

Tech Talk for Teens



© Sunshine Coast Occupational Therapy Inc. 2021. Figure 1. Teens & Smartphones. Purchased from Dreamstime, 2021

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Goals

1. Profile screen media statistics and experts guidelines.
 2. Review brain development.
 3. Review 4 critical factors for growth and success.
 4. Relay impact of screen research in five areas: physical, social, emotional, mental, cognitive.
 5. Apply a variety of techniques to balance screens with healthy activity.
 6. Profile Screenbuster Training Program for teens.
- Research references are located on website **reconnectwebinars.com** under **Resource** section.

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Speaker Credentials

X 2 BSc's in biology and occupational therapy
30 + years OT - pediatric and injury rehabilitation
SIPT certified sensory integration specialist

Over 350 international and national workshops

- AOTA Approved Provider Status for CEU's

Author

- Book: Virtual Child – The terrifying truth about what technology is doing to children
- Blog: Moving to Learn
- Newsletter: Child Development Series

Committees

- Children's Screen Time Action Network – Screens in Schools
- Institute for Digital Media and Child Development
- Global Alliance for Brain and Heart Health

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Technology Defined

Device/Tool

- TV
- Desktop
- Laptop
- Tablets
- Notebooks
- Cell phones
- Gaming platforms

Content

- Movies, sitcoms, cartoons, reality, sports, nature, educational, YouTube
- Video games & porn
- Social media e.g. facebook, MeChat, Instagram, Snapchat
- Texting, sexting
- NOT music, radio
- NOT Augmentative Communication for physically disabled

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Quizzes, Certificate, Evaluation

- Quizzes are located at the end of each of each section module ~ every 30 min.
- Teens require 75% score (or greater) in order to proceed to next module.
- Previous module can be reviewed and quizzes repeated indefinitely until passed.
- Upon successful completion of all section modules and quizzes, certificate will be emailed to participants.
- Following final quiz will be a participant webinar evaluation.

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TECHNOLOGY MANAGEMENT Tech Talk for Teens

Part 1

*Media stats, expert guidelines,
brain development*

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Epidemic of Child Disorders

- Developmental delay 1 in 3 at school entry.
- Obesity 1 in 4.
- Depression/anxiety 1 in 6.
- Suicide rate doubled over past 5 years in males.
- Autism 1 in 65.
- Adhd 1 in 5 for boys, 1 in 11 for girls.
- Sleep deprivation 73%.
- Tech addiction 10-50%
- Learning disabilities 1 in 10.

HELP EDI Mapping 2009/13, WHO 2015, CDC 2016, Waddel 2007, National Sleep Foundation 2017, Gentile 2011, Common Sense Media 2017, BCTF 2016
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Balanced Technology Management



Critical factors for growth and success:

- movement
- touch
- human connection
- nature

Screens



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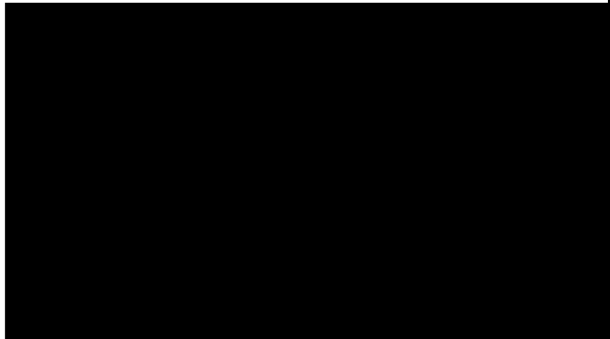
10 Child/Teen Rights – To Be...

1. Loved – parents use avg. of 12 hrs/day screens.
2. Heard – distracted parenting the norm.
3. Safe – children are online largely unsupervised.
4. Happy – 1 in 5 children/youth have mental illness.
5. Play outside – 95% of childhood spent indoors.
6. Healthy – 1 in 3 children developmentally delayed.
7. Literate – majority have 2 year delays in literacy.
8. In school – explore in/outdoor school concept.
9. Social – screens eroding social skills.
10. Drug free – overusing of mental medication.

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Dear Student...




Video 1. Dear Student...Shown with permission by producer Tiffany Shlain Let it Ripple Studio, 2021
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10

It's not the child with the problem

The systems surrounding the child need to change



Teachers
 Parents
 Therapists
 Technology Production Corporations
 Government
 Researchers
 Physicians

Figure 2. Child and parents. Retrieved from Dreamstime, Katarzyna Bialasiewicz, 2021
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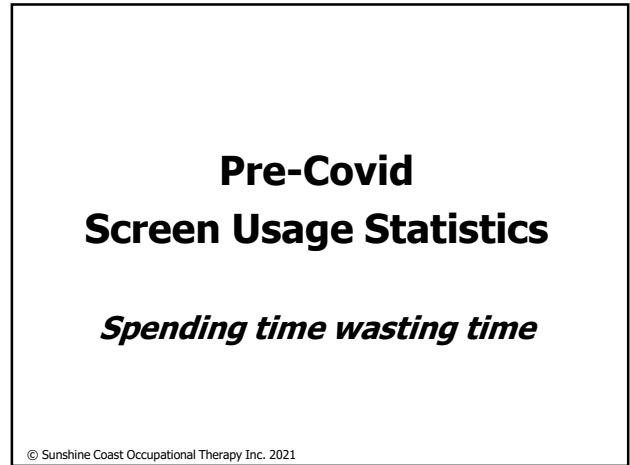
Pre-Covid Screen Usage Statistics

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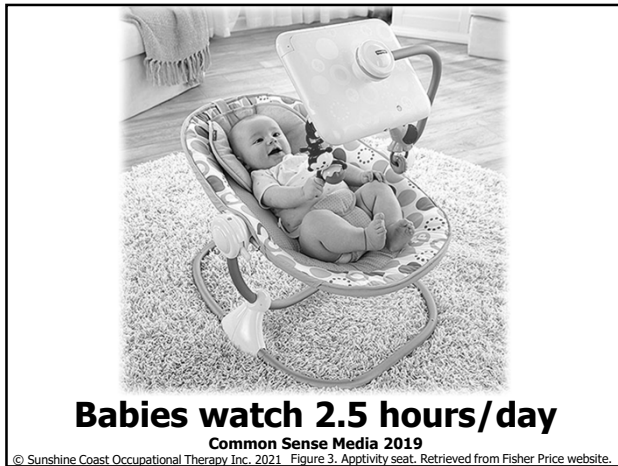
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13



14



15



16



17



18



Adults use 12 hours per day

Nielsen Ratings 2020

© Sunshine Coast Occupational Therapy Inc. 2021 Figure 7. Adults, phones. Purchased from Dreamstime, 2021

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40% of adults have screen addictions

Pew 2019, Centre on Media and Human Development 2018

Figure 8. Child with parents on phones. Purchased from Dreamstime, 2021

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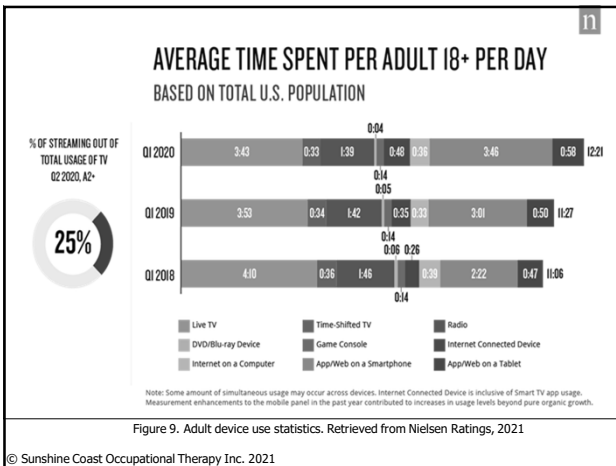


Figure 9. Adult device use statistics. Retrieved from Nielsen Ratings, 2021

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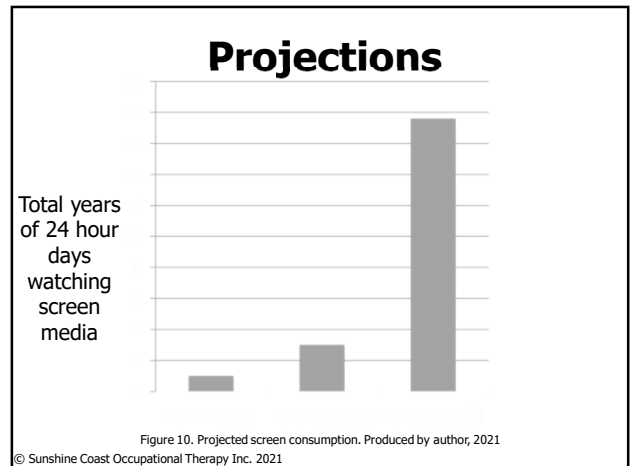


Figure 10. Projected screen consumption. Produced by author, 2021

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Post-Covid Screen Usage Statistics

Spending much more time wasting time

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Covid Doubles Screentime

- Adolescent Brain Cognitive Development Study on 10-14 year old's shows double rate of entertainment based screentime since Covid. Nagata 2021
- *The Covid Effect*: Quostodio showed doubling of Roblox duration 1st 9 months of 2020. Quostodio 2021

© Sunshine Coast Occupational Therapy Inc. 2021

Figure 11. Roblox on iPhone. Purchased from Dreamstime, 2021

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Covid Doubled Teen Screen Time

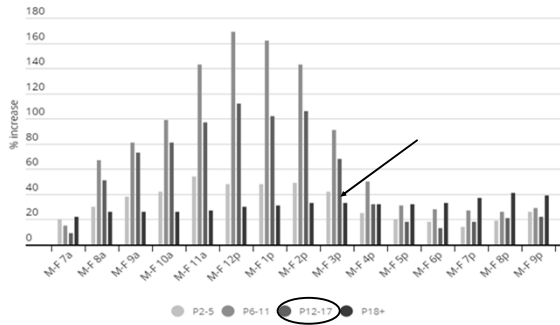


Fig. 12. Screen time increase with Covid. Retrieved from Nielsen Ratings 2020

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Reality Check

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Video 2. Reality Check. Produced by author, 2009; Song permission provided by Kansas.

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Zone'in Technique Do 10 Squats



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Figure 13. Squats. Retrieved from Dreamstime 2022

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Expert Recommendations What are the Doctors saying?

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Expert Recommendations

Durations:

- 0-2 years – NO screens.
- 3-5 years – 1 hour/day.
- 6-12 years – 2 hrs/day.
- 13-18 years – 3 hrs/day.

Content:

- 0- 6 years – NO violence.
- More mindful and less mindless content.



Figure 14. Health professionals. Retrieved from Dreamstime 2022

American Academy of Pediatrics
2002/13/15/16/18
Canadian Pediatric Society 2010/17

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Media Content is Key! What we watch is who we become.

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Mindless Content = Less Mind

- For efficiency, brain prunes tracks that aren't being used.
- Mindless content doesn't need frontal lobe function.
- Mindless content rewires brain for less frontal lobe connectivity.



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 16. Less mind. Purchased from Dreamstime 2021

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PET Imaging – Brain Activity

Mindless Content = Less Mind

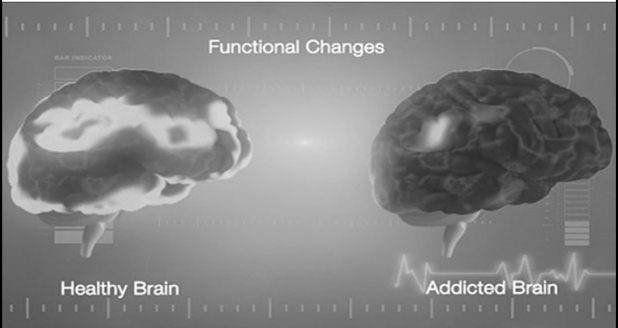


Figure 17. PET imaging of functional changes in brain from addiction. Retrieved from www.inspiremalibu.com, '21
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Media Content

Mindless—less mind Mindful—more mind

<ul style="list-style-type: none"> ➤ Fast paced, violent ➤ Most video games ➤ TV sitcoms ➤ Cartoons ➤ You Tube ➤ Social media <ul style="list-style-type: none"> ➤ Snap Chat ➤ Tick Toc ➤ Instagram ➤ Texting 	<ul style="list-style-type: none"> ➤ Slow paced, prosocial ➤ News ➤ Most sports ➤ Nature ➤ Documentaries ➤ Educational shows
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Brain Development

Use it or lose it

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Rapid Pruning 0 - 12 Years

Brain Hard Wired by Age 20

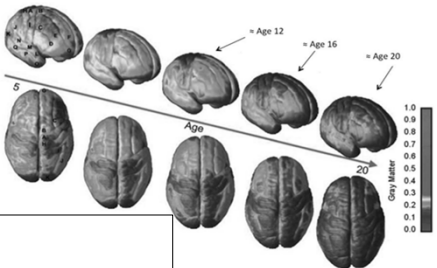



Figure 18. MRI of developing brain. Reprinted with permission from Paul Thompson, NIMH, 2021
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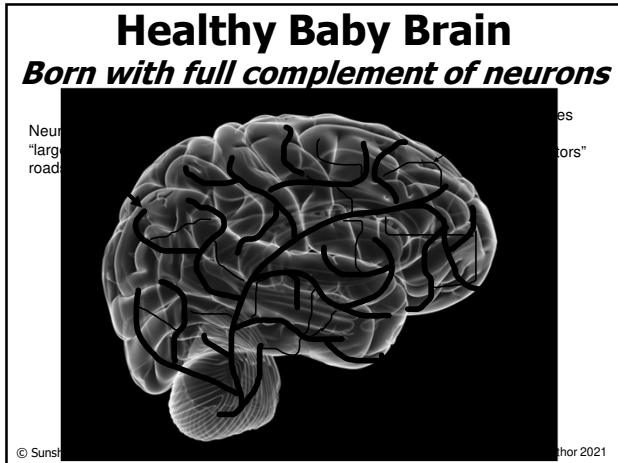
Brain Damage

- Mindless content doesn't require frontal lobes.
- Frontal lobes gets pruned for brain efficiency.
- WHAT we watch is WHO we become.
- By death, only 70% of neurons are pruned.

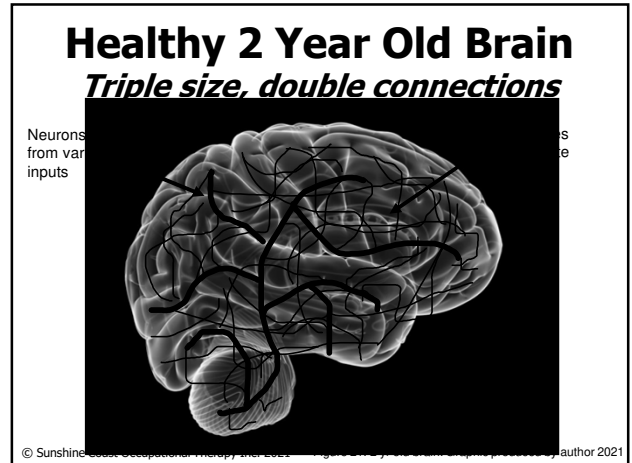


Christakis TED TALK 2011, Small G 2008, Lin F 2011, Weng 2012, 2013, Duncley 2014
© Sunshine Coast Occupational Therapy Inc. 2021 Figure 19. Brain. Purchased from Dreamstime, 2021

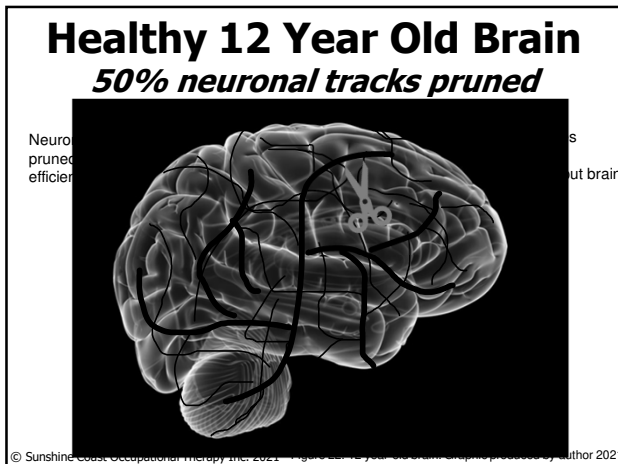
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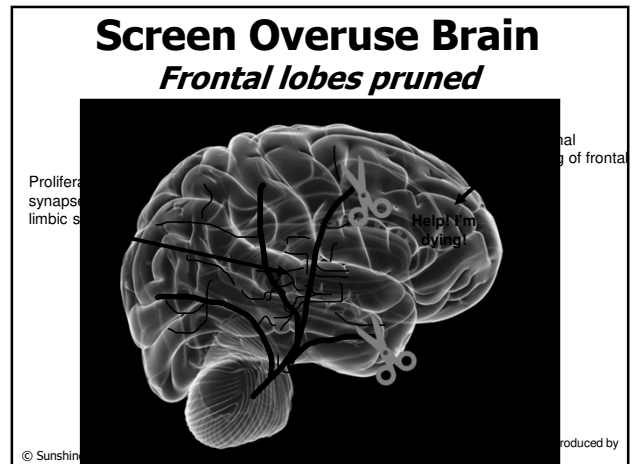
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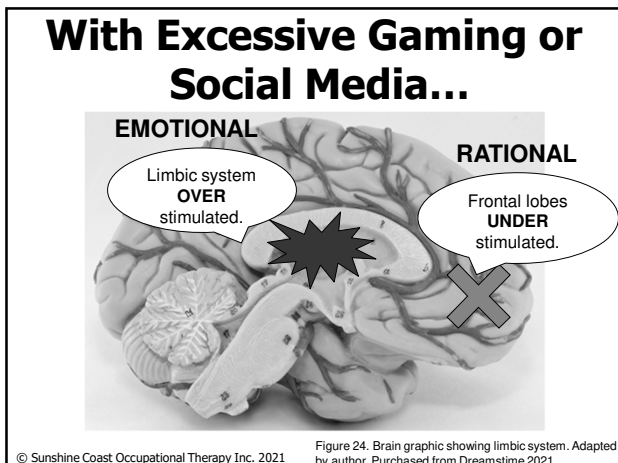
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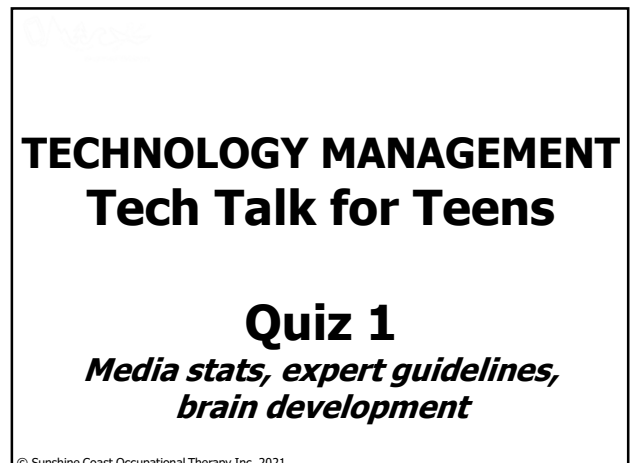
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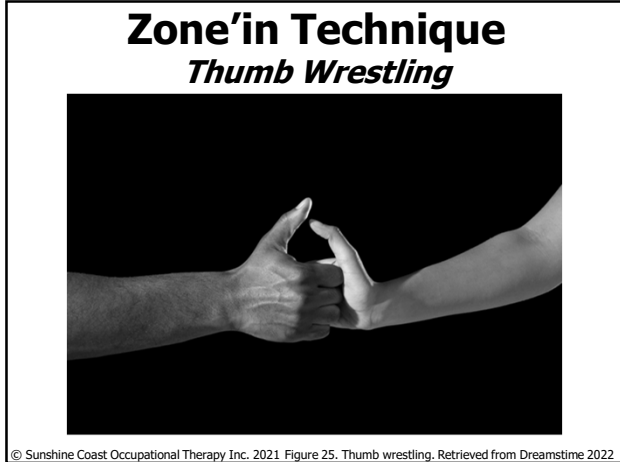
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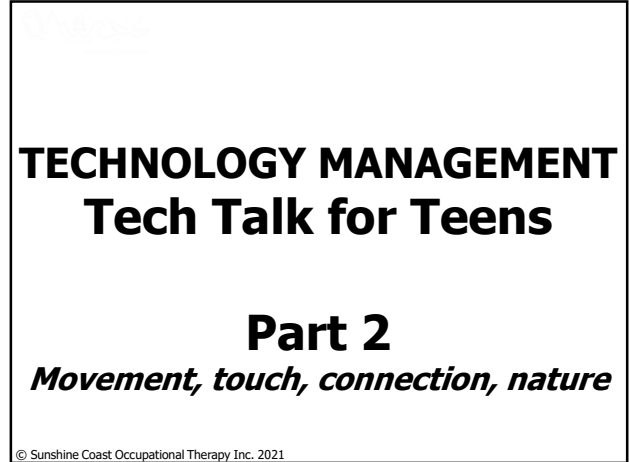
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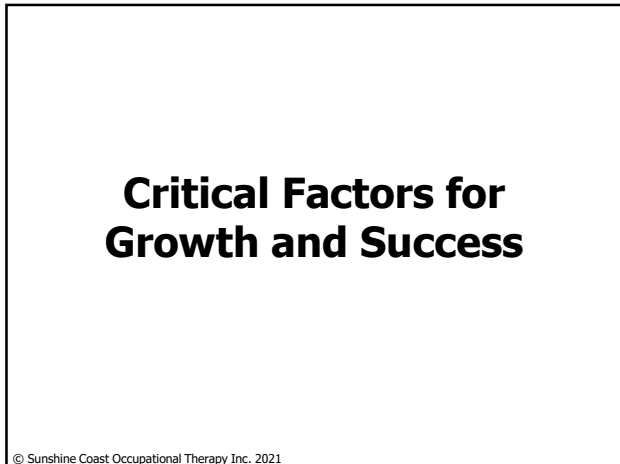
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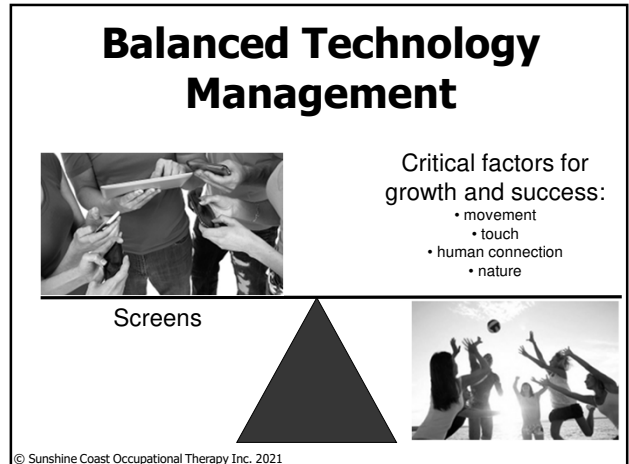
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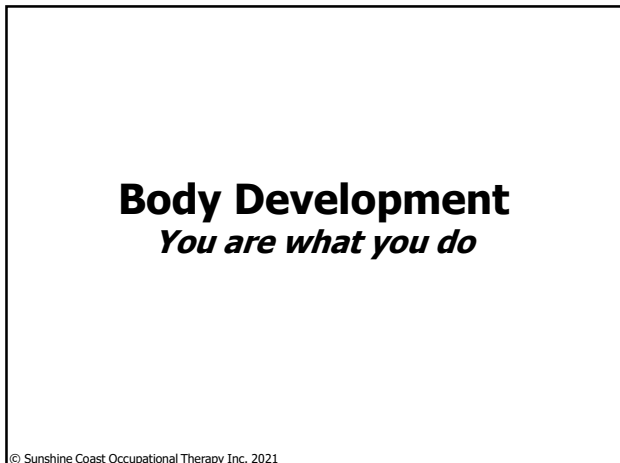
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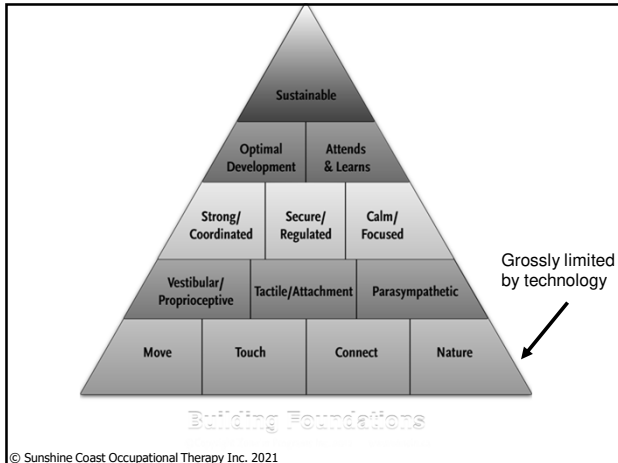
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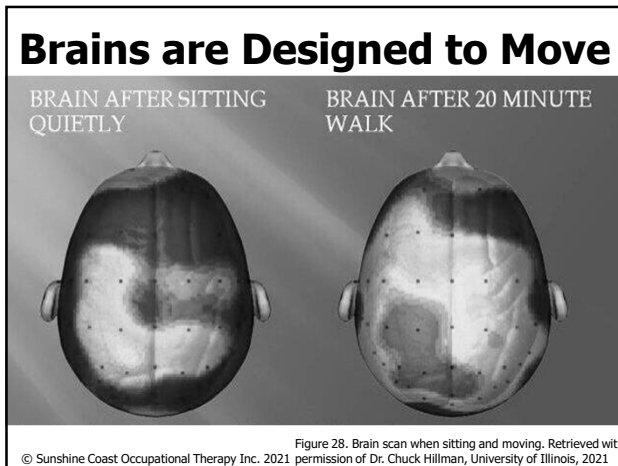
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Movement

Bodies and brains love movement!

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Movement Benefits

- Cardiovascular
 - Obesity/diabetes
 - Stroke/heart attack
- Builds strong core
- Motor coordination
 - Right/left
 - Upper/lower
 - Eye/hand for printing
 - Eye/eye for reading
- Spatial for math
- Attention/learning
- Mental health Ratey 2008

Video 3. Pumping Up the Brain – Connection between movement and learning. Shown with permission from CBS News – The Early Edition starring Debbye Turner Bell, 2021

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Canada Movement Guidelines

- < 13% of children meet the *Canadian Movement Guidelines*.
- Effects of sedentary lifestyle costs Canada \$70 billion per/year in healthcare costs.

GUIDELINES

For optimal health benefits, children and youth (aged 5-17 years) should achieve high levels of physical activity, low levels of sedentary behaviour, and sufficient sleep each day. A healthy 24 hours includes:

Canadian Society for Exercise Physiology 2018, National Institute of Health 2018

© Sunshine Coast Occupational Therapy Inc. 2021

Figure 29. Canadian Movement Guidelines. Retrieved from Health Canada, 2021.

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Off Centre Movement

Builds strong core, wakes you up!

Why can't we stand all day???

Fig. 30. Classroom equipment. Retrieved from Kidsfit Kinesthetic Classroom, 2021

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Heavy Work Movement

Dumps energy, calms you down!

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What Happens When We Don't MOVE?

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Delayed Development 1 in 3

Hutrow J 2014, UBC HELP EDI Mapping 2009/13

Figure 32. Child slumped on couch with gaming console. Purchased from Dreamstime, 2018

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Developmental Delay 1 in 3

Category	2014	2015	2016
Autism spectrum disorder	2.24	2.41	2.76
Intellectual disability	1.10	1.34	1.14
Other developmental delay ¹	3.57	3.56	4.55
Developmental disability ¹	5.76	6.04	6.99

Figure 33. Delayed development graph. Courtesy of National Center for Health Statistics, 2018

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Obesity 1 in 4 → 30% Diabetes

Tremblay M, 2011

Figure 34. Child eating chips with TV. Retrieved from public domain, 2018

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Obesity 1 in 4

Average number of screen time hours per day	BMI > 85 < 140 - overweight to obese (%)	BMI > 140 - severely obese (%)
< 4	~65	~35
4 - 6	~40	~38
> 6	~42	~55

Figure 35. Average number of screen hours per day graph. Courtesy of Children's Health in the Digital Age, 2020

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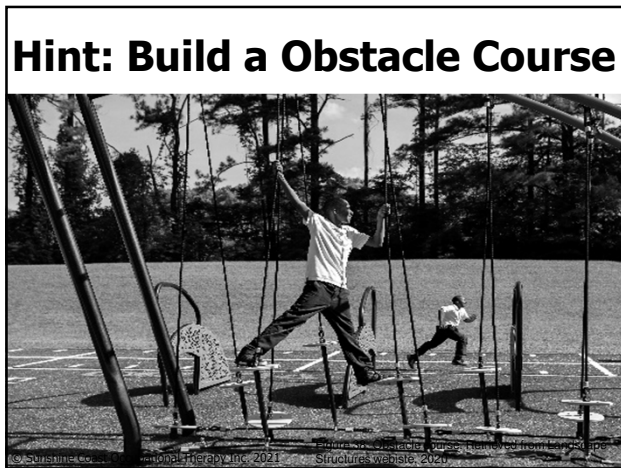
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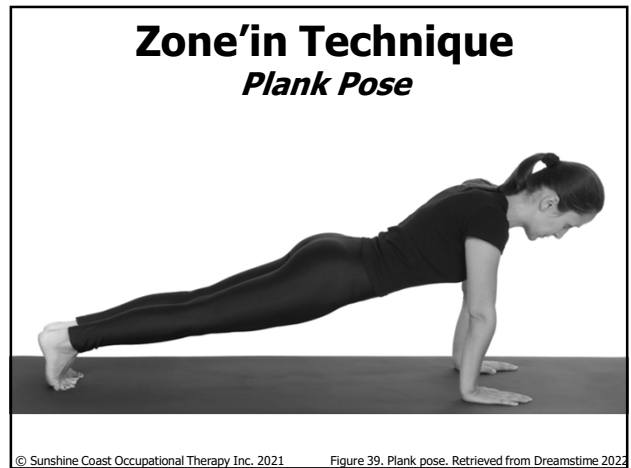
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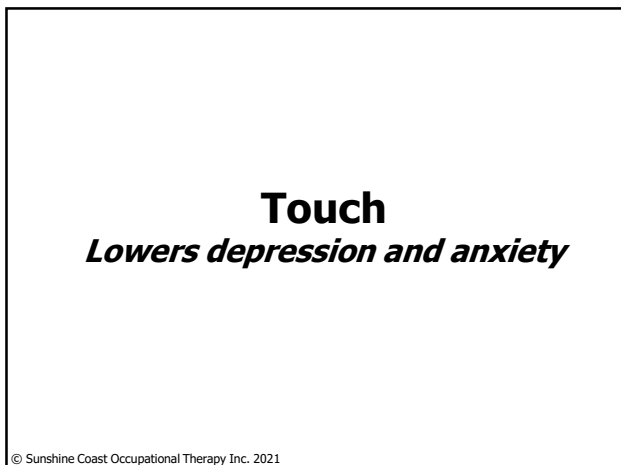
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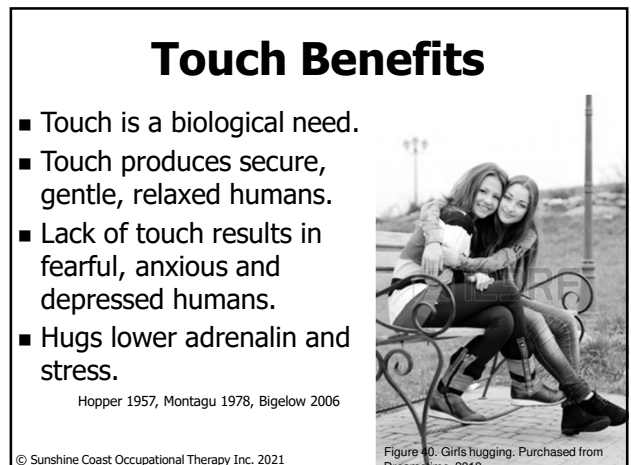
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64



65



66

Touch

Counteracts sympathetic charge

- Skin is the largest and oldest organ in the body; 20 sq. ft. in adults, 12% total body weight.
- Touch lowers cortisol, adrenalin, regurgitation, promotes development.
- When the need for touch isn't satisfied, abnormal behavior will result.

Bigelow 2006, Montagu 1978




Figure 41. Dad on phone pushing stroller. Purchased from Dreamstime, 2021

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What Happens When We Don't TOUCH?

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1 in 5 Mentally Ill

Canadian Mental Health Association 2019



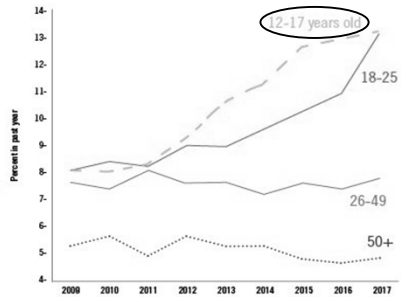
© Sunshine Coast Occupational Therapy Inc. 2021 Fig. 42. Person made of pills. Purchased from Dreamstime 2021

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Teen Depression

STUDENT DEPRESSION ON THE RISE

An analysis of a federal survey shows increasing rates of teen and young adult respondents reporting a major depressive episode in the last 12 months. Rates have stayed more consistent among older adults.



Year	12-17 years old (%)	18-25 (%)	26-49 (%)
2009	8.0	7.5	5.5
2010	8.0	7.5	5.5
2011	8.5	7.5	5.5
2012	9.5	7.5	5.5
2013	10.5	7.5	5.5
2014	11.5	7.5	5.5
2015	12.5	7.5	5.5
2016	13.5	7.5	5.5
2017	14.5	7.5	5.5

SOURCE: Journal of Abnormal Psychology
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EDUCATION WEEK

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Hint: One Hug A Day!



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 44. Girls hugging. Purchased from Dreamstime, 2020

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Hint: More Horsing Around



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 45. Teens hugging. Purchased from Dreamstime, 2020

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Hint: At School? Get a Dog



Figure 46. Students with principal's dog. Reproduced with permission from Barry Krangle, Principal of Cedar Grove Elementary School, 2018

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Zone'in Technique
Self Hug



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 75. Self hug. Retrieved from Dreamstime 2022

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Human Connection
Humans are pack animals

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Connection Benefits

- Human relationships are life sustaining.
- Virtual reality prevents REAL relationships.
- Humans yearn for connection.
- If we don't connect to each other, we become addicted to alcohol, drugs, video games, porn, social media.

Pew Research Center 2015



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 47. Kids piggyback. Purchased from Dreamstime, 2020

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**Looking for Connection,
Feeling Disconnected**



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 48. Girls gossiping. Purchased from Dreamstime, 2020

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**What Happens When We
Don't CONNECT?**
Opposite of connection is addiction

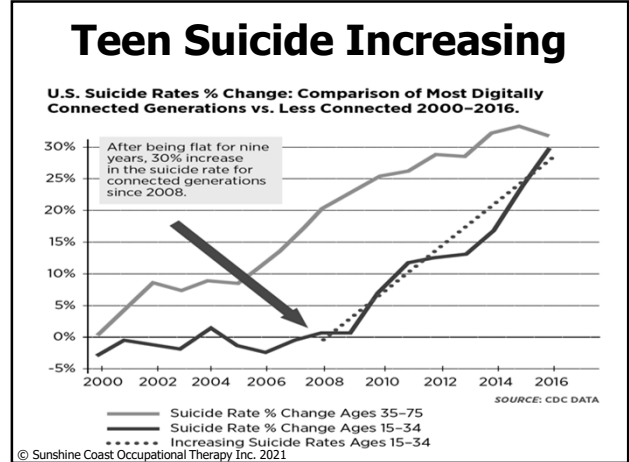
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...1 in 11 teens tech addicted
Gentile D 2011, 2018
© Sunshine Coast Occupational Therapy Inc. 2021 Figure 49. Screen eye. Purchased from Dreamstime, 2020

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Hint: Put Down the Phone, Hook Up With A Friend



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 51. Tug of War. Purchased from Dreamstime, 2020

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Hint: Build a Ping Pong Table!



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 62. Ping Pong. Purchased from Dreamstime, 2020

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Hint: Foosball for Birthday?



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 60. Foosball. Purchased from Dreamstime, 2020

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Hint: Learn to Cook!



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 54. Teens cooking. Purchased from Dreamstime, 2020

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Hint: Build Something!



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 55. Outdoor projects. Purchased from Dreamstime, 2021

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Zone'in Technique Have a Conversation!



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 144. Conversations. Retrieved from Dreamstime 2022

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Nature Reverses effects of screen overuse

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Nature Benefits

- Nature is calming.
- Nature lowers adrenalin and stress.
- 1 in 5 youth have attention deficit.
- 20 min per day access to 'green space' significantly improves attention and mood.



Figure 57. Teen outside reading. Purchased from Dreamstime, 2020

Faber-Taylor 2004, Louv 2005, Mate' G 2005, Merrow 2010

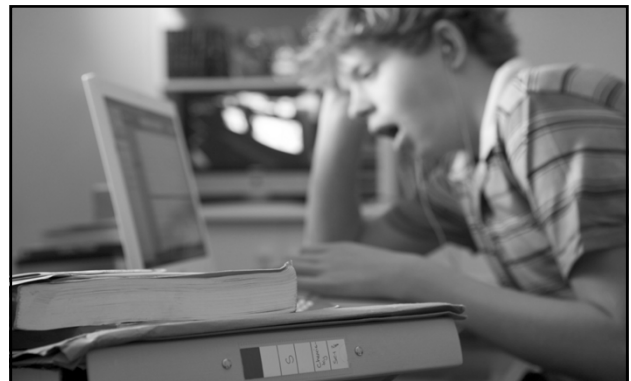
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What Happens When We Don't Go Outside?

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95% of Time Sedentary Indoors

Louv R 2009

© Sunshine Coast Occupational Therapy Inc. 2021 Figure 58. Teen yawning. Purchased from Dreamstime, 2020

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**Hint: Less *Screen Time*,
More *Green Time***



© Sunshine Coast Occupational Therapy Inc. 2021. Figure 59. Teens playing. Purchased from Dreamstime, 2020

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Hint: Put Up a Hoop



© Sunshine Coast Occupational Therapy Inc. 2021. Figure 60. Teens basketball. Purchased from Dreamstime, 20

92

Hint: Build a Firepit



© Sunshine Coast Occupational Therapy Inc. 2021. Figure 61. Teens firepit. Purchased from Dreamstime, 2020

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Hint: Create Outdoor Spaces



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**TECHNOLOGY MANAGEMENT
Tech Talk for Teens**

Quiz 2

Movement, touch, connection, nature

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Zone'in Technique
Watch a tree for 5 min.



© Sunshine Coast Occupational Therapy Inc. 2021. Figure 14. Beautiful tree. Retrieved from Dreamstime 2022

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TECHNOLOGY MANAGEMENT Tech Talk for Teens

Part 3 *Screen research – part 1*

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Screen Research

*We're using an awful lot of something
we know very little about.*

*Sleep, hyperarousal, vision, videogames, porn, social
media, mental illness, addiction, sextortion,
cyberbullying, wireless radiation*

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Review the Tech Red Flags

- ✓ Delayed development, unfit – speech, motor, cognition
- ✓ Sleep deprivation/disorders – tired or wired
- ✓ Social disorders – no friends, social anxiety/phobia
- ✓ Aggressive, defiant – verbal and/or physical abuse
- ✓ Self-regulation issues – cries, tantrums, can't wait
- ✓ Poor motivation – low confidence/competence
- ✓ Anxiety, depression – self harm, suicide risk
- ✓ Screen addiction – device obsession, can't put away
- ✓ Attention deficit – distracted, learning difficulties
- ✓ Illiteracy– low literacy/grades, truancy

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Sleep

*Best investment in health...
and it's free!*

100

Sleep Deprived 3 in 4

- 25% of children and 75% teens are sleep deprived...
- ...yet 75% are allowed screens in bedrooms.
- Poor sleep associated with increased obesity, depression, cancer, attention deficit, problem behaviours.

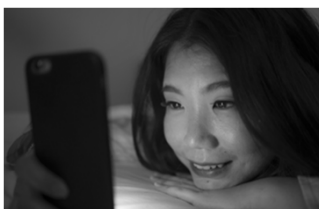


Figure 62. Teens on phone in bed. Purchased from Dreamstime, 2020

CDC 2018, National Sleep Foundation 2020, Hale 2018

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Sleep, Cancer, Heart Disease

Less than 6 hours of sleep is associated with:

- 40% increase in cancer.
- Twice as large tumors.
- 35% increase in cardiovascular disease (heart attack or stroke).



Figure 36. Girl sleeping on phone. Purchased from Dreamstime, 2021

Czeisler 2013, Nagai 2010, National Sleep Foundation 2016

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Stress Scrolling

- Term for rapid viewing of screen content.
- Minimal comprehension or memory of content.
- Do stressed people scroll more, or does scrolling make you more stressed...maybe both?

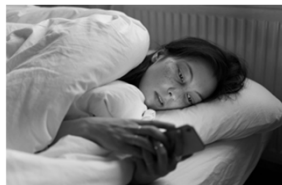


Figure 63. Teen using cell phone in bed. Purchased from Dreamstime, 2021

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To What Detriment?

- Light from screens suppresses melatonin; body needs melatonin to get to sleep and stay asleep.
- Sleep deprivation associated with increased obesity, depression, risk taking, injuries, attention deficit, learning difficulties, agitation, and asocial behaviors.
- Insufficient sleep considered a public health epidemic.

Ceiler 2013, Center for Disease Control and Prevention 2014, National Sleep Foundation 2016, Hale 2018



Figure 35. Two girls sleeping at school. Purchased from Dreamstime, 2021

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Nature Promotes Sleep *Regulates Vitamin D and Melatonin.*



Vitamin D

Antioxidants which fight inflammation, tumors and cancer.

- Natural light activates.
- Delays aging process.
- Improves vision.
- Enhances immune system.
- Promotes bone growth.
- Neurotransmitter produced by pineal gland when the lights go out.
- Produces sleep state (suppresses serotonin).
- Crashes with exposure to blue light.

Children's Health in the Digital Age, 2020

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Hyperarousal *Gaming is very hard on the heart!*

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Sympathetic Stress State



Video 4. Jane Fabley interview of boy gaming with HK and BY monitors. Courtesy of Channel 13 news (2005).

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107

Hyperarousal

- Media activates the sympathetic nervous system releasing adrenalin and cortisol.
- Dopamine transmitter overload in the brain.
- EMG's show constant state of muscle tension with repetitive media exposure (violence, porn, multitasking).



Figure 30. Children fighting over cell phone. Purchased from Dreamstime, 2021

Small 2008, Lu 2010, Lin, 2014

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108

Heart Attacks Getting Younger

- No available research on heart disease in children and youth secondary to video game play.
- 2022 study showed 30% increase in heart attacks for 25-44 year olds over 2 years of Covid.
- Cites sedentary lifestyles, not enough sleep, vaping and alcohol as causal factors.



Figure 30. Youth clutching heart. Purchased from Dreamstime, 2021

Yeo 2022

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109

Impaired Vision

What you can't see...

110

2-D Myopia

- 42% increased myopia in US, 30% in Canada citing technology as causal factor.
- Onset age now 4 yrs, used to be 14-16 yrs.
- 2-D, fixed distance, early technology device use harms eye development.
- Myopia is irreversible.



Figure 39. Baby looking at phone. Purchased from Dreamstime, 2021

Sherwin, American Academy of Ophthalmology 2012, Liu 2014

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111

Axial Myopia 1 in 3

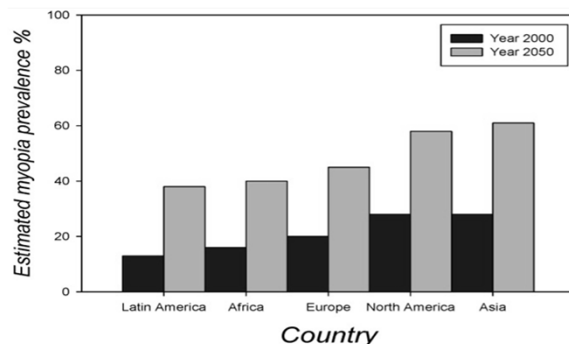


Figure 40. Estimated myopia prevalence %, Drespa-Langley, 2020. Retrieved from Children's Health in the Digital Age - PubMed (nih.gov)

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112

Virtual Reality

- Immersion factor greatly increased.
- Visual vestibular sensory mismatch (VVM).
- Impaired focus, tracking, eye/hand; affect driving.
- LED causes decrease retinal cell viability, increase cell death, DNA damage.



Figure 41. Students using VR in classroom. Purchased from Dreamstime, 2021

Doan 2015, Stanney 2015, Chamorro 2013

© Sunshine Coast Occupational Therapy Inc. 2021

113

Video Games

A hero need not speak. When he is gone, the world will speak for him.

Quote from Halo

© Sunshine Coast Occupational Therapy Inc. 2021

114

Research Outcomes Situational

Positive Effects	Negative Effects
<ul style="list-style-type: none"> ➤ Increased attention for gaming. ➤ Improved visuospatial and visuomotor skills for gaming. ➤ Increased cognition for strategy-type video games. ➤ Enhanced skill confidence and competence for hierarchical gaming. 	<ul style="list-style-type: none"> ➤ Decreased sustained attention for mundane tasks. ➤ Transfer deficit for literacy (print, read, math). ➤ Decreased memory, impulse control, executive function. ➤ Decreased skill confidence and competence for ALL other activity. ➤ Increased obesity, sleep disorders, developmental delay, mental illness, aggression. ➤ Decreased fitness, social skills, relationships, grades.

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115

Violence, Sex and Deviance

Is this what we want for our kids?

- 90% of gaming content contains violence.
- 34% contains sex.
- Children cannot discern fantasy from reality until 8.
- Prolonged exposure results in desensitization.
- Military uses video games to desensitize soldiers to killing.



Figure 49. Video game. Retrieved from Dreamstime Breakermaximus, 2021

Glaubke, 2001, Vidana-Perez 2018, Gentile 2018

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116

Violent, Fast Paced Rapid Fire Shooter Games

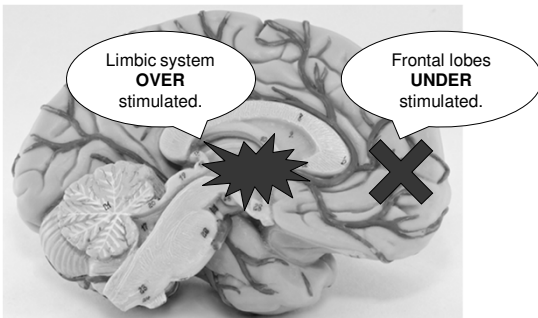


Figure 51. Brain graphic showing limbic system. Purchased from Dreamstime 2021.

© Sunshine Coast Occupational Therapy Inc. 2021

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Brain Damage from VG's

- Grey matter (cell bodies) atrophy – dendrites, synapses.
- Damage to insula (empathy).
- Loss of white matter (neurons) connectivity.
- Reduced cortical thickness.
- Impaired cognitive function (memory, focus, planning, impulse control).
- Impaired dopamine function.




Figure 60. Brain top view. Retrieved from Dreamstime, 2021

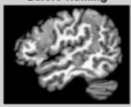

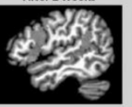



Zhou 2011, Yuan 2011, Weng 2012/13, Hong 2013, Dong/Devito 2013, Kuhn 2011

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118

Gaming Changes the Brain

Your Brain on Games: Experimental Evidence

	Before Training	After 1 Week	After 2 Weeks
Control Group (No Video Games)			
2-Week Video Game Group			

LOSING TOUCH Young adult males who played a violent video game extensively for 2 weeks had lower activity in important brain areas while attempting to control behavior, compared to those who played no video games.

Figure 66. Your Brain on Games: Experimental Evidence. Retrieved from The National Center for Biotechnology Information, 2021

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119

Video Games Cause Aggression

Moderate Gamers: 3-4hr/day

- Increased risky behaviors: (sex, reckless driving, drugs/alcohol, smoking).
- Increased defiance and aggression.
- Sleep deprivation.
- Decreased attention, concentration, memory.




Figure 65. Parent pulling kid off laptop. Purchased from Dreamstime, 2020

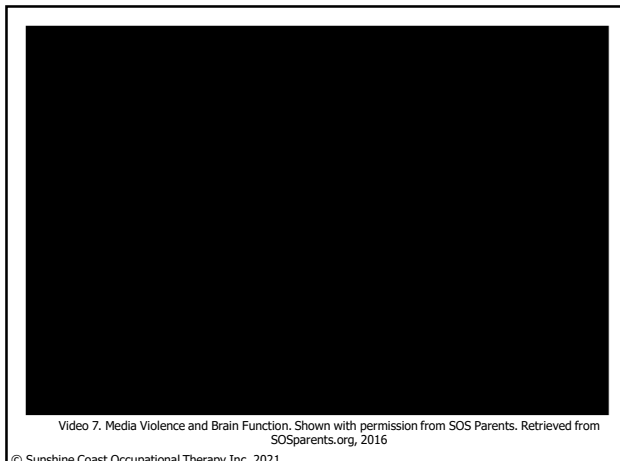
Heavy gamers: > 4 hrs/day

- 4-5 times increased incidence of effects noted above.

Jay Hull 2015

© Sunshine Coast Occupational Therapy Inc. 2021

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Video Game Resources



- Safer Schools: school safety
- On-Line Gamers Anonymous: video game addiction
- Game Quitters: gaming statistics
- WOWaholics Anonymous: WOW addiction
- Common Sense Media: media ratings
- Real Battle Ministries: video game addiction
- Families Managing Media: courses, resources
- Digital Australia Report: research

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122

Zone'in Techniques

Jumping Jacks – or - Running In Place

Figures 109/10. Jumping jacks; running in place. Retrieved from Dreamstime 2022

© Sunshine Coast Occupational Therapy Inc. 2021

123

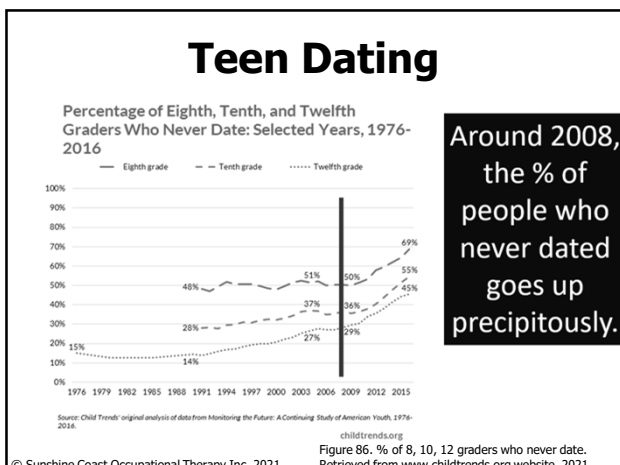
Pornography

A widespread taste for porn means that nature is alerting us to some threat of extinction.

JG Ballard, novelist

© Sunshine Coast Occupational Therapy Inc. 2021


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125

Elementary Porn

- 42% of children aged ten use internet pornography.
- Iceland, Scotland, England banned internet porn due to increased sexual assault of children on children.
- Most active pornography users are aged 12-17 years.
- Porn results in disinterest in relationships; erectile dysfunction. Wolack 2007, Ybarra 2005, Woda 2014, Freeman-Long 2000, DeAngelis 2007, www.yourbrainonporn.com, Sapolsky 2013, CNN 2013



© Sunshine Coast Occupational Therapy Inc. 2021

Figure 72. Keyboard. Retrieved from Unsplash, Clay Banks, 2021

126

Porn & Erectile Dysfunction

- 30% of all web traffic is porn (87% male, 30% female use porn daily).
- High frequency, duration, and intensity (perversion, prostitutes) of porn can result in erectile dysfunction & disinterest in relationships.
- Age 20 years – takes one year of porn abstinence to recover erectile function.
- Age 50 years – takes only 2-3 months to recover. Need Viagra?



Figure 79a. Switch off. Retrieved from Dreamstime, Yudesign, 2021 b. Viagra. Retrieved from Dreamstime, Steve Allen, 2021

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2013

127

Porn Impact on Brain *Structure and Function*

Early use and longer durations of porn cause:

- Decrease in striatum grey matter (cell bodies, neuron terminals, dendrites) resulting in low reward response.
- Decrease in connectivity white matter (neurons) to frontal lobes resulting in decreased executive functions (memory, concentration). Kuhn 2016



Figure 75. SPECT imaging of brain. Courtesy of Amen Clinic. Retrieved from www.conquerseries.com. 2021

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128

Porn is Not Safe...for Anyone

- Porn is most toxic, addictive substance threatening humanity.
- Porn is causally related to the rapid rise in the following:
 - Sexual abuse of children by adults.
 - Sexual abuse of children by children.
 - Violence, rape and degradation of women and children.
 - Trafficking of women and children for exploitation and/or prostitution.
 - Misogynistic hate groups; violence and mass killings by Incels. Vogt 2022



Figure 73. Child with both hands up shielding self. Purchased from Dreamstime, 2021

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129

Sex...It's Getting Younger

- Sexualization of young children starts with the parents...it's all about what they watch!
- 25% of 10 yr old children are sexting.
- 40% of teens (girls 2 X boys) have posted or sent sexually explicit message/image.
- 86% of sexters report being sexually active.
- 80% of teens <18 yrs. have sexted.



National Center for Missing and Exploited Children 2009, Englander 2012

Figure 94. Girl embracing her legs. Retrieved from Dreamstime, Olga Ekaterincheva, 2021

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130

Child On Child Sexual Abuse

- Child Sexual Abuse Material (CSAM) increasing.
- Between 2012 – 2016 in UK, child on child sexual abuse rose by 78%.
- Faux (fake, acted out) incest is one of the most popular genres of porn.
- 50% of children want to stop - but can't. Sharpe 2021
- Boys with autism have more hypersexual and atypical fantasies and behaviors than neurotypical boys. Shottle 2017



Figure 78. Crumpled paper with Family typed on it. Retrieved from Dreamstime, 2021.

© Sunshine Coast Occupational Therapy Inc. 2021

131

Porn, AI, Sexual Violence

- Artificial intelligence drives porn escalation to more violent and depraved content e.g. strangulation, child sexual abuse.
- Meta-analysis shows porn consumption correlates with committing acts of sexual aggression (stronger for verbal than physical aggression).

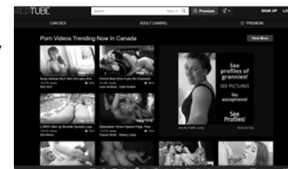


Figure 86. RedTube free porn home page. Retrieved from www.redtube.com, 2022

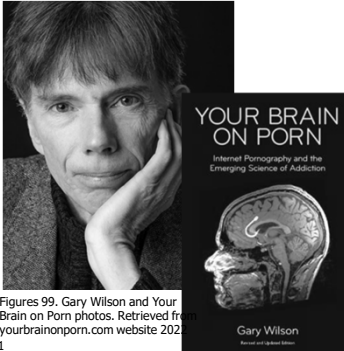
Sharpe 2021, Wright 2015

132

Your Brain on Porn

"To masturbate or not, this is the question"

- Passed away 2015.
- TED Talk – The great porn experiment.
- Book – Your Brain on Porn.
- Website – YourBrainOnPorn.com
 - Rebooting
 - Weblinks
 - Research
 - Books



Figures 99. Gary Wilson and Your Brain on Porn photos. Retrieved from yourbrainonporn.com website 2021

© Sunshine Coast Occupational Therapy Inc. 2021

133

Porn Resources

- Your Brain on Porn: research, resources.
- Fight the New Drug: porn resources.
- Reboot Nation: porn resources, forum.
- Culture Reframed:
- Covenant Eyes: porn stats, faith based.
- Qustodio: porn blocker.
- Remojo: porn blocker.
- Million Kids: trafficking of children.




Figure 100. Culture Reframed website home page. Retrieved from www.culturereframed.org, 2022

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134

TECHNOLOGY MANAGEMENT

Tech Talk for Teens

Quiz 3

Screen research part 1

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135

Zone'in Technique

3 Deep Breaths




Figure 74. Woman smelling flower. Dreamstime, 2022. Figure 75. Blowing out candle. Dreamstime, 2022.

© Sunshine Coast Occupational Therapy Inc. 2021

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TECHNOLOGY MANAGEMENT

Tech Talk for Teens

Part 4

Screen research - part 2

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137

Social Media

It's far from social and it's NOT SAFE!

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138

Social Media Isn't Social



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 69: Teens on phones. Purchased from Dreamstime, 20

139

Look Up



Video 5. Look Up. Courtesy of Gary Turk. Retrieved from You Tube, 2021
© Sunshine Coast Occupational Therapy Inc. 2021

140

The Great Social Divide

MALES
Videogames, Porn
Heavily researched

FEMALES
Social Media
Poverty of research

Desire competence.

• **Desire social acceptance.**

36% U.S. and 48% Canadian 18-30 year old males live with their parents; not working; not in school.

• Canadian Association of Mental Health reports >50% of teen girls report significant depression and anxiety; cited social media as causal factor.

Stats Canada 2012, U.S. Census Bureau 2012

• CAMH 2018

© Sunshine Coast Occupational Therapy Inc. 2021

141

Children and Social Media

➤ Rated > 13 years:

- Tic Toc
- Instagram
- Snap Chat
- Facebook

➤ 40% of 9 – 12 year old's have above accounts.

➤ 50% of teens report "addiction" to social media.

➤ Parents can't control own usage of social media.



Figure 18. Children on cell phones. Purchased from Dreamstime, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

142

Selfie Never Perfect...Enough



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 70: Teen on phone. Purchased from Dreamstime, 2020

143

Facebook Targets Kids

"We want to help foster communication [on Facebook] and make that the most exciting thing you want to be doing."

- Shu Pei Luu, AI Director Facebook Messenger Kids



Facebook AI tracks when children feel insecure, useless, worthless, or a failure and gives them a "boost".

© Sunshine Coast Occupational Therapy Inc. 2021 Figure 19. Facebook. Retrieved from Pixabay, Gerd Altmann, 2021

144

Social Media AI

Social media's addictive algorithms create polarization.

Tristan Harris

145

The Social Network



© Sunshine Coast Occupational Therapy Inc. 2021

Video 1. The Social Network film trailer. Retrieved from Wikipedia. 2021

146

AI Debases the Soil of Society

- Machines are doing things we can't possibly understand, predict or control.
- Upgrading of machines at the cost of degradation of humanity.
- Loss of human attention is critical to learning and human evolution.
- AI result is the de-evolution of the human brain. Tristan Harris

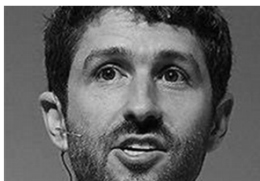


Figure 22. Tristan Harris, CEO of Center for Humane Technology. Retrieved from tristinharris.com, 2022

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147

\$ Lucrative \$

You never get something for nothing

- Duration spent: more time user spends engaged in App, view more ads, more revenue for developer.
- Personalization of content: use App artificial intelligence (AI) to create user profile of user preferences and vulnerabilities.
 - Sell this data back to ad companies for global marketing.
 - Use data to be more selective in App ads which profile user preferences.
 - Use data for manipulative design to promote user addiction to App.

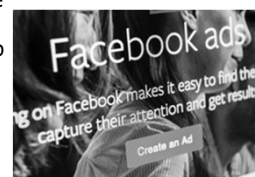


Figure 23. Facebook ads. Purchased from Dreamstime, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

148

Fake News

- 2000's - 'post-truth' climate.
- Humans have a scarcity of attention amid information overload.
- 2018 OECD PISA reading tests found only 10% of 15 yr. olds were able to distinguish fact from opinion. OECD.org 2018
- Fake news is forwarded 6 X faster than real news. Johann Hari 2021



Figure 27. Fake news graphic. Purchased from Dreamstime, 2022

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149

Mental Illness and Screens

150

Mental Illness and Screens

Screen time > 75 min. in girls and 105 min. in boys per day associated with:

- Increased obesity
- Increased depression and anxiety
- Poor quality of life
- Unhealthy diet
- Decreased physical and cognitive abilities

Improved outside physical activity associated with:

- Physical fitness
- Cardiometabolic health
- Bone health,
- Academic performance
- Executive function
- Mental health
- Reduced obesity

* 1 hr/day physical activity + < 2 hrs/day screens = optimal health

Univ of Queensland Asad Khan, 2021

151

1 in 4 Children/Youth Have Problematic Cell Phone Use

➤ Search strategy 2011 to 2017, 924 studies identified, 41 were included in this review.

➤ PSU was reported in one in every four children and youth.

➤ Mental health outcomes were: depression; anxiety; stress; poor sleep quality; and decreased educational attainment.

Figure 8. Prevalence of problematic smartphone usage and associated mental health outcomes amongst children and young people: a systematic review, meta-analysis and GRADE of the evidence. Retrieved from BMC Psychiatry, 2021.

152

Smart Phone Dependency Predicts Loneliness/Depression (we give iPhones to infants/toddlers)!

- 2021 study of 346, 18 to 20-year-olds.
- Researchers found that relying on smartphones preceded symptoms of loneliness and depression...
- Rather than the other way around..

Article in Press
Short-Term Longitudinal Relationships Between Smartphone Use/Dependency and Psychological Well-Being Among Late Adolescents


Matthew A. Lapierre, Ph.D., Fengli Zhao, M.A., Benjamin F. Custer, M.A.
Department of Communication, University of Arizona, Tucson, Arizona

Figure 9. Short-Term Longitudinal Relationships Between Smartphone Use/Dependency and Psychological Well-Being Among Late Adolescents. Retrieved from J of Adolescent Health, 2021.

153

Jean Twenge on Suicide

71% of teens who spend > 5 hours per day on devices are more likely to have one risk factor for suicide.



Video 1. Jean Twenge TED Talk. Courtesy of TED, www.ted.com, 2021

154

Screen Duration & Well-Being

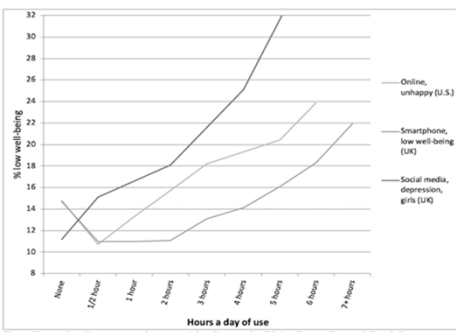


Figure 10. Hours a day of internet, smartphone or social media use and well-being. Courtesy of Twenge & Campbell (2019). Retrieved from Psychiatric Quarterly, 2021.

155

Screen Duration & Depression

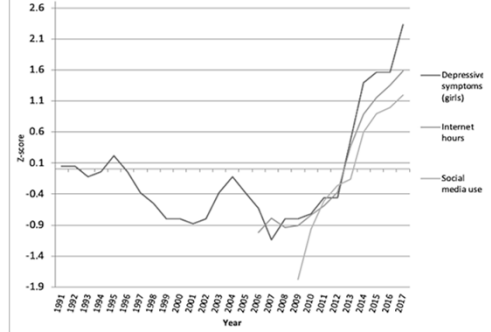


Figure 11. Teen girls' depressive symptoms, hours using the internet, and social media use (Z-scored), 1991-2017. Source: Monitoring the Future survey of U.S. 8th, 10th, and 12th graders. Retrieved from Psychiatric Quarterly, 2021.

156

What is Internet Addiction?

Can't put device down

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157

Engage in Life

- People engage in addictive substances because they are bored and stressed.
- Addicts need friction, action, stimulation.
- There's nothing we HAVE to do anymore.
- Lost life's purpose.
- Look around...see what needs to be done...do it.



Figure 71. Couple sucked into their phones. Retrieved from Dreamstime, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

158

Children and Addiction

- For the first time ever children have addictions; enormous costs to health and education.
- Detached parents model tech addiction.
 - Boys – video games, porn.
 - Girls – social media, Netflix.
- Studies show 1 in 11 children between ages 8 -18 years have a tech addiction.
- 50% of teens report addiction. Flores 2009, Gentile 2011, Common Sense Media 2018



Figure 46. Internet connections. Retrieved from Dreamstime, Alphaspirit, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

159

Symptoms of Internet Addiction

Mental or Behavioral

- Feelings of euphoria
- Boredom with routine tasks
- No sense of time
- Inability to prioritize or keep schedules
- Procrastination
- Fear, loneliness, isolation
- Mood swings, depression, anxiety, agitation
- Feelings of guilt, dishonesty
- Teens > 5 hrs/day on electronic devices 71% more likely to have suicide risk factors than teens 1 hr/day use.
- Teens with smartphone addictions are more likely to drink alcohol, use tobacco, and have poor diets. Halcyon, 2021, Psycm.net, 2019, Gregory 2019

Physical

- Poor personal hygiene
- Poor nutrition
- Carpal Tunnel Syndrome, thumb tenosynovitis
- Neck and back pain
- Dry eyes and other vision problems
- Weight gain or loss
- Insomnia
- Headaches

Gregory 2019, Psycm.net, 2019

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160

"Gaming Disorder" a Mental Illness in 2018 – ICD 11

WHO's International Classification of Diseases



Figure 64. Teen sleeping with gaming console. Retrieved from Dreamstime, 2021

A pattern of gaming behaviour characterized by:

1. Impaired control over gaming.
2. Increasing priority given to gaming over other activities.
3. Continuation or escalation of gaming despite negative consequences.
4. Significant life problems (personal, family, social, education, occupational). Pontes 2019, WHO 2018

© Sunshine Coast Occupational Therapy Inc. 2021

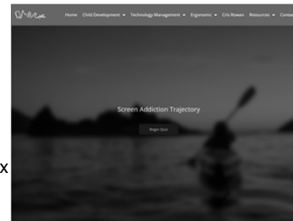
161

Take the Screen Addiction Trajectory Questionnaire

www.reconnectwebinars.com/resources

40 Questions, 8 Categories

- Screen usage
- Behaviour
- Social
- Emotional
- Relationships/sex
- Physical
- Daily activities
- Productivity



6 Response Choices

- Never
- Minimal
- Sometimes
- Moderate
- Often
- Maximum

Figure 15. Screen Addiction Trajectory Questionnaire Retrieved from www.reconnectwebinars.com, 2022

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Screen Addiction Questionnaire Intervention Trajectory

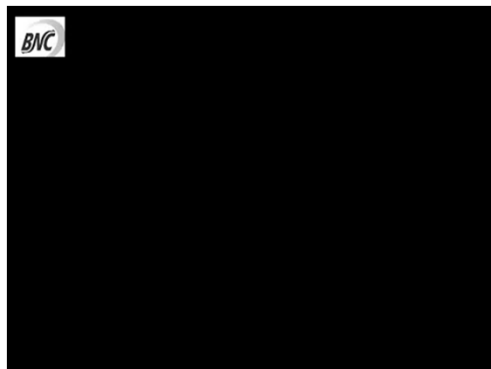
Level	1	2	3	4
	Education	Counselling	Experiential	Residential
Symptoms and Severity	0-10 points	11-20 points	21-30 points	31-40 points
Interventions	Education Websites Forums Books Webinars Conferences Family 24-hr 1/wk unplug	Education Family therapy Parent coaching Weekend retreats Family 1 wk 1/mo. unplug - OR - Family 1 mo. unplug	Education 1 mo. unplug nature camps Family 3 mo. unplug Short stay residential	Education 6 mo. unplug Inpatient hospitalization Long stay residential

Figure 16. Screen Addiction Intervention Trajectory. Produced by author, 2022

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163

Addiction Treatment



Video 7. China's Web Junkies. Courtesy of Shosh Shlam and Hilla Medalia, BNC. Retrieved from You Tube, 2014.

164

China 'Solved' Gaming Addiction *Gaming referenced as "spiritual opium"*

- Minors are banned from playing online video games entirely Mon.-Thurs.
- Online gamers < 18 yrs. are allowed to game 8-9 p.m. on Fri., Sat., Sun. and on public holidays.
- > 75 percent of minors play < 3 hrs/wk; game addiction has been "basically solved".



Figure 76. Boy playing video game on phone. Retrieved from Dreamstime 2022

China Game Industry Group Committee 2022 report on "The Protection of Minors in China's Game Industry". Techworm Nov. 24, 2022

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165

Results of Screen Addictions

- Low self esteem
- Poor social skills
- Adhd, impulsivity
- Dysfunctional relationships
- No healthy interests
- Difficulty identifying feelings
- Dissociative experiences
- Poor academic achievement
- Hostility, aggression, conflict

DeBerardis 2008, Ghassemzadeh 2008



Figure 50. Teen sleeping with phone. Retrieved from Dreamstime, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

166

VG/SM Designed for Addiction

- Novelty – Fortnite varies skill ability, characters.
- Rewards – loot boxes, gambling.
- Perceived social.
- Content positioned between anxiety and boredom.
- Multitask to distract.
- Persuasive/Addictive:
 - Auto play (Netflix, YouTube)
 - 24/7 (Snap Chat streaks)
 - 'Likes' (Instagram, Facebook)



Figure 111. Apppic. Purchased from Dreamstime, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

167

Zone'in Technique *Eat a Nutritious Snack*




© Sunshine Coast Occupational Therapy Inc. 2021 Figure 144. Nutritious snacks. Retrieved from Dreamstime 2022

168

Pedophile Predation *for Sextortion*

169

Sexual Exploitation



- In Canada between 2014 and 2019 there were 1.7 million reported attempts at sexual exploitation.
- NEVER share naked pictures of yourself...even with "friends".

© Sunshine Coast Occupational Therapy Inc. 2021 Figure 73. Internet. Purchased from Dreamstime, 2020

170

Apps, Social Media and Videogames are Not Safe!

- In 2021 global technology companies reported:
 - 29 million suspected cases of child sexual abuse material on their platforms.
 - 85 million child sexual abuse videos and images.
- Predators use Meta platforms (Facebook, Instagram) and video games to groom children.



Figure 36. Pedophile with camera. Retrieved from Dreamstime, 2022

© Sunshine Coast Occupational Therapy Inc. 2021

171

Don't Talk to Strangers? *SM platforms are an open door!*

- Cyberbullying – friends and strangers.
- Predators – grooming.
- Adult content.
- AI surveillance – ads, marketing, data sold.
- Memes – dangerous challenges.
- Propaganda – political, extremists, untruths.
- Scammers – pose as celebrities.



Figure 38. Man and boy on bench. Purchased from Dreamstime, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

172

Sextorsion *The Hidden Pandemic* www.sextorsionfilm.com




Video 4. Sextorsion film trailer. Shown with permission from Maria Demeshkina Peek, Director, 2022
© Sunshine Coast Occupational Therapy Inc. 2021

173

Eating Disorders *Anorexia, bulimia, bingeing, obsessive healthy eating/exercise...*

- Social media (SM) is cited in research as associated with disordered eating (DE).
- 2019 study of grade 7, 8's showed greater number of SM accounts and longer durations spent on SM was associated with significantly higher disordered eating.

2019 Wilksch



Family sues Meta, blames Instagram for daughter's eating disorder and self-harm
Parents say the case details unprecedented use of documents released with the Facebook figures.

Figure 71. Alexis Spence. Courtesy of NBC News June 7, '22
Photo by

© Sunshine Coast Occupational Therapy Inc. 2021

174

Cyberbullying

It's no longer safe...even at home.




© Sunsh... 2021 Figure 72. Teen with pho... hstime, '20

175

Cyberbullied Girls

- Girls cyberbullied 3 X more than boys.
- Girls long to be accepted by peers.
- Majority of cyberbullying is carried out on social media sites.
- Results are increased depression, anxiety, eating and sleep disorders, PTSD, suicide.

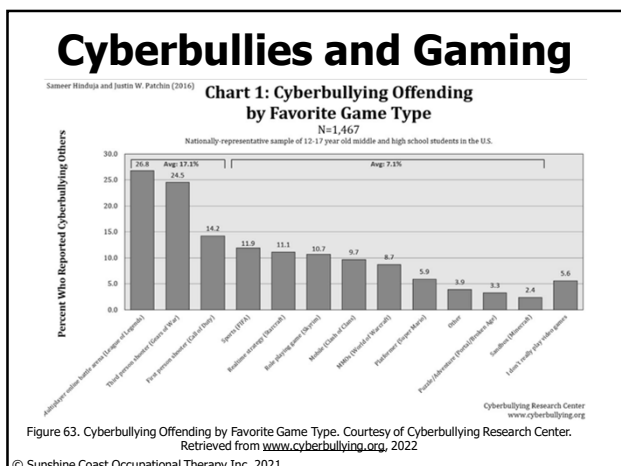


Video 7. Kind Campaign video "Finding Kind" trailer found on www.kindcampaign.com. Shown with permission from Kind Campaign, 2022

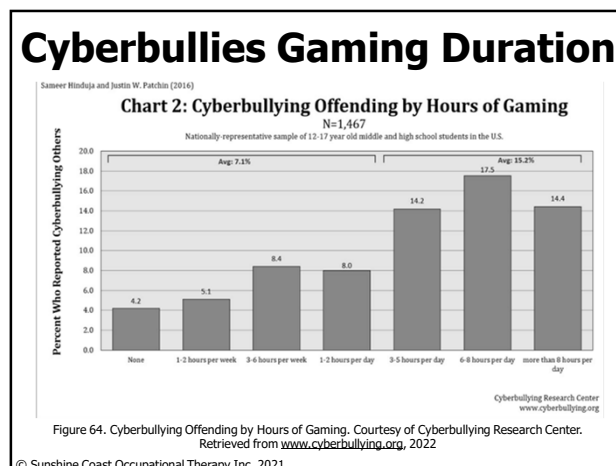
Barlett 2018

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178

Cyberbullying Results?

- While online cyberbullying occurs off schools, resulting altercations happen on school site.
- Results in physical, psychological, social, educational harm.
- Cyberbullying associated with high levels of depression and low perceived well-being and social supports.


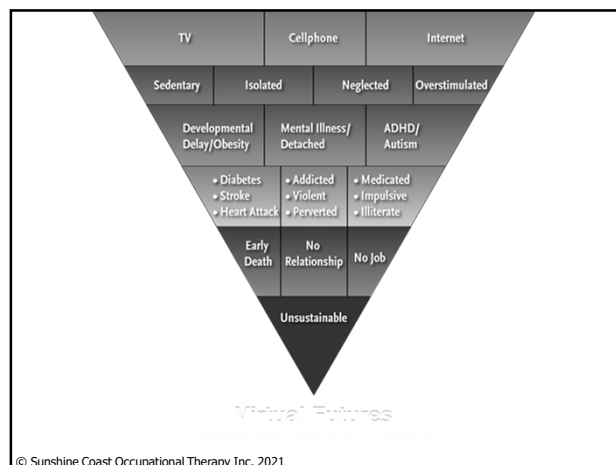


Figure 64. Sad girl with phone. Retrieved from Dreamstime, Vadymvdrobot, 2021

Intel 2014, Hinduja 2010, Hellfeldt 2021

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Zone'in Technique Arm Wrestling



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 74. Arm wrestling. Retrieved from Dreamstime 2022

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What About Wireless Radiation?

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Wired vs. Wireless Electricity



Wired electricity – insulated cables



Ethernet electricity - insulated cables



Wireless electricity – NOT INSULATED

Wireless electricity (WiFi) is electromagnetic radiation (EMF) that operates at radio wave frequency (RF).

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Figure 4a. Plug. Retrieved from Unsplash. Kelly Sikkema, 2021 b. Router. Retrieved from Pixabay, Eliud-cesar, 2021 c. Cable & Computer. Retrieved from Pixabay, OpenClipart-Vectors, 2021 d. Wireless. Retrieved from Pixabay, Annclipartures, 2021

183

All Living Things Emit Electromagnetic Radiation

- Solar energy.
- Earth.
- Manmade sources.
- Humans:
 - Electroencephalogram (EEG) of brain 1-30 Hz.
 - Electrocardiogram (ECG) of heart 2 Hz.
 - Body 8 Hz.



Figure 3. Human being wired for EEG. Retrieved from Creative Commons, 2021

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Ionizing vs. Non-ionizing

- Ionizing happens when the frequency of the radiation is so high, an electron is removed from a molecule.
- Low frequency electromagnetic radiation is 'non-ionizing' and did not produce heat, so was thought to be not harmful to cells or DNA.
- So why the sign??

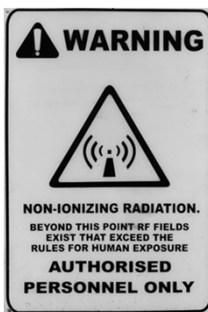
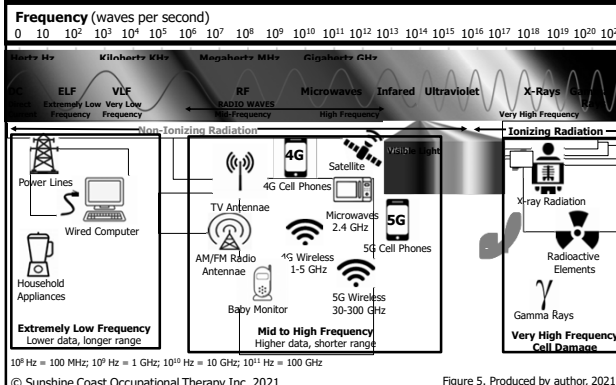


Figure 6. Warning sign for non-ionizing radiation. Retrieved from Dreamstime, 2021

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Electromagnetic Spectrum



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Figure 5. Produced by author, 2021

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Erroneous Assumption

- Microwave radiation heats food and was deemed not safe for humans, hence insulation.
- Wireless radiation does not emit heat, so deemed "safe".
- Biological effects of wireless radiation were not measured, only heat.
- If you don't look for something, you won't find it.



Figure 11. Microwave oven. Retrieved from Dreamstime, 2021

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What Emits Wifi Radiation?

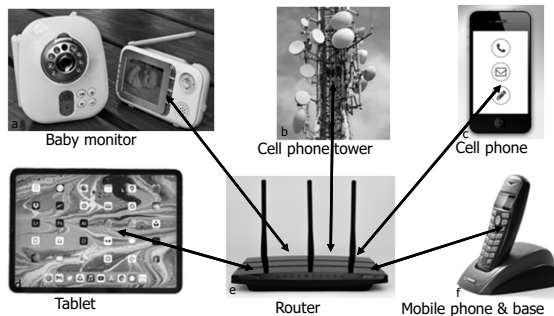


Figure 7a. Baby monitor. Retrieved from Dreamstime, Lianna2013, 2021 b. Cell phone tower. Retrieved from Pixabay, Tibor Janosi Mozes, 2021 c. Cell phone. Retrieved from Pixabay, Pixabay, 2021 d. Tablet. Retrieved from Unsplash, Jeremy Bezanger, 2021 e. Router. Retrieved from Pixabay, USA-Ressblogger, 2021 f. Wireless telephone. Retrieved from Dreamstime, Ruslan Glimanishin, 2021

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How Much Radiation?



Figure 6a. Smart meter. Retrieved from Unsplash, Dan Lafabre, 2021 b. Baby monitor. Retrieved from Dreamstime, Lianna2013, 2021 c. Wii controller. Retrieved from Dreamstime, Susanne Neal, 2021 d. Nintendo. Retrieved from Unsplash, Ravi Palwe, 2021 e. WiFi access point. Retrieved from Pixabay, Wikimediaimages, 2021 f. Cordless phone. Retrieved from Pixabay, Atimedia, 2021 g. Cell phone. Retrieved from Pixabay, StockSnap, 2021

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How to Measure Wireless Radiation

For Measuring EMF
Gigahertz Solutions ME 3830B



For Measuring RF
EMF Fields Acoustimeter



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Figures 9 a & b. Gigahertz Solutions and EMF Fields Acoustimeter. Retrieved from Safe Living Technologies website, 2021

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What is 5G Wireless Radiation

- 5th generation WiFi: 3G+ 4G + 5G.
- Network of radiation.
- Internet of Things (IoT):
 - Cars, phones, homes, robots, virtual reality...
- Faster, but shorter range.
- 600 MHz – 100 GHz.



Figure 10. 5G towers. Retrieved from Dreamstime, 2021

Citizens for Safe Technology - 5G Report 2021

© Sunshine Coast Occupational Therapy Inc. 2021

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Towers, Base Stations, Satellites

3/4G Towers, 5G Small Cell Base Stations

- 3 & 4G Towers in place.
- Small Cell Base Stations every 2-10 houses.
- Fire risk: unable to extinguish, toxic fumes.



Figure 44. 5G Tower. Purchased from Dreamstime, 2021

5G Satellites

- Low earth-orbit (LEO) satellites.
 - Canadian Radio-TV and Telecommunications (CRTC) approved launch of 12,000 LEO's by Elon Musk's SpaceX to orbit at 550 km above earth.
 - Traditional telecommunications satellites orbit at 20,000 km above earth.
 - 441,439 LEO's globally approved for 2022 launch.

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Cellphonetaskforce.org, 2022

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EMF Effects on Humans

- Stimulation: electromagnetic stimulation to nerves.
- Thermal: heat produced by device.
- Non-thermal: can't feel it, see it, difficult to measure it due to variables in frequency, modulation, pulsing etc.

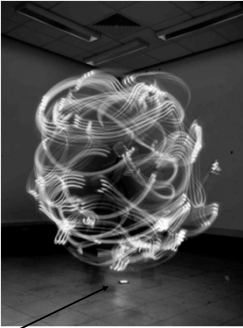


Figure 18. Cell phone in wifi mode with red showing highest radiation blue lowest using DSLR camera, long exposure with Arduino based Kirlian device (WiFi sensor connected to processor connected to LED strip). Reproduced with permission from Luis Hernan, 2021

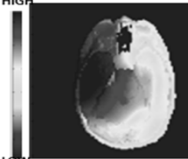
© Sunshine Coast Occupational Therapy Inc. 2021

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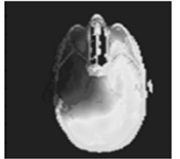
Children Absorb 10 X More Radiation

Children Are not "Little Adults"

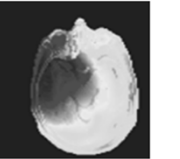
3 Year Old



6 Year Old



34 Year Old



Not to scale. Fernandez, de Salles, Davis (2015)


- Thinner skulls, smaller heads (shorter distance to brain centers)
- Different dielectric properties (higher liquid content)
- Brains are less myelinated and still developing

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ALERTE PHONE GATE **YOUR CELL PHONE IS DANGEROUS!**
For your HEALTH adopt these simple gestures:

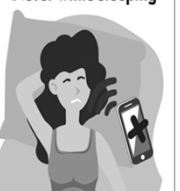
Not in your pocket



Not against the ear



Never while sleeping



"In 2018, multiplication of 4 and more of the most serious brain cancers"

Act Now! Share and Inform those around you >>>

www.phonegatealert.org
International NGO for protection of the health of cell phone users

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Salient Concerns

- Wireless not proven safe.
- Current research on 3G and 4G shows harm.
- No immediate or long term research on 5G.
- Wireless radiation is cumulative.
- More antennae's required = more radiation.
- No consultation from citizens, only need to "be informed".

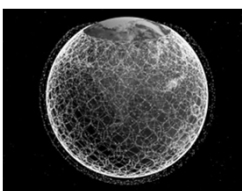


Figure 58. Computer scientist rendering of SpaceX's constellation of satellites. Courtesy of Business Insider, 2021

Citizens for Safe Technology – 5G Report 2021

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Resources

- Environmental Health Trust – ehtrust.org; research, education, schools, policy, products; sued the FCC.
- Citizens for Safe Technology – c4st.org; read *An Overview of 5G*.
- Electromagnetic Frequency Portal – emfportal.org; collated research on impact of wireless radiation.
- Electromagnetic Radiation Safety – saferemr.com.
- Physicians for Safe Technology – Mdsafetech.org.
- BioInitiative Report – bioinitiative.org; scientists, researchers, public health professionals.
- Katie Singer – katiesinger.com; read *The Silent Electronic Spring*.
- Collaborative for High Performance Schools – chps.net; read the *Best Practice Manual* for schools.

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Environmental Health Trust Resources – ehtrust.org

- Key Issues: safety, cancer, telecom industry influence.
- Science: research, conferences.
- Policy: legal testimony, insurance.
- Resources: film, classroom, graphics, toolkits, factsheets.

Schools - check out *Student Guide: Cell phones, wireless and your health*.

- Publications: books, newsletters, media, op-eds.
- Get Educated: Wi-Fi reduction products and tips.
- Actions: safe tech initiatives, resolutions, right to know.




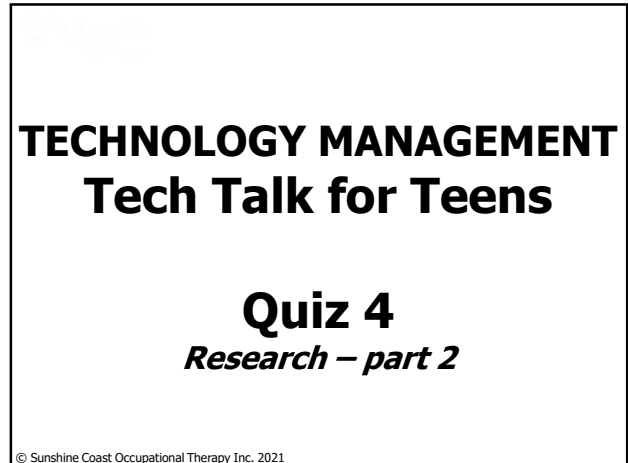
Figure 24. EHT – Wireless in Schools website image retrieved from ehtrust.org 2021

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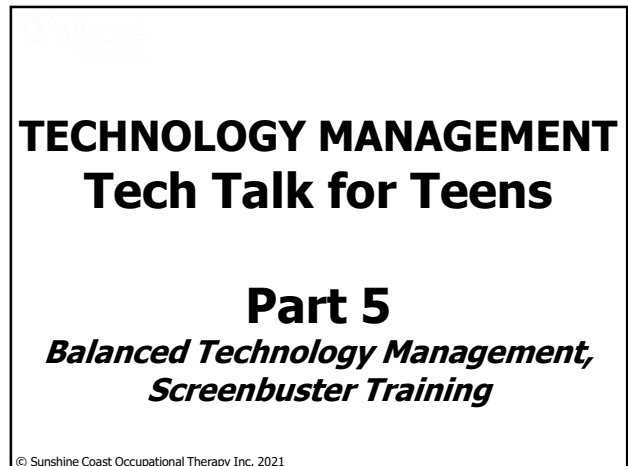
199



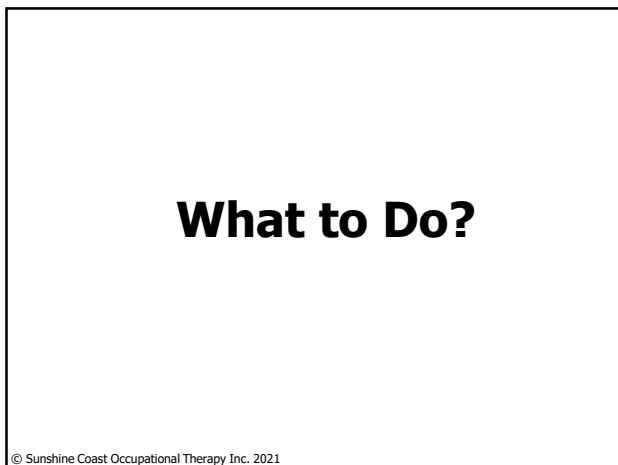
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201



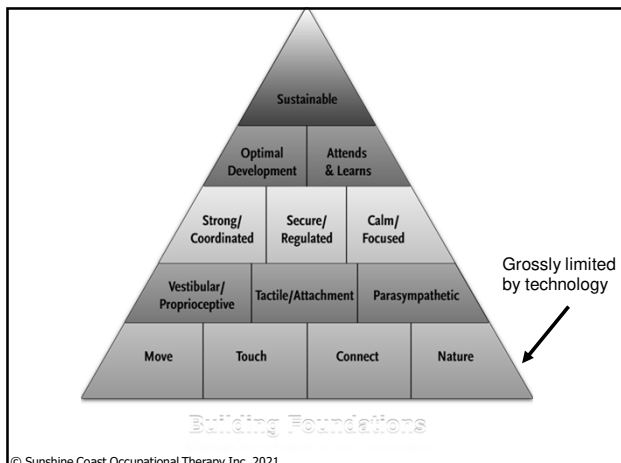
202



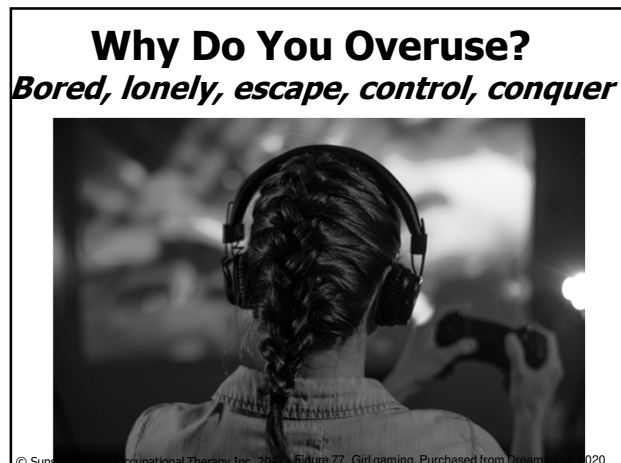
203



204



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Hint:

Turn Off Notifications

© Sunshine Coast Occupational Therapy Inc. 2021 Figure 91. iPhone instructions/settings. From author's phone.

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Hint: Do the Opposite Action

Want to do this?	Do this instead!
➤ Pick up phone.	➤ Walk away from phone, put phone in drawer.
➤ Take phone to bedroom or bathroom.	➤ Leave phone in kitchen.
➤ Stay on phone when someone wants to talk.	➤ Put phone down when others present.
➤ Obsessively scroll.	➤ Put phone down when done with planned task.

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Reconnect - Self, Others, Nature, Spirit

- Self – who are you, what do you like/dislike, what are you passionate about, what moves you to tears?
- Others – reach out, take a risk, call (don't text), plan 5 questions (connection happens in the silence).
- Nature – just sit, watch, and listen; mother nature heals trauma and has far more depth than the internet.
- Spirit – what are your beliefs, what do you value, what is universal energy, what happens after death?

Figure 78. Hands reaching. Purchased from Dreamstime, 2020

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Consider Promise AND Peril

Who: developmental age, adhd, autism, addiction.

What: tech content (fast paced, violent, sexual, educational).

When: not before bed, in car, meals, holidays.

Where: requires managed supervision.

Why: escape, lonely.

How: handhelds - earlier, longer.

Figure 12. Screens and school. Retrieved from Pexels, Mary Taylor, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

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Why Do Parents Overuse?

The opposite of addiction is connection



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 78. Mother on phone. Purchased from Dreamstime, 2020

211

Ask for a Family Meeting



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 79. Family meeting. Purchased from Dreamstime, 2020

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Screens, Sleep & Movement

Consider Expert Guidelines

Age	Average Screen Use	Dr. Recs for SCREENS	Dr. Recs for SLEEP	Dr. Recs for MOVEMENT
0-2 years	2.5 hrs/day	No screens	14 hrs/day & nite	3 hrs/day; no restraints > 1 hr
3-5 years	4.5 hrs/day	1 hr/day	12 hrs/nite	3 hrs/day; no restraints > 1 hr
6-12 years	7.5 hrs/day	2 hrs/day	11 hrs/nite	3 hrs/day; 1 hr vigorous
13-18 years	9.0 hrs/day	3 hrs/day	10 hrs/nite	2 hrs./day; 1 hr vigorous

Canadian Pediatric Society 2019, Canadian Sleep Foundation 2017, Canadian Society for Exercise Physiology 2018, National Institute of Health 2018

Figure 80. Screens, Sleep and Movement Guidelines. Produced by author 2021

© Sunshine Coast Occupational Therapy Inc. 2021

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Screen Content and Duration

Consider Expert Guidelines

Developmental Age	How Much?	Non-violent TV	Hand-held 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	OK	never	never	never	never
6-12 years	2 hours/day	OK	never	never	never	never
13-18 years	2 hours/day	OK	OK	limit to 30 minutes/day	never	never

American Academy Pediatrics 2018, Canadian Pediatric Society 2010, C Rowan, A Doan, H Cash 2014

Figure 81. Screen Content and Duration Guidelines. Produced by author 2021

© Sunshine Coast Occupational Therapy Inc. 2021

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Change Content

- Prosocial content ⇨ prosocial behavior
- Antisocial content ⇨ antisocial behavior
- Fast paced content ⇨ adhd, impulsivity



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 84. Kids fighting. Purchased from Dreamstime, 2020

215

Try to Change 3 Things

Sleep, eat, speak, play...screen-free!

- Put down the phone and talk to people around you.
- Talk don't text.
- No screens while eating, in bedroom, 1 hr prior to bed.
- Lock all screens up at night.
- Turn off all notifiers.
- Go outside immediately when get home e.g. bike ride.
- Listen to your heart (not head).




© Sunshine Coast Occupational Therapy Inc. 2021 Figure 83. Teen on phone. Purchased from Dreamstime, 2020

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Hint:

Lock screens up at night

Out of sight... out of mind!

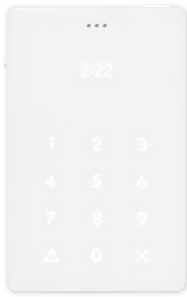


© Sunshine Coast Occupational Therapy Inc. 2021 Figure 92. Lock Box. Purchased from Dreamstime, 2020

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Hint: Get a Light Phone

- Phone calls and texts only.
- No internet e.g. no social media, video games or porn.
- No cyberbullying.
- Peace of mind...peace of life.



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 90. Light phone. Retrieved from Light Phone site, 2020

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Hint: Follow the Wifi 3 D's

- Increase **Distance** – every 1” away decreases wireless radiation by 10%.
- Decrease **Duration** – stay within expert guidelines.
- **Disable** Device – put in airplane mode, work offline, turn Wifi off (timers).
- **Go Wired** – use ethernet cables, corded mice/keyboard.
- **Shield** Device – put table between laptop/tablet and person.





Figure 53. Phone radiation. Retrieved from Dreamstime, Zinco79, 2021

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Set Family Rules

1. Read one book per day.
2. No screens 1 hour before bed.
4. Eat one meal together per day.
5. One board game night/week.
6. One bake cookies night/week.
7. One sports game day/week.
8. One chore per day.
9. One family outing day/week.
10. One screen free holiday/year.



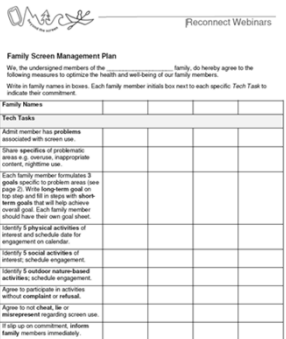
© Sunshine Coast Occupational Therapy Inc. 2021 Figure 82. Family Rules. Purchased from Dreamstime, 2020

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Hint: Tech Management Plan

Resource Handout

- Enlist helpers: parents, siblings, teachers, pastor, counsellor, extended family members.
- Ask for a family meeting.
- Create 2 family rules regarding screens.
- Identify 5 family activity.
- Sign family contract.




© Sunshine Coast Occupational Therapy Inc. 2021

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Don't Talk to Strangers

- Virtual friends are NOT the same as real friends.
- Someone posing as a kid might be a grown man.
- NEVER send anyone a picture of yourself.
- Tell parents or a teacher if you are worried or scared.
- Be aware on chat sites.



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 85. Pedophile. Retrieved from public commons, 2020

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Zone'in

Unplug'in


Hint:

Talk to Your Parents

Give them a Parent Unplug'in Brochure



'Must read' information for everyone who loves their children.



Addressing the effects of technology on child development

© Sunshine Coast Occupational Therapy Inc. 2021 © Zone'in Programs Inc. 2008

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Hint: Do the 24 Hour Survivor Unplug Challenge!

- At 3 pm today...
- ...go 24 hours without any screens!
- Figure out what you can do other than screens right when you get home.
- Ask your teacher to not use screens next day.
- Challenge your family and classmates to join you!





Figure 93. Kids on couch reading. Purchased from Dreamstime, 2020

© Sunshine Coast Occupational Therapy Inc. 2021

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Zone'in Technique
Waste Basket Ball



© Sunshine Coast Occupational Therapy Inc. 2021 Figure 94. Waste Basket ball. Retrieved from Dreamstime 2022

225

Tech Talk Education Program

Screenbusters

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Grade 6/7 Training
Screenbusters Program
Resource – Zombie Kid graphic

- Train teen peer models to do weekly Tech Talks.
- Children color "Zombie Kid" while learning about 5 key tech impact areas.
- Lots of discussion, questions, debate.
- End with *24 hour Survivor Unplugged Challenge*.




Figure 95. Screenbuster Zombie Kid graphic. Produced by author, 2020

© Sunshine Coast Occupational Therapy Inc. 2021

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Screenbuster Tech Talks
Resource – Tech Talk Guidelines for Teen Educators

- Survey usage rates; provide usage stats.
- Profile expert guidelines.
- Survey sleep rates in bedroom; provide sleep stats.
- Determine 5 things to do other than screens.
- Survey interest for school 'screen unplug'.




Figure 96. Teacher talking to students. Retrieved from Dreamstime, 2021

© Sunshine Coast Occupational Therapy Inc. 2021

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Screenbuster Requirements

- Requires school qualified supervisor (teacher, principal, counsellor, clinician etc.) certified in *Balanced Technology Management*.
- Commitment to provide weekly classroom sessions for grade K-7's.
- Requires teen certification in *Tech Talks for Teens*.
 - Course completion.
 - > 75% on quizzes.




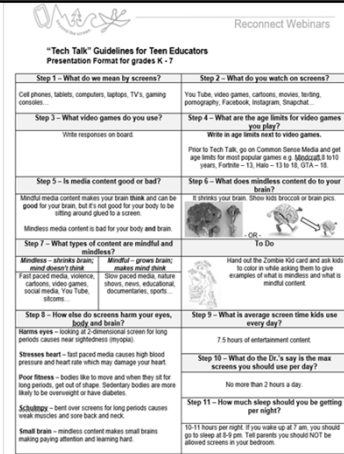
Figure 97. Teen with certificate. Retrieved from Dreamstime, 2022

© Sunshine Coast Occupational Therapy Inc. 2021

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Tech Talk Guidelines for Teen Educators

Resource Handout



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Tech Talk Format; Steps 1-4

Step 1 What do we mean by screens?	Step 2 What do you watch on screens?
Cell phones, tablets, computers, laptops, TV's, gaming consoles...	You Tube, video games, cartoons, movies, texting, pornography, Facebook, Instagram, Snapchat...
Step 3 What video games do you use?	Step 4 What are the age limits for video games you play?
Write kid's responses on board.	Write in age limits next to games. Prior to <i>Tech Talk</i> , go on Common Sense Media website and get age limits for most popular games e.g. Minecraft 8 to 10 years, Fortnite – 13 yrs., Halo – 13 to 18 yrs., GTA – 18 yrs. etc.

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Tech Talk Format; Steps 5-7

Step 5 Is media content good or bad?	Step 6 – What does mindless content do to your brain?				
Mindful media content makes your brain think and can be good for your brain, but it's not good for your body to be sitting around glued to a screen. Mindless media content is bad for your body and brain.	It shrinks your brain. Show kids broccoli or brain pics. 				
Step 7 – What types of content are mindless and mindful?	To Do				
<table border="0"> <tr> <td>Mindless</td> <td>Mindful</td> </tr> <tr> <td>Fast paced media, violence, cartoons, video games, social media, You Tube, sitcoms...</td> <td>Slow paced media, nature shows, news, sports, educational, documentaries...</td> </tr> </table>	Mindless	Mindful	Fast paced media, violence, cartoons, video games, social media, You Tube, sitcoms...	Slow paced media, nature shows, news, sports, educational, documentaries...	Hand out the Zombie Kid card and ask kids to color in while asking them to give examples of what is mindless and what is mindful content. 
Mindless	Mindful				
Fast paced media, violence, cartoons, video games, social media, You Tube, sitcoms...	Slow paced media, nature shows, news, sports, educational, documentaries...				

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Tech Talk Format; Steps 8-11

Step 8 – How else do screens harm your eyes, body and brain?	Step 9 – What is average screen time kids use every day?
Harms eyes – looking at 2-dimensional screen for long periods causes near sightedness (myopia). Stresses heart – fast paced media causes high blood pressure and heart rate which may damage your heart. Poor fitness – bodies like to move and when they sit for long periods, get out of shape. Sedentary bodies are more likely to be overweight or have diabetes. Schulmpy – bent over screens for long periods causes weak muscles and sore back and neck. Small brain – mindless content makes small brains making paying attention and learning hard.	7.5 hours of entertainment content per day.
Step 10 – What do Dr.'s say are the max screens you should use per day?	Step 11 – How much sleep should you be getting per night?
No more than 2 hours a day.	10-11 hours per night. If you wake up at 7 am, you should go to sleep at 8-9 pm. Tell parents you should NOT be allowed screens in your bedroom.

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Tech Talk Format; Steps 12-15

Step 12 – What can you do other than screens?	Step 13 – Unplug Challenge				
<table border="0"> <tr> <td>Indoors</td> <td>Outdoors</td> </tr> <tr> <td>Board games, card games, hide and seek, do crafts, invite friends over, cook, clean your room, do chores, help parents, feed/play with pets, nerf ball...</td> <td>Play sports (base ball, basketball, hockey), games (tag, capture flag) build forts, visit friends, walk, bike climb trees...</td> </tr> </table>	Indoors	Outdoors	Board games, card games, hide and seek, do crafts, invite friends over, cook, clean your room, do chores, help parents, feed/play with pets, nerf ball...	Play sports (base ball, basketball, hockey), games (tag, capture flag) build forts, visit friends, walk, bike climb trees...	<i>Your mission should you choose to accept it is to go 24 hours without screens! Who will accept this challenge?</i>
Indoors	Outdoors				
Board games, card games, hide and seek, do crafts, invite friends over, cook, clean your room, do chores, help parents, feed/play with pets, nerf ball...	Play sports (base ball, basketball, hockey), games (tag, capture flag) build forts, visit friends, walk, bike climb trees...				
Step 14 – Unplug Challenge Preparatory Steps	Step 15 – Unplug Challenge Follow-Up				
Hand out blank paper to all students. Have them write down 5 non-screen things they are going to do first thing when get home from school.	Visit classroom day after Unplug Challenge and ask kids to relate their experiences...good and bad. Teacher may ask students to journal about their experiences. Arrange a visit for following week.				

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What Can You Do Instead? Resource – 100 + Things to Do...

100 + THINGS to do OTHER THAN SCREENS			
Active Activities	Resting Activities	Social Activities	Achievement Activities
Weight Lifting Mountain Biking Gymnastics Camping Backpacking/Hiking Fishing/Hunting Shooting, Golf Street Hockey Basketball/Pick Up Game Baseball, Football, Soccer Archery, Juggling Paintball Martial Arts, Boxing Spin Classes Jogging New Sports/Recreational League Rock Climbing Gym Geocaching Join a Cooking Class Amusement Parks Join a Dance Class Boy Scouts/Girl Guides Adventure Races Wildlife/Sports Photography Outdoor Adventure with Friends Build Forts (Indoor), State Board Ramp Treasure or Scavenger Hunt Clean Your Room Night to Music	Reading to self or sibling) Creative Writing Drawing (sketch daily) Art Cooking, Baking Meal Preparation Graphic Design Painting Legos, Blocks, Snap Circuits Magic Tricks Shoof Foot Fix Something Do at Home Projects Origami Still Life Photography Interior Design Woodworking/Carpentry Cardboard Box Building Mechanics/Car Restoration Plan Business Start Up Poetry/Spoken Word Meditation Yoga Collect Something (stamps, coins) Public Speaking Sudoku, Cross Word Puzzles	Invite Friends Over Make Home Made Pizza Do Stand Up Improv Write a Song Form a Band Play Hide-A-Goek Play Flash Light Tag Play Capture the Flag Plan Scavenger Hunt at Park Start a Club Join a Local Choir Join a Sports Team Plan Street Hockey/Pick Up Game Board Games Plan Basketball/Pick Up Game Board Games Charades Outdoor Adventure Races Buddy Bullying Competitions Take an Improv Class Take a Stand-Up Comedy Class Visit Museums with Friends Go to Events with Friends Volunteer at SPCA Car Games/Play with my little one Sudoku, Cross Word Puzzles Vegetable/Memorial/Animal Game	Chess Build a Model Airplane/Car Paint by Numbers Learn an Instrument Produce Music Geocaching Contact Juggling Learn Public Speaking Birdwatching/Identification Mushroom Identification Wildlife Identification Plan Next Family Trip Learn New Language Learn Astronomy Plan Easter Egg Hunt for Siblings Chart Family Ancestry Build a Bird House Make Christmas Decorations Write a Family Cook Book Organize Kitchen Drawers Plant Own Garden Plot Rearrange Living Room Make Chore Calendar Build Arcade with Big Boxes Perform a Play for Neighbors SIS - Get a Paper Route, Mow Lawns, Shovel Snow, Babysit Do Household Chores!!!

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Figure 97. 100 + Things To Do Other Than Screens Handout. Produced by author, 2021

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Screenbuster Puppets



Figure 98. Puppets. Retrieved from Dreamstime, Ptitphotography, 2021

- Puppets talk to students (not Screenbusters).
- Reduces stage fright with presenting to class groups.
- Screenbusters report they felt more free to improvise and explore new instructional concepts.
- Promotes silliness, courage and is tons of fun!

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Screenbuster Session



Video 6. Screenbusters providing session to grade K/1's at Penelakut Island Elementary School. Shown with permission from Screenbuster students, '21

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Screenbuster Song Lyrics Resource Handout

Reconnect Webinars

Screenbuster Lyrics

Something strange, in the neighborhood
Who ya g00000 call... SCREENBUSTERS!
Something weird, and it don't look good
Who ya g00000 call... SCREENBUSTERS!
I [a02] afraid of no screens! (repeat)
If ya seeing guns, running through your head
Who ya g00000 call... SCREENBUSTERS!
Is Slenderman, stuck in your head?
Who ya g00000 call... SCREENBUSTERS!
I [a02] afraid of no gamers, I [a02] afraid of no zombies.
Who ya g00000 call... SCREENBUSTERS!
If ya all alone, pick up the phone, and call SCREENBUSTERS!
I [a02] afraid of no bullies, I [a02] afraid of no creeps, I [a02] afraid of no bullies. Yeah, yeah, yeah, yeah.
Who you g00000 call... SCREENBUSTERS!
If you've had a dose, of a freaky ghost... [ya better call... SCREENBUSTERS!
Lemon- Melt you something... ice cream makes me feel good!
I [a02] afraid of no Walking Dead... I [a02] afraid of no Training Dead
Don't get caught at home... NO! NO! SCREENBUSTERS!
When he comes through your screen... unless you want some more... I think you better call... SCREENBUSTERS!
[a02] Who ya g00000 call... SCREENBUSTERS!
Who ya g00000 call... SCREENBUSTERS! (repeat) I think ya better call... SCREENBUSTERS!
I can't hear you... LOUDER!
Who ya g00000 call... SCREENBUSTERS!
Louder! SCREENBUSTERS!
Who ya g00000 call? SCREENBUSTERS! (repeat x 2)

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Tech Talk Guidelines for Teen Educators - Additional Content Ideas

Resource Handout

Reconnect Webinars

Tech Talk Guidelines for Teen Educators
Additional Content Ideas for grades K - 7

Fact: Kids are using 4-5 times the amount of technology recommended by pediatricians.

Q: Why do you think technology is bad for our eyes, brain and bodies?
A: eyes - looking at fixed distance, 2-C screen causes near sightness, brain - watching oppoideas, entertainment causes brain death e.g. if you don't use it you lose it, body - sedentary bodies are less fit causing obesity, diabetes which result in earlier heart attack and stroke.

Fact: When screens are in use, people talk 20% less to each other.

Q: What happens when we don't talk to each other?
A: Humans are pack animals and don't do well when not part of their pack e.g. anxiety, depression, suicide.

Activity: pair up with a classmate and ask each other 3 questions e.g. favorite food, what do you like to do on weekends, do you have a pet. Get students to talk about whether this was easy or difficult and why.

Fact: Sleep deprivation in children and youth from technology overuse is termed epidemic in Canada.
Q: How much sleep should you be getting?

Canadian Sleep Foundation Guidelines for Children and Youth 2016		
3-5 years	10-13 hours/night	8-12 years
6-12 years	9-12 hours/night	13-18 years
		8-10 hours/night

Q: What happens when we don't get enough sleep?
A: can't pay attention or learn, less motivated, defiant, irritable, frustrated, take more risks, hard on heart, gain weight.

Fact: Images kids watch on media will be with them forever. Violent imagery can cause defiance, aggression and/or nightmares. Fast paced images cause attention deficit.

Q: Do you think overusing screens is a problem for you?

Helping Students Identify Alternate Activities

Fact: It's not about getting rid of tech, it's about balancing tech with healthy activity.
Q: Name 3 healthy activities you can do after school today that don't involve screens. Teacher should write these on the board and get students to check in next morning regarding progress.
Activity: Circle your tech effects and then list alternate healthy activities. Younger children may want to import photo onto grid and place on fridge as a reminder.

Balance Technology Plan		
Child Photo	Tech Effects	Healthy Activities
	Tired/Overstimulated	1. Quiet Time
	Meltdowns	2. Calm Down
	Aggression	3. Deep Breaths
	Depressed	4. Learning Issue
	Anxious	5. Self-talk

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Screenbuster Messaging Options/Ideas

Screenbusters are encouraged to develop their own unique ways of educating kids about screens through use of...

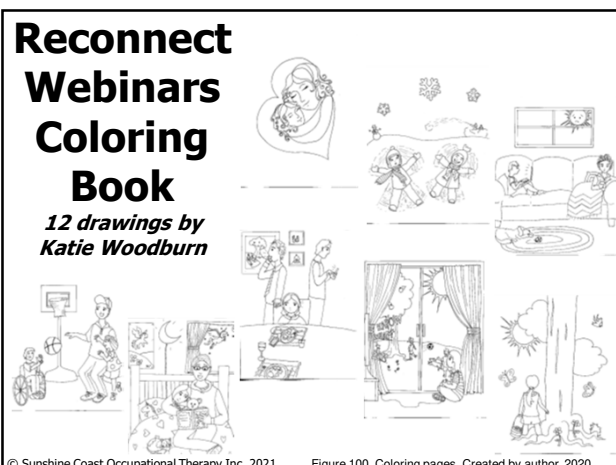
- Drama
- Music
- Art
- Puppetry
- Sports
- Games



Figure 99. Kids learning. Purchased from Dreamstime, 2020

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Teen Weblink Resources

- Online Gamers Anonymous www.olganon.org
- Your Brain on Porn www.yourbrainonporn.com
- Zone'in Programs www.zonein.ca
- Families Managing Media
www.familiesmanagingmedia.org
- Common Sense Media www.common sense media.org
- American Academy of Pediatrics
www.aap.org/healthtopics/mediause.cfm
- Center of Media and Child Health www.cmch.tv
- Center for Screen Time Awareness www.screentime.org

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TECHNOLOGY MANAGEMENT Tech Talk for Teens

Quiz 5

*Balanced Technology Management,
Screenbuster Training*

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Zone'in Technique

*Stand in Mountain pose
– or – sit in Shavasana*



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Figures 102 a, b. Mountain & Shavasana poses.
Retrieved from Dreamstime 2022

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