know the following:

- The National Longitudinal Survey of Children and Youth (NLSCY) indicates that only 36% of 2-3-year-olds and 44% of 4-5-year olds regularly engage in unorganized sport and physical activity each week (as cited in Active Healthy Kids Canada, 2010).
- A survey of Edmonton parents indicates that only 42% of preschoolers get 90 minutes of physical activity per day (as cited in Active Healthy Kids Canada, 2010).
- Less than half of Canadian children under five are getting regular physical activity as part of their daily routines (Active Healthy Kids Canada, 2010).
- Many studies suggest that young children are quite inactive and may be at risk for adverse health consequences (as cited in Temple, Naylor, Rhodes, & Higgins, 2009).
- Numerous studies demonstrate that adults and children are more active on warmer days and on days when it is not raining or snowing (as cited by the Canadian Fitness and Lifestyle Research Institute and ParticipACTION, 2010).
- Levels of physical activity decline in children between the ages of 3 and 4-5 years of age (Taylor et al., 2009).
- Nearly half of preschool-aged children do not engage in sufficient physical activity according to NASPE guidelines (Tucker, 2008).
- Various data sources show that children in lower socio-economic circumstances experience lower levels of physical activity and higher levels of inactivity (Active Healthy Kids Canada, 2009, 2010).
- There has been a steady increase in the percentage of children aged 4 to 5 years participating in organized sports at least once per week. However, the overall rate is still hovering around 15% (Active Healthy Kids, 2010, with data derived from the National Longitudinal Survey of Children and Youth).
- 50% of children aged 4 to 5 years participate in unorganized sport once per week. This trend decreased between the late 1990s and 2000; however, it appears to have rebounded in 2002-2003 and 2004-2005 (Active Healthy Kids, 2010, with data derived from the National Longitudinal Survey of Children and Youth).



What the Research Says

... about screen time:

- In 1971, the average age at which children began to watch TV was 4 years; today, it is 5 months (Zimmerman, Christakis, & Meltzoff, 2007).
- A review paper published in early 2009 argues that DVDs and TV shows aimed at infants may be doing more harm than good (as cited in Active Healthy Kids Canada, 2009).
- In today's society, more than 90% of children begin watching TV before the age of 2 in spite of recommendations that say screen time should be zero for children under two, and limited to 1 hour for children 2-5 (Christakis, 2009).
- Data from 2004-2005 indicate that 27% of children aged from 2 to 3 years, and 22% of children aged from 4 to 5 years, are watching more than 2 hours of TV per day. Researchers caution that the flashing lights, quick edits and auditory cuts used in TV shows may be over-stimulating developing brains and therefore negatively affecting language development, attention span and cognitive development (Christakis, 2009).
- Many parents are not concerned with the amount of screen viewing their preschool children engage in. Very few parents seem to appreciate the linkage between preschoolers' screen-viewing habits and their potential risk for obesity (He et al., 2005).
- Screen time, a proxy indicator of overall inactivity and sedentary behaviour, has been associated with reductions in physical health (as cited in Active Healthy Kids Canada, 2009).
- Screen time is associated with increased aggression, reduced academic achievement and cognitive functioning, reduced sleep time, and earlier initiation of high risk behaviours (Active Healthy Kids Canada, 2010).



What the Research Says

... about physical activity in childcare:

- Children in the early years are increasingly spending a large proportion of their time in daycare settings where active play should be commonplace. One US study in a childcare centre setting showed that 89% of children's time was spent being sedentary (Brown et al., 2009).
- A Canadian study done in family childcare settings during the summer months using accelerometers found that the levels of moderate-vigorous physical activity were very low. Although the family childcare settings in the study offered good or very good physical environments for movement, it appears that little time was spent in play that was of moderate or vigorous intensity. The majority of physical activity was of light intensity and many children were sedentary for long periods of time during the day (Temple, Naylor, Rhodes, & Higgins, 2009).
- Additional studies indicated that physical activity levels in childcare settings are low and levels of sedentary behaviour are typically high with long periods physical inactivity common (Freedman et al., 2005; Brown, et al., 2009).
- A study examining the levels of physical activity for preschool children in Calgary found that only 14% of preschool children receive 60 minutes of physical activity per day at their childcare centre, the rest of the centres reported less than 60 minutes of physical activity a day. The questionnaire found that children receive much more unstructured (79%) physical activity compared to structured (42%) (as cited in Anderson, 2008).
- Research indicates that the childcare facility has a very strong influence on young children's physical activity levels (Pate, Pfeiffer, Trost, Ziegler, & Dowda, 2004; Trost, Ward, & Senso, 2010; Cosco, Moore, & Islam, 2010).
- Childcare is an important setting to help young children obtain adequate levels of daily movement (Murata, & Maeda, 2002; McWilliams, Ball, Benjamin, Hales, Vaughn, & Ward, 2009).



What the Research Says

... about gender differences

- Since the inception of the Report Card in 2005, Active Healthy Kids Canada has reported on the gender disparity in physical activity participation for children and youth. This gender disparity in physical activity levels has been demonstrated to be consistent over time from many surveys (Active Healthy Kids Canada, 2010).
- This gender difference may not be as noticeable in younger preschoolers however. One Canadian study done in family child care settings did not demonstrate that boys were more active than girls at age 3. It is suggested that differences in physical activity patterns may emerge during the preschool years and be more noticeable at age 5 (Temple et al., 2009).

... about obesity and fitness

- In Canada, 15.2% of 2-5-year-olds are overweight and 6.3% are obese. This combined percentage has remained virtually unchanged at around 21% in 1978/79 and 2004. However the rates increased dramatically for children aged 6-11 (from 13% in 1978/79 to 26% in 2004) and children ages 12 to 17 (14% in 1978/79 to 29% in 2004) (Shields, 2008).
- There may be some regional differences in the prevalence of preschool obesity. For example, research in Newfoundland and Labrador indicates that 26% of the preschoolers were overweight or obese (Canning et al., 2004)
- Obesity in infancy persists through the preschool years (Mei, Grummer-Strawn, & Scanlon, 2003).
- Children who become obese before the age of six are likely to be obese later in childhood (Quattrin, Liu, Shaw, Shine, & Chiang, 2005).
- An overweight child at any age is at risk of being overweight at 35 years of age (Guo, Huang, Maynard, Demereth, Towne, Chulea, et al., 2000).
- Childhood obesity is associated with an increased risk for metabolic, cardiovascular, respiratory, gastrointestinal, orthopaedic and psychological co-morbidities (as cited in Active Healthy Kids Canada, 2009).
- Studies support the premise that parents are receptive to and capable of some behavioural changes that may promote healthy weight in their young children (Campbell & Hesketh, 2007).
- More than 60 per cent of paediatricians and family doctors identified parents as key barriers to curbing the growing numbers of children who are growing up fat. Those parents are generally overweight themselves and become defensive when the topic of their child's weight is raised (Kirkey, 2010).
- Children 0-6 years of age represent a population subgroup where obesity prevention programs and evidence of effectiveness are limited. This is a concern because opportunities to prevent obesity in later life, through delaying the early and accelerated increase in BMI rather than the natural increase in BMI that occurs within this developmental phase (the "adiposity" rebound), are lost (Flynn, 2006).
- The New England Journal of Medicine reports that, for the first time in history, our children's lifespan could be 2-5 years less than our own (Olshansky, 2005).

What the Research Says

... about children with a disability?

- Approximately half of children with disabilities who participated in of the 2006 *Participation and Activity Limitation Survey (PALS)* took part in organized sports activities (with a coach or instructor) outside of school hours (as cited in Active Healthy Kids Canada, 2009).
- 60% of children with disabilities report that they seldom or never play games with friends (as cited in Active Healthy Kids Canada, 2009).
- Children with disabilities prefer more informal activities and participate in less formal activities than children with typical development. When children with disabilities participate in physical activities, they tended to participate at lower intensity levels than children with typical development. The top 5 most enjoyed activities for children with disabilities were:
 - 1) going to the movies,
 - 2) watching TV or a rented movie,
 - 3) going on a full-day outing,
 - 4) horseback riding, and
 - 5) doing snow sports (King, Petrenchik, Law, & Hurley, 2009).
- Canadian children with intellectual disabilities have lower cardiovascular fitness than Canadian children with typical development (as cited in Active Healthy Kids Canada, 2009).
- Canadian children with activity-limiting conditions visit health professionals more often (as cited in Active Healthy Kids Canada, 2009).



What the Research Says

Guidelines

Canada does not have physical activity guidelines for children under five. While international guidelines vary, the consensus is that all children aged 1-5 years should participate in at least two hours of physical activity every day, accumulated over many sessions and as part of play, games, transportation and recreation (as cited in Active Healthy Kids Canada, 2010: Okely, Salmon, Trost, & Hinkley, 2008).

The key differences in this age group compared to initiatives for older children are a focus on facilitating unstructured play and the importance of getting children outdoors.

Summary of guidelines relating to physical activity and inactivity in infants, toddlers and preschool-age children (Active Healthy Kids Canada, 2010).

Age	Structured Physical Activity	Unstructured Physical Activity (i.e., Play)	Inactivity, Sedentary Time and Screen Time	Environment and Supervision
Infants (<1 year)	<p>Encourage physical activity from birth in order to develop muscular strength and connections between brain and muscles</p> <p>Provide daily opportunities; time is necessary to learn movement skills</p> <p>Encourage parents to attend classes about promoting physical activity during infancy and to attend parent-infant play groups</p> <p>Provide objects, toys and games that encourage infants to move and do things for themselves</p>	<p>Promote physical activity for infants in a way that considers their natural activity patterns, which are typically spontaneous and intermittent</p> <p>Promote gross motor play and locomotor activities that children find fun</p> <p>Promote exploration of the environment</p> <p>Provide a safe, nurturing and minimally structured play environment</p> <p>Develop outdoor activity and unstructured exploration under the supervision of an adult (e.g., walking in the neighbourhood or park, free play)</p>	<p>Ensure that children younger than 2 years do not spend any time viewing television or other electronic media (DVDs, computer and electronic games)</p> <p>Attempt to replace screen time with interactive activities that promote brain development such as singing, talking, playing and reading together</p> <p>Avoid prolonged periods of time where children are in restrained seating such as in a high chair, small playpen, porta-cot, pram or stroller (except when the child is sleeping, of course)</p>	<p>Provide access to safe settings that meet or exceed safety standards, that facilitate physical activity and do not restrict movement for prolonged periods of time</p>
Toddlers (1-3 years)	<p>Encourage toddlers to accumulate 30 minutes of structured physical activity daily</p> <p>Encourage physical activity throughout the day in line with the natural intermittent and spontaneous activity patterns of this age group</p> <p>Ensure that the activities are fun and occur primarily through physical activity play but also as part of games, transportation, leisure and planned activities</p>	<p>Ensure that toddlers get 60 minutes and up to several hours of daily, unstructured physical activity</p> <p>Provide a safe, nurturing and minimally structured play environment</p> <p>Develop outdoor activity and unstructured exploration under the supervision of an adult (e.g., walking in the neighbourhood or park, free play)</p>	<p>Ensure that toddlers get no more than 60 consecutive minutes sedentary time except when sleeping</p> <p>Ensure that children younger than 2 years of age do not spend any time viewing television or other electronic media (DVDs, computer and electronic games)</p>	<p>Provide access to indoor and outdoor areas that meet or exceed recommended safety standards for performing large muscle activities</p>
Preschoolers (3-5 years)	<p>Encourage preschoolers to accumulate 60 minutes of daily structured physical activity</p> <p>Encourage activity that helps child develop competence in movement skills that are building blocks for more complex movement tasks</p> <p>Ensure that activities are appropriate for each child's developmental level and physical health status</p> <p>Avoid accelerating motor development to maximize subsequent sports ability</p> <p>Assess readiness to participate in organized sports on an individual basis from age 6 onwards</p> <p>Focus on participation and not competition</p>	<p>Encourage preschoolers to accumulate 60 minutes and up to several hours of daily, unstructured physical activity</p> <p>Emphasize physical activity as a lifelong activity of healthy living</p> <p>Promote free play and the development of fundamental motor skills</p> <p>Promote unstructured play at home, in school, in child care settings, and throughout the community</p> <p>Ensure that free play is fun and allow for exploration and experimentation with adequate safety measures in place</p> <p>Include few variables and instruction in unorganized play</p> <p>Encourage this age group to walk tolerable distances instead of using a pram or stroller</p>	<p>Avoid periods of 60+ consecutive minutes of sedentary activities except when sleeping. Limit media time to no more than 1 to 2 hours per day of quality programming</p> <p>Remove TV sets from bedrooms</p> <p>Encourage alternative activities such as reading, athletics, hobbies and creative play</p> <p>Reduce sedentary transportation by car and stroller</p>	<p>Provide access to play spaces and equipment outdoors. Encourage adult facilitation (including modelling) that provides skilllearning experiences and contingent feedback about those experiences</p> <p>Provide access to indoor and outdoor areas that meet or exceed recommended safety standards for performing large muscle group activities</p> <p>Encourage parents to act as role models by participating in regular physical activity themselves</p>

What the Research Says

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