

1 Rapid brain growth

Between 0 and 2 years, infant's brains triple in size, and continue in a state of rapid development to 21 years of age (*Christakis 2011*). Early brain development is determined by environmental stimuli, or lack thereof. Stimulation to a developing brain caused by over exposure to technologies (cell phones, internet, iPads, TV), has been shown to negatively affect executive functioning, and cause attention deficit, cognitive delays, impaired learning, increased impulsivity, and decreased ability to self-regulation e.g. tantrums (*Small 2008, Pagini 2010*).

2 Delayed Development

Technology use restricts movement, resulting in delayed development. One in three children now enter school developmentally delayed, negatively impacting on literacy and academic achievement (*HELP EDI Maps 2013*). Movement enhances attention and learning ability (*Ratey 2008*). Use of technology under the age of 12 years, is detrimental to child development and learning (*Rowan 2010*).

3 Epidemic Obesity

TV and video game use correlates with increased obesity (*Tremblay 2005*). Children who are allowed a device in their bedrooms have 30% increased incidence of obesity (*Feng 2011*). One in four Canadian, and one in three U.S. children are obese (*Tremblay 2011*). 30% of children with obesity, will develop diabetes, and be at risk for early stroke and heart attack, gravely shortening life expectancy (*Centre for Disease Control and Prevention 2010*). Due to obesity, 21st century children may be the first generation many of whom will not outlive their parents (*Professor Andrew Prentice, BBC News 2002*).

4 Sleep Deprivation

60% of parents do not supervise their child's technology usage, and 75% of children are allowed technology in their bedrooms (*Kaiser Foundation 2010*). 75% of children aged 9 and 10 years are sleep deprived to the extent that their grades are detrimentally impacted (*Boston College 2012*).

5 Mental Illness

Technology overuse is implicated as a causal factor in rising rates of child depression, anxiety, attachment disorder, attention deficit, autism, bipolar disorder, psychosis, and problematic child behavior (*Bristol University 2010, Mentzoni 2011, Shin 2011, Liberatore 2011, Robinson 2008*). One in six Canadian children have a diagnosed mental illness, many of whom are on dangerous psychotropic medication (*Waddell 2007*).

6 Aggression

Violent media content causes child aggression (*Anderson 2007*). Young children are increasingly exposed to rising incidence of physical and sexual violence in today's media. Grand Theft Auto V portrays explicit sex, murder, rape, torture, and mutilation, as do many movies and TV shows. The U.S. has categorized media violence as a Public Health Risk due to causal impact on child aggression (*Huesmann 2007*). Media reports increased use of restraints and seclusion rooms with children who exhibit uncontrolled aggression (*Vancouver Sun 2013*).

7 Digital dementia

High speed media content causes attention deficit, as well as decreased concentration and memory, due to the brain pruning neuronal tracks to the frontal cortex (*Christakis 2004, Small 2008*). Children who can't pay attention, can't learn.

8 Addictions

As parents attach more and more to technology, they are detaching from their children. In the absence of parental attachment, detached children attach to devices, resulting in addiction (*Rowan 2010*). One in 11 children aged 8-18 years are addicted to technology (*Gentle 2009*). Never in the history of humankind have there been child addictions.

9 Radiation emission

In May of 2011, the World Health Organization classified cellphones (and other wireless devices) as a category 2B risk (possible carcinogen) due to radiation emission (*WHO 2011*). James McNamee with Health Canada in October of 2011 issued a cautionary warning stating "Children are more sensitive to a variety of agents than adults as their brains and immune systems are still developing, so you can't say the risk would be equal for a small adult as for a child" (*Globe and Mail 2011*). In December, 2013 Dr. Anthony Miller from the University of Toronto's School of Public Health recommend that based on new research, radio frequency exposure should be reclassified as a 2A (probable carcinogen), not a 2B (possible carcinogen). American Academy of Pediatrics requested review of EMF radiation emissions from technology devices, citing 3 reasons regarding impact on children (*AAP 2013*).

10 Unsustainable

The ways in which children are raised and educated with technology are no longer sustainable (*Rowan 2010*). Children are our future, but there is no future for children who overuse technology. A team based approach is necessary and urgent in order to reduce the use of technology by children.

Share below slides shows and refer to www.zonein.ca for those who are concerned about technology overuse by children. View the [Zone'in Fact Sheet](#) for fully referenced research.

Problems – Suffer the Children – 4 minutes

Solutions – Balanced Technology Management – 7 minutes.

Strategies for Reducing the Use of Technology

Try one of the following strategies to better manage balance between technology use and healthy activity, for your whole family!

- 1) Disconnect to reconnect by creating 'sacred' times without technology:
 - an hour a day (dinner), day a week (Saturday), and week a year (family holiday)
 - while driving in the car, and hour before bed, and when eating at restaurants
- 2) Balance 'energy in' (technology) with 'energy out' (movement, touch, connection, nature). An hour 'in' = 'out'.

Start Healthy Activities for Your Whole Family!

Ride bikes, go for a walk in the woods, chop and pack wood, go fishing, go swimming, visit family and friends, do jobs around the house, build a fort out of couch cushions or under the table, prepare and eat dinner as a family, paint, color, make crafts, dance, play wrestle, listen to music, play cards or a board game, invent your own game, make up silly stories or rhymes, garden, play tag or hide and seek, read books, play a sport, make cookies, do chores...but do it as a family...TOGETHER!

About Author: Cris Rowan is an occupational therapist and biologist, who has specialized in paediatric rehabilitation. Cris is CEO of Zone'in Programs Inc. offering products, workshops and training to improve child health and enhance academic performance. Cris designed Zone'in, Move'in, Unplug'in, and Live'in educational products for elementary children, and has performed over 200 Foundation Series Workshops in North America.

Technology Use Guidelines for Children and Youth
 The following guidelines for technology use by children and youth were developed by Cris Rowan pediatric occupational therapist and author of *Virtual Child*, Dr. Andrew Doan neuroscientist and author of *Hooked on Games* and Dr. Hilarie Cash, Director of reSTART Internet Addiction Recovery Program and author of *Video Games and Your Kids*, with contribution from the American Academy of Pediatrics and the Canadian Pediatric Society in an effort to ensure sustainable futures for all children.

| Developmental Age | How Much? | Non-violent TV | Handheld devices | Non-violent video games | Violent video games | Online violent video games and or pornography |
|-------------------|-------------|----------------|------------------|-------------------------|---------------------|---|
| 0-2 years | none | never | never | never | never | never |
| 3-5 years | 1 hour/day | ✓ | never | never | never | never |
| 6-12 years | 2 hours/day | ✓ | never | never | never | never |
| 13-18 years | 2 hours/day | ✓ | ✓ | limit to 30 minutes/day | never | never |

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10 reasons why handheld devices should be banned for children under the age of 12

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 February 24, 2014



American Academy of Pediatrics and the Canadian Society of Pediatrics state infants aged 0-2 years should not have any exposure to technology, 3-5 years be restricted to one hour per day, and 6-18 years restricted to 2 hours per day (AAP 2001/13, CPS 2010). Children and youth use 4-5 times the recommended amount of technology, with serious and often life threatening consequences (Kaiser Foundation 2010, Active Healthy Kids Canada 2012). Handheld devices (cell phones, tablets, electronic games) have dramatically increased the accessibility and usage of technology, causing escalating usage, especially by very young children (Common Sense Media, 2013). Following are ten research evidenced reasons for this ban.