

Technology Overuse in Children and Youth: Information for Primary Care



Image credit: Adobe Stock

Summary: Studies confirm that when human beings spend excess time in front of screens, it can cause all manner of problems, including insomnia, depression, anxiety, and attention difficulties. Many terms have been proposed to describe exposure to excessive screen time, such as “electronic screen syndrome” (Dunckley, 2015), as well as conventional terms such as “video gaming addiction” (DSM). Treatment for excessive screen time includes 1) re-connecting the child to fellow human beings and healthier non-electronic activities; 2) removal of screen time, which can be done gradually, or abruptly. After all screen time is removed, it is recommended that the child/youth be given a ‘screen detox’ period of 3-4 weeks, during which time the brain can recover and improvements should be seen with mood, anxiety, and attention. If issues persist, then explore and address other possible issues such as depression, anxiety, ADHD and autism spectrum disorder.

Case Part 1

Dave is a 16-yo male brought to see you by parents due to concerns about his mood and problems with inattention. In the waiting room, both Dave and father are absorbed in their devices. In your office, Dave continues to use his device, and you have to gently ask him to give it up.

Father: “His teachers say he can’t focus in school. At home, he probably does play a bit too much video games, but isn’t that like all kids these days?”

Further history reveals he has about 7 hrs a day of recreational screen on weekdays, with more on weekends... What are you going to do?

Introduction

There is no doubt that modern technology has benefitted our lives in many ways, however the problem with modern technology is that today’s smartphones, video games and screens have been purposely designed to be engaging, pleasurable, and addictive.

Recreational screens give the brain a release of dopamine and adrenaline, which explains how some people can spend several hours a day on their devices.

However, research shows that what humans require for wellness is:

- Secure connections to people, in particular parents and caregivers

- Nature
- Other activities and things which give hope, meaning, purpose and belonging
- People spend long periods of time seduced by screens because technology provides dopamine, adrenaline and the promise of social connection

Unfortunately, this gets in the way of healthier connections to activities that give purpose, belonging, hope and meaning such as people and nature. Screens do not provide our brains what only face-to-face contact can provide: empathy, love and oxytocin.

Terms

Many terms have been used to describe the related phenomenon of “social media addiction”, “internet addiction”, “video gaming addiction”, however given the constantly evolving nature of technologies, this article will use the more general term of “technology overuse”, or “electronic screen syndrome” (Dunkley, 2015).

Epidemiology

Today’s children/youth are exposed, on average, to several-fold higher levels of technology and screen-based media compared to previous generations (Dunkley, 2015).

Age Group	Average Use	Negative Effects of Use
Toddlers and children (aged 2-6)	Spend 2-4 hours a day in front of a screen (Christakis et al., 2004).	Toddlers that watch the most TV perform worse at school and consume more junk food (Pagani, 2010).
Children and youth (aged 8-18)	Spend nearly 7 hours and 38 minutes a day in front of a screen (Rideout et al., 2010). As much as 1 hr/day of recreational screen time shows negative effects, i.e. increase risk of aggression in adulthood by 4X.	Over 2 hr/day at a screen leads to a 60% higher risk of psychological problems (Page, 2010). Even 1 hr/day on social media is linked to less life satisfaction (McDool, 2016).
Adults (aged 18-29)	Average adult watches 5-hrs of daily television (Nielsen Survey, 2014).	20% of adults report problematic use of their electronic devices, as defined by 3 or more (out of 6) symptoms that indicate problematic use (CAMH Monitor 2015).

Why is Technology so Addictive?

Humans have origins as hunter-gatherers, and as such our brains are hardwired to enjoy sensory stimulation.

Modern technologies (i.e. smartphones and video games) have been purposely designed to be addictive by providing multi-sensory stimulation, triggering our brains to release adrenaline and dopamine, which creates a pleasurable, addictive feedback loop.

Even primitive, rudimentary video games back in 1998 raise the level of brain dopamine by 100% (equivalent to engaging in sexual activity) (Koepp, 1998).

Over time, technologies have only gotten more addictive:

- Television: Although television in the past was not terribly engaging, newer ways of providing content such as through Netflix can be incredibly addictive which leads many people to “binge-watch” shows, in a way that was simply not possible in the past.
- Internet
- Social media such as emailing, texting and social networks (e.g. Facebook, Twitter, Instagram, and SnapChat).

- Video games, including:
 - First person shooters (FPS), such as “Call of Duty”, “Halo”, or “Overwatch”.
 - Massive multiplayer online role playing games (MMORPG), such as “World of Warcraft”.
 - Multiplayer online battle arena (MOBA) games, such as “League of Legends”.
 - Construction and management simulation (CMS) games, such as “Minecraft”.

Screening for Technology Overuse

Questions for Parents (Dunckley, 2015)

- Does your child/youth become irritable when told it’s time to turn off the device?
- Is your child/youth having meltdowns over minor frustrations? Is your child having full-blown rages or tantrums?
- Does your child/youth have difficulty with eye contact during or following screen-time?
- Would you describe your child/youth as being difficult to pull away from screens? Is your child/youth drawn to screens?
- Do you worry your child/youth is not enjoying activities like (s)he used to?
- Do you worry your child/youth has interests that mainly revolve around technology?
- Is your child/youth performing up to his/her academic potential?
- Is your child receiving services, interventions, or treatments that don’t seem to be helping?

Questions for Child/Youth (CAMH, 2015)

- Have you tried to cut back on your use of electronic devices?
- Have family members expressed concern about the amount of time you use electronic devices?
- Have you missed school, work, or important social activities because you were using electronic devices?
- Do you think you have a problem with excessive use of electronic devices?
- Have you experienced an irresistible urge or uncontrollable need to use electronic devices?
- Do you experience a growing tension or anxiety that can only be relieved by using electronic devices?

Clinical Presentation

Excessive screen time has been associated with all manner of problems, including:

Impairment with school and work

- In older youth and young adults, the patient may have troubles transitioning to normal adult life, with signs such as living in the basement without a job, no plans for school and no real life friends.

Insomnia

- Trouble sleeping/oversleeping
- Mechanisms include: melatonin suppression (secondary to excessive blue light exposure from electronic screens); cognitive/emotional stimulation; and ‘fear of missing out’, i.e. feeling a need to be available late at night to respond to a text or email otherwise one is ‘missing out’.

Mood problems

- Depressed mood
- Mood swings
- Anger, irritability, low frustration tolerance
- Anxiety

Attention problems

- Inattention

- Distractibility
- Hyperactivity
- Impulsivity

Hallucinations

- “Game Transfer Phenomenon” (GTP), which is seeing or hearing sounds from games in the person’s real life, e.g. hearing the school bell and thinking it is the chime from a video game.

Preoccupation with technology

- Child/youth prefers to spend time with technology to the exclusion of healthier attachments and activities, e.g. prefers to play video games than participate in non-electronic family activities, play outside, be with friends outside, etc.
- Lack of interests other than screens
- Using screens for self-regulation, e.g. youth reports “Video games help me relax”
- Peer group that is technology-focused, e.g. “All my friends play video games”

Social

- Prefers online connection to face-to-face connection with others
- Trouble socializing with others unless technology is involved

Physical complaints

- Problems with being overweight or obesity
- Physical deconditioning, e.g. easily fatigued, troubles with physical activity

Assessment: Taking a Technology / Digital Media History

Ask the child/youth (while looking at parents for additional information in case the child/youth is underreporting)

Ask parents

- “On a typical weekday, what sorts of technology do you use? (e.g. smartphone, game console, computer, social media, watching videos, etc.)
- “How much time do you spend on each device?”
- “Where do you use your device?”
- “When do you use your device?”
- “For example, do you use it at night?”
- “What does your smart, computer, video games give you?” “What’s your main reason for using them?”
- Typical answers:
 - Boredom
 - Social activities (which family activities)
- “What’s the worst thing that has happened to you online?”
- Ask specifically about cyber-bullying
- Ask specifically about regrets (i.e. posting, sexting, etc)
- “What do you know about the various technologies your child uses?”
- “Do you talk with your child about their media use?”
- “What are the rules in the house about technology use?”
- “What conflicts arise? What are the consequences?”

Taking an Attachment Inventory History

The attachment history helps to understand what sorts of non-electronic things (i.e. people, activities) the child/youth is connected to, and knowing this is helpful in order to plan how to:

- Disconnect from unhealthy things (such as excess technology) and unhealthy peers, and
- (Re)connect to healthy things (like 1:1 time with caring adults, nature, volunteer work, healthy activities).
- Sample questions:
 - “Walk me through a typical day... How do you spend your day?”
 - “What are the activities that you spend time on every day?”
 - “Who are the people that you are the closest to?”

DSM-5 Diagnosis

DSM-5 does not recognize video gaming or technology addiction per se, though it does recognize Internet Gaming Disorder

Internet Gaming Disorder (DSM-5):

Repetitive use of Internet-based games, often with other players, that leads to significant issues with functioning.

Five of the following criteria must be met within one year:

1. Preoccupation or obsession with Internet games.
2. Withdrawal symptoms when not playing Internet games.
3. A buildup of tolerance – more time needs to be spent playing the games.
4. The person has tried to stop or curb playing Internet games, but has failed to do so.
5. The person has had a loss of interest in other life activities, such as hobbies.
6. A person has had continued overuse of Internet games even with the knowledge of how much they impact a person’s life.
7. The person lied to others about his or her Internet game usage.
8. The person uses Internet games to relieve anxiety or guilt—it’s a way to escape.
9. The person has lost or put at risk an opportunity or relationship because of Internet games.

If the criteria for Internet Gaming Disorder were adapted to Technology Overuse, one could imagine the following criteria for Technology Use Disorder

Technology Use Disorder:

Repetitive use of technology (e.g. video games, computers, cell phones, tablets, etc), that leads to significant issues with functioning.

Five of the following criteria must be met within one year:

1. Preoccupation or obsession with technology.
2. Withdrawal symptoms when not using technology.
3. A buildup of tolerance – more time needs to be spent using technology.
4. The person has tried to stop or curb using technology, but has failed to do so.
5. The person has had a loss of interest in other life activities, such as hobbies.
6. A person has had continued overuse of technology even with the knowledge of how much they impact a person’s life.
7. The person lied to others about his or her technology use (e.g. online games).
8. The person uses technology to relieve anxiety or guilt (e.g. when upset, person uses technology to soothe).
9. The person has lost or put at risk an opportunity or relationship because of using technology.

Differential Diagnosis (DDx) of Technology Overuse

Technology overuse can:

- Occur on its own, without any other psychiatric conditions and mimic a psychiatric condition (such as ADHD,

mood/anxiety problems), in which case, symptoms should resolve with screen detox.

- Worsen an underlying psychiatric condition such as ADHD, mood/anxiety disorder, or sensory processing disorder, in which case, symptoms should improve with screen detox.
- If the ADHD or mood/anxiety is primary, then there will hopefully be a history of symptoms preceding screen time use
- Unfortunately, with earlier and earlier use of excess technology, it is becoming increasingly difficult to ascertain which is primary or secondary

The good news: when properly done, screen detox is a safe way to find out.

Comorbid Conditions

While technology overuse may co-occur with many conditions, certain conditions may be associated with a higher risk of technology overuse, such as:

- Attention deficit hyperactivity disorder (ADHD): Individuals with ADHD tend to be sensory seeking, which leads to the attraction of screens.
- Autism spectrum disorder (ASD): Individuals with ASD may have troubles connecting with people, and as a result, technology offers an easy distraction in the short run. The problem however, is that especially with ASD, their brains need exposure to face-to-face social interaction to help wire their brains, which is lacking with screens.
- Anxiety and depression: Individuals with anxiety and depression may struggle to socially connecting with others, and hence turn to technology such as social media to try to connect. It can then become a vicious cycle as excessive social media use worsens mood.
- Sensory processing disorders (SPD): Individuals with SPD are easily overloaded by sensory input such as sound, touch, or smell. As a result, individuals with SPD are even more sensitive to having sensory overload from using recreational screens.

Physical Exam (Px)

There are a variety of non-specific findings that might be seen, such as:

- Problems with weight due to physical inactivity.
- Fatigue from sleep deprivation.
- Child/youth using devices in the waiting room, as opposed to talking with each other.
- Child/youth that can't put down the device even during the office visit, e.g. wanting to continue playing or texting with others.
- Repetitive stress injury from excess texting or video game use

Investigations

- There are no diagnostic tests for technology overuse.
- However, red flags seen in the waiting room or clinic visit would be a child/youth who is unable to tolerate even short periods of time without using a device of some sort.

Number of Visits

First visit: The first visit is likely a short visit (10-15 minutes) where the child/youth is brought for other issues, but then the parent reports problems with technology overuse in the child.

Subsequent visits: At the subsequent visits, ideally book 30-minutes or longer to deal with assessment, education, and management of technology overuse.

Technology Restriction

Various studies have looked at the effects of technology restriction on various problems:

- Depression:
 - One study showed that stopping social media use led to improvements in mood.
- For social skills
 - In children with social skills problems, five days at an outdoor education camp without screens improved their non-verbal skills (e.g. reading facial expressions) (Uhls, 2014).

How much technology is too much?

Studies show that children who play video games more than 20-hrs a week begin to have brain changes that resemble drug addiction. “[Children playing video games more than 20-hrs a week] showed increased glucose metabolism in the right orbitofrontal gyrus, left caudata, and right insula after play. Decreased metabolism was seen ... while at rest. These patterns were similar to those seen in drug addicts ... suggest[ing] that online gaming may be addictive to the genetically vulnerable.” (Burke, 2010).

It is for this reason that 20-hrs/week (i.e. 3-hrs a day) may be too much, and if anything, probably the less the better. Unfortunately, the average is 7.5 hrs/day of recreational screens for the average American (Pew Internet Study, 2011).

Prevention of Technology Overuse including Screen Use Guidelines

Organizations such as the American Academy of Paediatrics (AAP) and the Canadian Pediatric Society (CPS) have guidelines for screen use.

In general, screen guidelines make recommendations about screen usage that are maximal limits. Evidence suggests that ‘less is more’ -- this allows children/youth time to participate in more useful activities such as being outside, or having face-to-face contact with others.

Given ‘less is more’, this article promotes Dr. Kimberly Young’s 3-6-9-12 Parenting Guidelines.

Technology Use by Age According to Dr. Kimberly Young

Age 0-2	No technology No TV, no handheld screens or devices, no video games (violent or non-violent), no background exposure Children/youth of all ages need face-to-face time and infants especially.
Age 2-4	Limit to less than 1-hr of recreational screen time a day, and ideally none If parents can raise their children as much as possible with minimal screens, then the child will learn how to keep themselves occupied and make their own adrenaline/dopamine
Age 3-5	Up to 1-hr daily maximum recreational screen time, where less is better Permitted: TV (non-violent), eReader for storytime, electronic toys No handheld devices (e.g. no smartphones, no iPads) No video games
Age 6-9	Weekdays No recreational technology, except for computer-use for schoolwork Weekends 2-hr maximum recreational screen time per day Permitted: TV (non-violent), internet under supervision, active video games
Age 9-12	2-hr maximum recreational screen time per day Permitted: Internet under supervision No use outside of parental supervision No access to online games

Age 12-18

Youth is permitted to have recreational screen time provide that the youth is meeting his/her responsibilities (e.g. school and home) and have healthy connections (e.g. peers, nature and other activities)

Management of Technology Overuse: In Summary

In theory, the treatment is simple -- screen detox (i.e. removal of electronics) for at least 3-4 weeks.

For mild to moderate overuse, stopping 'cold turkey' can be tried.

- For example, the family tells the child they are going away on a 1-week family camping trip, and it just so happens that there is no internet

For moderate to severe overuse, a more gradual reduction might be recommended.

- For example, over a period of weeks, parents gradually reduce the amount of allowable screen time
- The goal is to reach a 3-4 week period of "screen detox" without any electronics.
- After removal of electronics, children's symptoms of technology overuse (such as moodiness, inattention, sleep problems) start to improve (Dunckley, 2015).

Management of Technology Overuse: In Detail

Motivational enhancement strategies are helpful for technology overuse, as it is similar to other behavioural addictions. For example, do not start with telling parents (or the youth) what to do, but ideally try to form an alliance and agree on mutual goals.

Meet alone with the parents

- Most youth will be opposed to reducing screen time, and thus, it helps to start with parents and ensure they are in agreement:

Summarize parent's concerns

- Introduction
 - Clinician: "Thank you for coming today. You have told me that you are concerned about your son's moods and sleep."
- Ask what parents think might be the problem
 - Clinician: "Did you have any particular ideas about what might be helpful?"

Explain your concerns about excess technology as being a contributor

- Connection (before direction)
 - Clinician: "As a society, we all love our devices. After all, they allow us to do all sorts of incredible things."
- Talk about the neuroscience
 - Clinician: "Unfortunately, studies show that we are seeing a rise in problems such as troubles sleeping, troubles with attention, and troubles with depression and anxiety in our modern society. And in many people, it is excess screen time that may be causing, or in the least contributing to this."
- Correction
 - Clinician: "I believe that reducing screen time will be helpful for your child. How does that sound to you?"
- Address any concerns that parents may have
 - Clinician: "Did you have any particular questions/concerns about that?"

At the suggestion of limiting technology, parents may experience:

- Feelings of being overwhelmed

- Parent: "It'd be impossible to reduce screen time in our household. Letting them play video games is the only thing that keeps them busy so that I can get the chores done."
- Fear over child's reaction
 - Parent: "I'm worried my child will get depressed, or have a tantrum."
- Guilt
 - Parent: "I knew it was all my fault."
- Genuine concerns
 - Parent: "How will my child fit in with peers? They only connect through technology these days."
- Doubt that electronics are the problem

Pre-contemplative strategies with parents

- If parents are not yet ready to make changes, then use pre-contemplative strategies such as:
 - Validation
 - Clinician: "I can appreciate, that at this point, you don't feel that there is a need to make changes. How else can I support you?", e.g. you can find other goals to work on with the family, such as family communication or family dinners."
 - Cost-benefit analysis
 - Clinician: "What would be the advantages of cutting back?"
E.g. improved mood/concentration; less need to pay for medications or therapists
 - Clinician: "What would be the disadvantages / challenges with cutting back?"
E.g. how to occupy their time? ; how else to connect with peers?
- Identifying other support (or lack of support)
 - Clinician: "Any people that would be helpful to help you in cutting back on screen use?"
 - Clinician: "Any people that might be an obstacle for cutting back on screen use?"

Meeting with parents and youth together

- When parents agree with the importance of reducing screen time, you might then meet with parents and youth together.
- To the teen:
 - Clinician: "You have told me as well, that you are having troubles with your mood, energy and concentration?"
- Focus on the increased healthy activities, and de-emphasize cutting back on electronics such as:
 - Getting more nature time
 - Going to bed earlier
 - It will naturally happen that there will be less technology time as this happens
 - Try to avoid telling the youth that it is the technology that is the key problem as this may lead the youth to feel threatened, and resist
- Try not to make the youth feel that you are singling him/her out, or targeting him/her in particular
 - When parents set technology rules, try to set them as new guidelines that you believe will be healthy for the whole family
 - Try to set rules that apply to the whole family as family rules will be healthy for the whole family
 - E.g. Parent might say: "We used to eat together as a family, and go out for after-dinner walks together. And we used to have board game night. Let's start that up again!"
- Connect youth with healthy, non-electronic activities first
 - If parents simply restrict electronics, but the youth has no other attachments, then this can potentially worsen things in the short-run. Prior to cutting back on electronics, try to first ensure that that parents focus on connecting the youth to healthier activities.
 - Consider:
 - Having the parent commit to some regular 1:1 time that they spend with their child/youth
 - Consider non-electronic activities that involve face-to-face contact
 - Get or borrow a dog and go for dog walks
 - Do face-to-face activities with peers rather than online

- Spend at least 1-hr outdoors daily
- Physical activity: Guidelines recommend that children should get 60 minutes of moderate to vigorous physical activity daily (CPS, 2012).

Types of electronics to cut back on

- Work with the parents to see which types of recreational technology they'd like to cut back on:
 - Mobile devices such as smart phones, tablets, iPods, iPads, laptops
 - Desktop computer
 - Television, DVD players

Ensure that rules about electronics are followed

- Help parents set rules and limits on recreational screen time
- Remind parents that most likely, they grew up with very little screen time and much more face-to-face time with friends spent outside ; if parents do not remember this, then ask them how their grandparents grew up
- Remind parents that for millennia, up until ~ 2010, there were no mobile devices
- No electronics if the child doesn't meet expectations
 - E.g. if the child doesn't attend school, there should be no electronics until the child attends again
- Strict times during the weekday or weekend when the child has access, as opposed to having no limits at all
- Ensuring that there are electronic free times, e.g. mealtimes, bedtime (such as after 8:30 PM)

Prepare parents for the inevitable emotional distress that may come with electronic restrictions

- You might tell parents something like the following:
 - "As you restructure routines such that there is less technology, it is very possible that your child/youth may become frustrated, irritable and even angry."
 - "Of course this is going to be hard for your child -- his/her brain is used to the "easy dopamine" of screentime. Having to go outside, or do non-electronic games means that their brains have to get used to lower amounts of dopamine/adrenaline, and they have to work at it."
- Until your child's brain learns how to find other sources of dopamine and adrenaline, this will be difficult.
- But it will happen, because children/youth survived for millenia before we had screen time.
- Try to stay calm, and validate that it's hard for them, as opposed to getting angry, upset or frustrated back at your child

Special Situations

When parents try to implement technology restriction, some children/youth become extremely distressed, and even make threats to the point that 'life isn't worth living with my video games / screen time / etc.' This suggests that the child's attachment to technology is so strong that there are not other attachments to fall back on. In such situations, it is recommended to re-attach the child to people and non-electronic activities first, prior to simply removing the technology.

Recommendations:

- Validate the child's distress at being disconnected from technology. "I see that your technology is very important to you."
- Re-attach the child to people
 - E.g. ensure that parents spend regular non-technology time with their child
 - E.g. ensure that parents know how to provide empathy and validation of their child's distress
- Re-attach the child to non-electronic activities
 - E.g. during 1:1 time with a parent, go for a walk in a local park or forest
- In a primary care setting, consider referral to addictions or mental health services.

Management: Parent FAQ

Q. "We've tried all sorts of organized sports like soccer, hockey, and he just doesn't like them."

- Rule out social skills difficulties, including conditions such as autism spectrum disorder.
- Recommend non-organized sports such as dancing, swimming, walking, hiking...

Q. "My child doesn't do physical activity. We've tried, and he still can't ride a bike."

- Recommend screening for Developmental Coordination Disorder, a condition where patients have problems with fine/gross motor, with coordination < 5%ile on standardized testing.
- Refer to Occupational Therapist (OT) for further assessment and recommendations.

Q. "We use Wii."

- Although the marketers of "active" video games would tell you that their games increase physical activity, the studies show that active video games do not ultimately help children be more active (Baranowski, 2012).
- Recommend real physical activity

Q. "My child gets out of breath. He can't do any exercise."

- Start slow, such as 5-10 minutes a day.
- Assess for contributory medical problems such as asthma or weight problems.

Q. "My teen refuses to do anything with the family - he just wants to spend time with friends. That's normal, isn't it?"

- It is natural for a teenager to want to connect with friends, but a teenager should still continue to have a connection with parents. The problem with a teenager being overconnected with friends (i.e. peer orientation), is that peers cannot meet a teen's underlying need for unconditional validation, acceptance and empathy. A peer oriented teen will be sensitive to any ups and downs in their relationships with their peers. Parents, and other nurturing adults however, can usually be more stable, and be able to provide unconditional validation, acceptance and empathy.

Management: Medication Treatment

- There are no medications per se for technology overuse
- If medications are used, it is to treat underlying comorbidities, such as ADHD

Prognosis

Prognosis is excellent when screen use is reduced (Dunckley, 2015):

Within days	Earlier to sleep Increased creativity Increased physical activity Mood improvement
With weeks	Improved attention Grades improved Restorative sleep Homework completed
Within months to years	Social skills improved Self-awareness improvement Coordination improved Empathy improved

When and Where to Refer

If you suspect technology overuse, consider referring to:

- Addictions agency for internet / gaming addiction (including wilderness based programs)
- Mental health professional. such as
 - Psychologist for psychotherapy / diagnostic clarification
 - Social worker, counselor/therapist for psychotherapy
- Psychiatry, for diagnostic clarification or medication consultation (e.g. for comorbid ADHD or other conditions)
- Mental health agencies such as local children's mental health agency or hospital with mental health services

Case, Part 2

You see Dave and his parents. You express your concerns about media use, and how it may be contributing to the mood problems that he is presenting with.

Parents admit they have had similar concerns, but feeling overwhelmed and don't know where to start.

You provide the parents with some handouts, and recommend that parents start with the following:

- For each parent to have regular 1:1 time with Dave, in order to build the connection
- Ensuring that parents have rules around technology use such as
 - Devices are to be given to parents at 1-hr before bedtime, i.e. to be given to parents at 9 PM, for a 10 PM bedtime
 - Ensuring that as a family, they have opportunities to connect without technology such as
 - Tech-free meal times
 - Tech-free outings such as going for walks, or going to nature
 - Replacing movie night with family board game night
- You make plans to follow-up with them in a few weeks

You let them know about local addictions services as well, in the event that additional help is required.

Parent Readings (Bibliotherapy)

- Reset Your Child's Brain: A Four Week Plan to End Meltdowns, Raise Grades and Boost Social Skills, by Victoria D. Dunckley. A useful book that can be given to parents to help them with their children with technology overuse. <http://drdunckley.com/reset-yo...>
- Unplug and Connect. A general handout with information for parents looking to reduce technology use in their children, though not specifically for those with video gaming addiction. <http://www.cheo.on.ca/en/Technology-info-parents>
- Hold On to Your Kids: Why Parents Need to Matter More than Peers, by Gordon Neufeld and Gabor Mate
- The Whole-Brain Child: 12 Evolutionary Strategies to Nurture Your Child's Developing Mind, by Daniel J. Siegel and Tina Payne Bryson. www.wholebrainchild.com
- Peaceful Parent, Happy Kids: How to Stop Yelling and Start Connecting, by Laura Markham. www.ahaparenting.com
- Net Negotiations: What Every Parent Should Know About Controlling a Child's Use of Technology, by Kimberly S. Young. <http://netaddiction.com/>

Practice Guidelines / Algorithms

American Academy of Pediatrics (AAP):

- Council on Communications and Media: "Media Use in School-Aged Children and Adolescents." *Pediatrics*, 2016. 138(5).
- Council on Communications and Media: "Media and Young Minds." *Pediatrics*, 2016. 138(5).
- Chassiakos et al.: "Children and Adolescents and Digital Media." *Pediatrics*, 2016 138(5).

Canadian Pediatric Society (CPS):

- Lipnowski, S., and LeBlanc, CMA. "Healthy active living: Physical activity guidelines for children and adolescents." *Paediatr Child Health*, 2012. 17(4):209-10.

Websites

- Dr. Dunckley's website. Provides a useful 'mini-course' that parents can sign up for, which summarizes concepts of how to help your child with 'electronic screen syndrome'
www.drdunckley.com
- ReSTART provides residential treatment for problematic use in Washington, USA. Their website has a variety of useful resources for parents and families about digital media.
www.netaddictionrecovery.com
- ZoneIn.ca is the website for Cris Rowan, an occupational therapist passionate about the safe use of technology
www.zonein.ca
- Media Smarts is Canada's centre for digital and media literacy, and has information for Canadians about how to safely navigate the digital world.
www.mediasmarts.ca

References

- Baranowski T et al.: Impact of an Active Video Game on Healthy Children's Physical Activity. *Paediatrics*. 129(3): March 1, 2012, pp e636-e642.
- Burke, M: Impact of screen time on children, *Psychiatric Times*, 2010.
- Christakis D: Early television exposure and subsequent attentional problems in children. *Pediatrics*, 2004. 113(4): 708-713.
- Christakis D et al. : Television, video, and computer games usage in children under 11 years of age. *Pediatrics*, 2004. 145(5): 652-656.
- Centre for Addiction and Mental Health (CAMH): CAMH Monitor Survey 2015, Dec 2016.
http://www.camh.ca/en/hospital/about_camh/newsroom/news_releases_media_advisories_and_backgrounder_s/current_year/Pages/Nearly-one-in-five-young-Ontario-adults-shows-problematic-use-of-electronic-devices.aspx
- Dunckley, Victoria L. *Reset Your Child's Brain: A Four-week Plan to End Meltdowns, Raise Grades, and Boost Social Skills by Reversing the Effects of Electronic Screen-time*. Novato, CA: New World Library, 2015. Print.
- Fakhouri et al.: Physical activity and screen-time viewing among elementary school €-aged children in the united states from 2009 to 2010. *JAMA Pediatrics*, 2013. 167(3): 223-229.
- Gentile et al. (2012): *Pathological Technology Use*
- Koepp M.J. et al.: Evidence for striatal dopamine release during a video game. *Nature*, 393, 21 May 1998.
- McDool E, Powell P, Roberts J, Taylor K: *Social Media Use and Children's Well Being*. IZA Discussion Paper, Institute of Labor Economics, Dec 2016.
- Nielsen Company: *Total Audience Report: Q1 2016*, retrieved Jan 5, 2017 from
<http://www.nielsen.com/us/en/insights/reports/2016/the-total-audience-report-q1-2016.html>
- Pagani L et al.: Prospective Associations Between Early Childhood Television Exposure and Academic, Psychosocial, and Physical Well-being by Middle Childhood. *Archives of Pediatrics and Adolescent Medicine*, 2010; 164 (5): 425 DOI: 10.1001/archpediatrics.2010.50
- Page A et al.: Children's Screen Viewing is Related to Psychological Difficulties Irrespective of Physical Activity, *Paediatrics*, 126(5): Nov 2010, e1011-e1017.
- Pressman R: Examining the interface of family and personal traits, media, and academic imperatives using

- the learning Habit Study. *Am. J. of Family Therapy*, 2014, 42(5): 347-363. <http://www.tandfonline.com/doi...>
- Rideout V et al.: Generation M2: Medical in the lives of 8- to 18- year olds. Kaiser Family Foundation Study, Jan 2010.
 - Teo A et al.: Does mode of contact with different types of social relationships predict depression in older adults? Evidence from a nationally representative survey. *J. Am. Geriatrics Society*, Oct 2015, 63(10): 2014-2022.
 - Uhls, Y.T. et al.: Five days at outdoor education camp without screens improves preteen skills with nonverbal emotion cues, *Computers and Human Behavior*, 2014, 39:387-392.
 - Young, Kimberly. "Parenting Guidelines: Rules for Every Age." (n.d.): 1-2. Net Addiction. The Center for Internet Addiction Recovery, 2009-2013. Web. <http://netaddiction.com/wp-content/home/ementalhealth/ementalhealth.ca/frontend/uploads/2015/07/Screen-Smart-Guidelines.pdf>

About this Document

Written by Kayla A. Simms (MD Candidate, Class of 2017), and members of the eMentalHealth.ca team including Dr. Michael Cheng, Psychiatrist, University of Ottawa.

Reviewed by the eMentalHealth.ca team, which includes Dr's Farad Motamedi (MD, CCFP); Mireille St-Jean (MD, CCFP); Eric Wooltorton (MD, CCFP), and Dr. Michael Cheng, (MD, FRCP(C) (Mar 2016).

Disclaimer

Information in this pamphlet is offered 'as is' and is meant only to provide general information that supplements, but does not replace the information from an accredited Continuing Medical Education (CME) provider.

Creative Commons License

You are free to copy and distribute this material in its entirety as long as 1) this material is not used in any way that suggests we endorse you or your use of the material, 2) this material is not used for commercial purposes (non-commercial), 3) this material is not altered in any way (no derivative works). View full license at <http://creativecommons.org/licenses/by-nc-nd/2.5/ca/>