

## PedsCases Podcast Scripts

This is a text version of a podcast from PedsCases.com on “Physical Activity and Sedentary Behaviour in Children.” These podcasts are designed to give medical students an overview of key topics in pediatrics. The audio versions are accessible on iTunes or at [www.pedcases.com/podcasts](http://www.pedcases.com/podcasts).

### **Physical Activity and Sedentary Behaviour**

Developed by Kim Connors and Dr. Mel Lewis for PedsCases.com.  
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Kim: Hi, my name is Kim Connors, I'm a medical student at the University of Alberta.

Dr. Lewis: Hi, I'm Dr. Mel Lewis, a pediatrician at the Stollery Children's Hospital at the University of Alberta.

Kim: Today we will be discussing the importance of physical activity and limiting sedentary time in children. As most are aware, childhood overweightness and obesity are increasing in Canada at an alarming rate (Lipnowsky & LeBlanc, 2012).

At the end of this podcast, the learner should be able to:

1. Understand the importance and benefits of physical activity in children and adolescents, including and extending beyond weight management.
2. Explain the current Canadian guidelines for physical activity and sedentary behaviour in children and adolescents.
3. Discuss the epidemiology of physical activity in children and adolescents across Canada; and,
4. Suggest methods to implement physical activity counselling into routine well-child check-ups.

To begin, we will present a clinical case.

You are a third year medical student completing your family medicine rotation. You are asked to see Charlie, a 7 year old male presenting for his well-child visit. Charlie has been healthy and his parents have no concerns, however they explain that Charlie often struggles to keep up in gym class, and prefers playing video games instead of playing outside. Subsequent examination reveals that Charlie is overweight and his body mass index (BMI) falls within the 85th-95th percentile for boys his age. Charlie's heart rate is 96 beats per minute, respiratory rate 20 breaths per minute, and blood pressure 104/68 mmHg. Charlie displays no other complications that may arise from overweightness or obesity, such as signs of diabetes mellitus, liver disease or arthritis (Champagne & Jetha, 2011). However, you are concerned that Charlie's weight may continue to increase, and proceed to counsel Charlie and his parents that modifiable risk factors

such as physical activity and sedentary behaviour are key determinants of weight status in children, and that the benefits extend beyond weight management (ParticipACTION, 2016; Tremblay et al., 2011; Tremblay et al., 2016).

Dr. Lewis: That's right Kim, regular physical activity offers a whole range of benefits and is recognized as an effective preventative intervention for many health risks in all ages, genders, ethnicities and socioeconomic groups (Tremblay et al., 2011; ParticipACTION, 2016; CSEP Guidelines for Early Years and Childhood/Adolescence, 2016). Regular physical activity helps kids:

- Maintain a healthy body weight
- Increase lean body mass and promote bone density
- Improve blood cholesterol levels and blood pressure
- Improve gross motor skills and physical literacy, and
- Increase muscular strength and cardiorespiratory fitness

Kim: In addition to these physical benefits, kids and adults who participate in regular physical activity can:

- Improve mental health, self confidence and overall happiness
- Foster friendships, and
- Improve academic performance

What's even more important is if we help kids develop healthy habits such as physical activity when they are young, they are more likely to adopt these behaviours long-term, and grow up into healthy adults.

Dr. Lewis: While any amount of physical activity is beneficial, extensive research has identified minimum daily recommendations in order to achieve the optimal benefits.

Kim: Traditional physical activity guidelines have focused on increasing the duration of physical activities while decreasing the amount of sedentary behaviour. Most recently, there has been a new push for overall balance between daily behaviours, including physical activity such as active transportation, active play and organized sport; sedentary behaviour, and sleep (ParticipACTION, 2016; Tremblay et al., 2016).

- Infants less than 1 year should be physically active several times a day through interactive floor-based play, tummy time, playing with toys, rolling on the floor, and crawling around the home (Colley et al., 2013).
- Toddlers and preschoolers ages 1-4 y should accumulate at least 180 minutes a day of physical activity of any intensity in a variety of different environments with a gradual increase in intensity with age (Colley et al., 2013).
- Children and adolescents ages 5-17 should accumulate at least 60 minutes of moderate-to-vigorous physical activity per day, including vigorous activities at least three times per week and strength building activities three times per week (Colley et al., 2013; Tremblay et al., 2016)

What's more, there is a dose-response relationship wherein increased volumes of moderate-to-vigorous physical activity are associated with increased health benefits, however most benefits are evident in the first 60 minutes of physical activity per day (Tremblay et al, 2011). For more information, please see our chart included in the PedsCase podcast script.

Dr. Lewis: The challenge we face as physicians is that very few Canadian children obtain enough physical activity. While approximately 70% of young children ages 3-4 years get the recommended amount of daily physical activity, only 9% of youth ages 5-17 years meet the guidelines (CHMS, 2012/13). The problem extends beyond physical activity; only 24% of children aged 5-17 years stay under the recommended limit of 2 hours of recreational sedentary screen time (CHMS, 2012/13).

Kim: Wow, that's shocking! What can we do to help?

Dr. Lewis: Family physicians and pediatricians are in a great position to positively influence the health of their patients and their patients' families. Unfortunately, in a survey, less than half of pediatricians who perform well-child visits reported "almost always" making counseling recommendations regarding physical activity and sedentary behaviour (Colley et al., 2013). There are many ways physicians can promote healthy active living, such as (Lipnowsky et al., 2012; ParticipACTION, 2016):

- Determining sources of physical activity and documenting active and sedentary time for families
- Involving the entire family by encouraging active weekend activities like tobogganing, skating and hiking
- Encouraging active transportation such as walking and bike riding to school
- Identifying and rectifying barriers, such as lack of time, to family physical activity by incorporating it into routine
- Encouraging parents to become active role models
- Encouraging parents to support their children to pursue their preferred sport and recreational activities
- Discouraging recreational screen time by limiting use of TV, video games, cell phones and computers in children's bedrooms

Kim: In addition to directly counseling patients and their families about physical activity, physicians can also positively influence physical activity within the community through:

- Working with school systems to implement daily physical education and curriculum modification to include physical activity and nutrition
- Advocating for infrastructure changes for more walkable communities with increased number of parks and safe play spaces
- Continual research to facilitate regular updates and revisions to the Canadian Physical Activity Guidelines for children and youth
- Fostering collaboration between exercise and medical professionals to develop exercise prescriptions

- Emphasizing physical activity and nutrition counseling in medical school and residency

Dr. Lewis: That's right; while physicians have an important role to play in promoting healthy behaviours such as physical activity, making big changes requires the involvement of the entire community. Working together as a team, hopefully we can help all kids to have healthy childhoods leading to healthy adulthoods.

Kim: We'll now revisit our clinic case with Charlie and his parents.

After explaining the importance of regular physical activity, you explore sources in the family's life. You learn that Charlie lives a fifteen-minute walk away from his elementary school, and his parents agree to try to walk or bike with Charlie rather than dropping him off with the car. Charlie also reveals that he is interested in playing soccer in his community and that a group of his friends have started playing at recess too. He agrees to limit his video game play to 20 minutes per day, after he's played outside with the neighbourhood kids. You encourage these small changes and stress the importance of Charlie's parents becoming active too, which they enthusiastically agree to. You arrange for a follow-up well-child visit in one year's time to monitor Charlie's weight and his physical activity.

So in summary, there are a few key points to know about physical activity in children and adolescents:

- Regular physical activity offers numerous physical and mental health benefits for kids and adults alike.
- Obtaining these full benefits requires a minimum amount of daily physical activity, as outlined in national guidelines according to age.
- Very few children and adolescents meet the daily recommendations for physical activity and are thus missing out on some of the benefits.
- Physicians have an integral role to play in promoting healthy behaviours such as physical activity and advocating for change to increase physical activity.

That concludes our presentation on physical activity in children and adolescents.  
Thanks for listening!

Physical Activity, Sedentary Behaviour and Sleep Guidelines (Tremblay et al., 2011; ParticipACTION, 2016; Colley et al., 2013, CSEP Guidelines; Canadian Sleep Society, 2012)

	Light Physical Activity	Moderate to Vigorous Physical Activity	Sedentary Behaviour	Sleep
Infants (0-1 y)	Unstructured physical activity of any intensity several times daily.		Avoid screen time.	Minimum 10-11 h total (including naps)
Toddlers (1-2 y)	At least 180 minutes physical activity of any intensity per day.		Avoid screen time.	Minimum 10-11 h total (including naps)
Preschool (3-4 y)	At least 180 minutes physical activity of any intensity per day.		Less than one hour of screen time per day.	Minimum 10-11 h total (including naps)
Childhood (5-11 y)	Several hours of various structured and unstructured low intensity physical activities.	At least 60 minutes per day including aerobic activities, plus vigorous physical activities, and strength activities at least 3 times per week.	Less than two hours of recreational screen time per day.	9 to 11 hours uninterrupted sleep per night for 5-13 years with consistent bed and rising times.
Adolescence (12-17 y)	Several hours of various structured and unstructured low intensity physical activities.	At least 60 minutes per day including aerobic activities, plus vigorous physical activities, and strength activities at least 3 times per week.	Less than two hours of recreational screen time per day.	8 to 10 hours uninterrupted sleep per night for 14-17 years with consistent bed and rising times.

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