Technology: The Reshaping of Our Brain

PATHWAYS
by Crystal Collier, PhD
3 or more hours of screen time per day increases the risk of depression, hopelessness, meaninglessness, and suicide risk.
Executive Function = Maturity

- Abstract; conceptual understanding
  - Impulse Control
  - Problem-Solving
  - Decision-Making
  - Judgment
- Emotion Regulation
- Frustration Tolerance
- Ability to Feel Empathy
Teens spend a 'mind-boggling' 9 hours a day using media, report says

By Kelly Wallace, CNN

Updated 9:07 PM EST, Tue November 03, 2015

Does this signal a generational shift? (02:04)

Story highlights

Teens spend 9 hours a day, tweens 6 hours a day on average consuming media, report discovers

67% of teens own a smartphone, 53% of tweens have their own tablet

3-4 hours = Brain changes
Paying Attention
Zeigarnik Effect
Zeigarnik Effect
FINISH what you STARTED!
Memory
Working Memory: 7 Bits of Space
The Past 9 Minutes of Learning
Effects of Decreasing Verbal Skills
Sleep Effects

Blue & white screens reduce melatonin.

Melatonin is the hormone that controls your sleep wake cycle.
At least 30 minutes but 2-3 hours is better.
Intimacy Effects

When we do not look up from our phones when someone is talking to us, we are basically saying, "You are not as important as what is on this screen."
A **hookup culture** is one that accepts and encourages casual sexual encounters, including one-night stands and other related activity, which focus on physical pleasure without necessarily including emotional bonding or long-term commitment.
Sexting & Sending Nudes

22% of teen girls and 18% of teen boys have admitted to sending nude photos of themselves.

Of the 70% of teen girls who have sexted, 61% have said that they did so because they were *pressured*.

When it comes to sexting sexually explicit written messages, more boys send them than girls but more girls send unsolicited photos.

Associated with higher rates of engaging in a variety of sexual behaviors and intimate partner aggression.
Allyson’s Story of how sending one naked picture changed her life on SyFy’s show
The Internet Ruined My Life
Season 1 Episode 3, Clip 1
http://www.syfy.com/theinternetruinedmylife/videos/photobomb
Today...
Current Numbers

- 73% of college students today viewed pornography before 18
- 8% of 10-17 year olds intentionally search for online pornography
- 56% of male youth and 9% of female youth view pornography several times per week
- 21% of male youth and 1% of female youth view pornography more than three times per week
Frequent Users are Different

• More likely to be physical and sexual abuse victims
• More likely to engage in delinquent behavior
• More likely to engage in substance use and more intense substance use
• Less likely to live with both parents
• More likely to experience low parental care
Research: Teens Exposed To Sexually Explicit Content

- More permissive sexual attitudes, more preoccupied with sex, less sexually satisfied
- Stronger beliefs that women are sex objects
- More likely to engage in some form of high-risk sexual behavior themselves
- Unrealistic attitudes about sex & misleading attitudes towards relationships
- Increased belief that porn is a useful source of information about sex and applicable to real world experiences
- Decreased belief that sex is affectionate and relational & increased belief that sex is primarily physical and casual

- Adolescents with higher degrees of social interaction and bonding were NOT as likely to consume sexually explicit material as were their less social peers
- Respondents described a decrease in the consumption of sexually explicit material as individual self-confidence increased
Symptoms of Arousal Addiction mimic:

- ADHD
- Social Anxiety
- Depression
- Performance Anxiety
- Obsessive-Compulsive Disorder (OCD)
Depression
Isolation
Anxiety
Jealousy
Low Self-Esteem
Anxiety experienced by the fear of missing out directly related to seeing something posted on social media. App companies exploit FOMO. Research shows it causes anxiety and depression.
Is everything really wonderful?
Video Games

• Prolonged exposure to violent media leads to aggressive behavior, anxiety, bullying, and desensitization
• Research shows that stopping engagement in violent games almost immediately stops violent behavior in students
DID NOT PLAY ANY VIDEO GAME

PLAYED CALL OF DUTY 4: MODERN WARFARE
Electronic Friendships
Amotivation (no purpose)
Increases risk for depression & suicide
Ludic Loops
Teen Testers

are hooked up to polygraph devices to measure their heart rate, respiration, and sweat on their fingertips while playing games to find the most stimulating scenes.
Signs of Severe Addiction

1. Playing games for more than 3 hours/day
2. Thinking about games/craving often
3. Skipping social events, work, or school to play
4. Scheduling around game play
5. Gaming becomes central to life
6. Blurring of games and reality
7. Playing to modify mood or emotional escape
8. Playing to socialize thus becoming isolated
9. Neglecting work/study/homework
10. Sleep disturbances
11. Unable to stop playing
12. Falling or failing grades

http://www.parents.com/parents/quiz
Adolescents with internet addiction display altered brain functional connectivity and decreased connections within all three major cerebral lobes involved.

what's in your TOOLBOX?
Dopamine projections to prefrontal cortex

Nucleus accumbens

Medial forebrain bundle (a path of axons that release dopamine)

Area in midbrain

REWARD PATHWAY
HYPOFRONTALITY = PLEASURE

IN BETWEEN Age 11-25 = ARREST
Dopamine

Oxytocin

[Chemical structures of Dopamine and Oxytocin]
Relationship Continuum

- **Dopamine**
- **Oxytocin**

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<th>Stage</th>
<th>1-2 Months</th>
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Parenting Tools

- My Mobile Watchdog
- WebWatcher
- TeensSafe
- Net Nanny
- circle with Disney
- RescueTime
IN THIS HOUSE

TECHNOLOGY IS A PRIVILEGE NOT A RIGHT
ALL TECHNOLOGY MUST BE PARENT APPROVED
WE VALUE PEOPLE MORE THAN TECHNOLOGY
DEVICES DON'T COME TO THE DINNER TABLE
THERE IS NO TECH BEHIND CLOSED DOORS
CHORES AND HOMEWORK COME BEFORE TV OR VIDEO GAMES
TURN IT OFF IS NOT A NEGOTIATION
WE BREAK IT WE HELP PAY TO REPLACE IT
WE USE TECHNOLOGY APPROPRIATELY OR WE LOSE IT
In our family, we show others kindness and compassion on and offline. We are Upstanders!

We do not use drugs and only use alcohol when we are 21 or older.
CUT DOWN ON
- T.V. watching
- Video and computer games
- Sitting more than 30 minutes at a time

2-3 TIMES A WEEK
Leisure & Playtime
- Swinging
- Canoeing
- Tumbling
- Miniature golf

Strength & Flexibility
- Push-ups/pull-ups
- Martial arts
- Dancing
- Rope climbing

3-5 TIMES A WEEK
Aerobic Exercises (at least 20 minutes)
- Roller blading
- Biking
- Skateboarding
- Running

Recreational activities (at least 20 minutes)
- Volleyball
- Basketball
- Soccer
- Skiing

EVERYDAY
Everyday (as often as possible)
- Play outside
- Take the stairs instead of the elevator
- Help around the house or yard

- Bathe your pet
- Pick up your toys
- Walk to the store
- Go for a walk
High-Risk Behaviors

1. Alcohol Use/Binge Drinking
2. Driving Under the Influence
3. Criminal Activity/Violence
4. Bullying/Cyberbullying
5. Date Rape/Dating Violence
6. Heavy Drug Use
7. Marijuana Use
8. Gambling
9. Eating Disorders/Body Image/
10. Pornography
11. Self-Injury
12. Healthy Relationships/Sex/Sex Addiction
13. Suicide/Depression
14. Tobacco Use
15. Video Game/Internet/Technology Addiction/Technology Safety
References

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http://www.pewinternet.org/2016/01/07/how-parents-monitor-their-teens-digital-behavior/
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