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JAMA 2018 Jul 17; 320:255

Heavy Media Use in Teens Predicts New Attention Problems

Frequent checking, posting, browsing, streaming, and other online activity is associated with higher likelihood of meeting ADHD criteria 2 years later.

Research demonstrates small but significant relationships between heavy television and video game use and attention-deficit/hyperactivity disorder (ADHD) symptoms. However, more research on mobile and interactive media is needed now that an estimated 95% of teens have access to a smartphone.

To address this need, researchers surveyed over 2500 students aged 15 to 16 years from 10 urban high schools over the course of 2 years. Teens had no ADHD diagnosis at baseline, but high-frequency media use (e.g., checking social media, video chatting, liking or commenting on others' posts, online browsing, or watching videos "many times per day") predicted new ADHD symptoms over time. For example, in teens

reporting high frequency of all 14 media activities at baseline, almost 15% met ADHD criteria at follow-up, while in those reporting no high-frequency media use, only 4% met ADHD symptom criteria at follow-up.

COMMENT: These findings affirm the American Academy of Pediatrics recommendations for ensuring that media use doesn't displace the activities that build focus and self-regulation, like sleep, exercise, reading, and uninterrupted homework and family time. Based on these results, clinicians should consider several new points of discussion with parents and teens: (1) the idea that technology is now designed to be habit forming, so teens need to be savvy and skeptical when they feel "hooked" on their device; (2) the fact that mobile media now can interrupt activities (e.g., homework, conversations) or brain "downtime" that used to be media-free; and (3) the need to reflect upon how teens' attention and emotions are affected by all of these interruptions.

Note to Readers: Dr. Radesky is the author of an editorial accompanying this study but had no involvement in the study.

CITATION(S): Ra CK et al. Association of digital media use with subsequent symptoms of attention-deficit/hyperactivity disorder among adolescents. JAMA 2018 Jul 17; 320:255.
(<https://doi.org/10.1001/jama.2018.8931>)

Radesky J. Digital media and symptoms of attention-deficit/hyperactivity disorder in adolescents. JAMA 2018 Jul 17; 320:237.

JAMA Pediatr 2018 Jun 11

Disparities in Physical Activity Among Adolescents and Young Adults

U.S. survey data show marked disparities by race/ethnicity, income, education, and gender among young people.

Being physically active as an adolescent and young adult predicts better health in adulthood. To examine associations between self-reported moderate to vigorous physical activity and sociodemographic factors at these ages, investigators analyzed U.S. health surveillance survey data collected between 2007 and 2016.

The final sample included approximately 4000 adolescents (aged 12 to 17 years) and 3300 young adults (aged 18 to 24 years). Most (88% of adolescents and 73% of young adults) reported some moderate or vigorous physical activity. Analyses adjusting for age, income, race/ethnicity, and weight status showed the following:

- Among adolescents, younger age and higher income were associated with higher likelihood of physical activity (relative risks with higher income, 1.02 [males] and 1.04 [females]). Black and Hispanic females were 13% and 11% less likely, respectively, to report physical activity compared with white females.
- Among young adult men, having a college education conferred a 27% higher likelihood of physical activity compared with a high school education, and age was inversely associated with likelihood of exercise (RR, 0.96). Among young adult women, those who were black (RR, 0.68), Hispanic (RR, 0.81), and "other" race/ethnicity (RR, 0.75) were less likely to report physical activity compared with

white women, and those with higher household income (RR, 1.05) and college education (RR, 1.17) were more likely to exercise.

- Females reported fewer daily minutes of physical activity compared with males (adolescents: 56 vs. 71; young adults: 45 vs. 64 minutes).

COMMENT: While these survey data suggest that the majority of U.S. adolescents and young adults participate in some moderate or vigorous physical activity, there is clearly much room for improvement. Clinicians should certainly promote exercise to these patients; however, the striking racial/ethnic, gender, and income disparities noted in this study strongly suggest that we need to carefully examine whether and how factors such as gender stereotypes, the built environment, and opportunities to play sports limit whether they can act on our recommendations.

CITATION(S): Armstrong S et al. Association of physical activity with income, race/ethnicity, and sex among adolescents and young adults in the United States. Findings from the National Health and Nutrition Examination Survey, 2007–2016. *JAMA Pediatr* 2018 Jun 11; [e-pub].
 (<https://doi.org/10.1001/jamapediatrics.2018.1273>)

<https://jamanetwork.com/journals/jama/article-abstract/2685775>

Type 1 Diabetes in Moms Tied to Autism in Kids

By Amy Orciari Herman

Children born to mothers with type 1 diabetes face increased risk for autism spectrum disorder, according to findings reported in *JAMA*. Previous research suggested an association with type 2 diabetes and gestational diabetes.

Researchers retrospectively studied the records of nearly 420,000 children born in a large California health system between 1995 and 2012. During a median 7 years' follow-up, 1.4% were diagnosed with autism spectrum disorder.

After multivariable adjustment, exposure to maternal type 1 diabetes was associated with a 2.3-fold increase in autism risk. Additionally, exposure to type 2 diabetes was associated with a 1.4-fold risk increase, and exposure to gestational diabetes by 26 weeks' gestation (but not later) carried a 1.3-fold risk increase.

The researchers conclude, "These results suggest that the severity of maternal diabetes and the timing of exposure (early vs late in pregnancy) may be associated with the risk of [autism] in offspring of diabetic mothers."



Pediatrics 2018 Jan; 141:e20171811

Probiotics for Colic: Gathering the Best Evidence

Lactobacillus reuteri was effective in breast-fed infants with colic, but conclusions about formula-fed infants could not be made.

Probiotic therapy has shown promise in helping infants with colic, but randomized, controlled trials have produced conflicting results. These researchers performed an individual participant data meta-analysis involving 345 infants with colic enrolled in four randomized, controlled trials that measured the effect of *Lactobacillus reuteri* DSM17938 versus placebo on crying/fussiness. Outcomes were duration of crying/fussiness and treatment success ($\geq 50\%$ reduction in crying/fussiness time from baseline) measured at 7, 14, and 21 days. All four trials included breast-fed infants, while only one included formula-fed infants. The trials were conducted in Italy, Poland, Canada, and Australia.

In pooled analysis, the probiotic group had significantly shorter duration of crying/fussiness and approximately twice the likelihood of treatment success at all time points. The effects of probiotic treatment were greater in breast-fed infants, whereas in formula-fed infants, there were no significant differences in any outcome between the probiotic and placebo groups. The number needed to treat to achieve treatment success at 21 days in breast-fed infants was 2.6.

COMMENT: Although the authors aspired to “definitively determine” if a specific strain of *Lactobacillus* effectively treats colic, they instead offer further support for treating breast-fed infants (especially in Italy, Poland, and Canada), while leaving open the question of formula-fed infants' response. The method used for this meta-analysis was particularly rigorous, but the inclusion of only four studies limits its applicability. Because geographic differences in infant gut microbiota may lead to differential response, additional studies in various countries could provide further guidance on when and where to turn to probiotics. In the meantime, I continue to feel comfortable offering *Lactobacillus* for breast-fed infants with colic here in the U.S., while discussing with parents the limits of our understanding.

CITATION(S): Sung V et al. *Lactobacillus reuteri* to treat infant colic: A meta-analysis. *Pediatrics* 2018 Jan; 141:e20171811. (<http://dx.doi.org/10.1542/peds.2017-1811>)

St. James-Roberts I. Is it time to recommend *Lactobacillus* for colic? Not necessarily. *Pediatrics* 2018 Jan; 141:e20173445. (<http://dx.doi.org/10.1542/peds.2017-3445>)

BMJ 2018 Jul 4; 362:k2486

Preventing Childhood Obesity Should Include Family Interventions

Healthy maternal lifestyle during mid-childhood years was associated with a 75% lower risk for obesity in later childhood and adolescence.

Debate about the relative roles of genetics and environment in the genesis of childhood obesity continues. To examine the possible effect of maternal health lifestyle on childhood obesity risk, researchers prospectively assessed obesity in nearly 1300 nonobese children (ages 9–14 years) of participants in the Nurses' Health

Study II. Maternal lifestyle factors deemed low-risk were normal body-mass index (BMI), healthy diet, regular exercise, no current smoking, and low-to-moderate alcohol intake. Findings were as follows:

- Five percent of the cohort became obese during a median follow-up of 5 years.
- Children of mothers with a BMI ≥ 30 had a threefold higher risk for becoming obese compared with children of mothers with a BMI < 25 .
- Children of former or current smokers had an increased risk for obesity.
- Maternal regular exercise and moderate alcohol intake were associated with a lower risk for obesity in children.
- Children whose mothers had all five low-risk factors had a 75% lower risk for obesity compared with children whose mothers had none.
- When mothers and children both had the lowest-risk lifestyle factors, obesity risk for children was 82% lower compared with mothers and children with the highest-risk lifestyle factors.

COMMENT: This study provides important insights into nongenetic factors associated with developing obesity in preteen and early teen years. Mothers who practice healthy lifestyles are less likely to have obese teens. As we address the obesity epidemic, encouraging healthy lifestyles for our patients should also include discussing healthy lifestyles for their parents.

CITATION(S): Dhana K et al. Association between maternal adherence to healthy lifestyle practices and risk of obesity in offspring: Results from two prospective cohort studies of mother-child pairs in the United States. *BMJ* 2018 Jul 4; 362:k2486. (<https://doi.org/10.1136/bmj.k2486>)

JAMA Pediatr 2018 Jun 25

Trends in Weight Loss Attempts in Overweight and Obese U.S. Adolescents

Over the last 20 years, the percentage of overweight/obese adolescents trying to lose weight decreased by 20%.

With obesity rates rising, are more overweight and obese adolescents trying to lose weight? Investigators examined self-reported attempts to lose weight in the last 12 months among adolescents aged 16 to 19 years, using nationwide health survey data from three periods (1988–1994, 1999–2004 and 2009–2014). They found the following:

- The prevalence of overweight/obesity increased from 22% in 1988–1994 to 34% in 2009–2014, while the percent of reported weight loss attempts decreased from 34% to 27%.
- Among overweight adolescents, the percent trying to lose weight decreased from 36% to 23% among boys and from 80% to 54% among girls. After adjusting for race/ethnicity, family income, and body-mass index (BMI), the trend was significant only for boys.
- Among obese adolescents, reported weight loss efforts decreased over time; in adjusted analyses, this trend was not significant in either boys or girls.

COMMENT: Rising obesity rates have not been accompanied by increasing numbers of adolescents trying to lose weight, perhaps because fewer overweight and obese adolescents perceive themselves as such, as recent data indicate. Also, the authors cite their previous research which showed that in 2013–2014 only half of overweight/obese adolescents aged 16 to 18 were notified by providers that they were overweight/obese. I agree that there are missed opportunities for us to intervene, but weight discussions with adolescents must be carefully crafted, as research also shows that teens who report dieting tend to gain rather than lose weight over time. A comprehensive discussion about being healthy (good nutrition, regular exercise, and maintaining a healthy weight or BMI) rather than a narrow one focused on weight loss may help to avoid this negative cycle.

CITATION(S): Hawkins DR et al. Trends in weight loss efforts among US adolescents with overweight and obesity. *JAMA Pediatr* 2018 Jun 25; [e-pub]. (<https://doi.org/10.1001/jamapediatrics.2018.1012>)

JAMA Pediatr 2018 May 29

Vitamin D Supplementation in Pregnancy May Benefit Infants

A meta-analysis showed multiple benefits, including a lower risk for being small for gestational age.

Vitamin D supplementation during pregnancy has been studied repeatedly to determine its effects on child health outcomes. Results have varied, prompting this meta-analysis of data from 24 randomized, controlled trials of prenatal vitamin D supplementation including 5400 participants. Although supplement doses and dosing frequencies varied widely among included trials, intervention group doses averaged at least 400 international units (IU) daily.

Multiple outcomes were analyzed, with the following notable findings:

- Prenatal vitamin D supplementation was associated with:
 - Lower risk for newborn being small for gestational age (SGA)
 - Increased neonatal 25(OH)D and calcium levels
 - Increased weight at birth and at 3, 6, 9, and 12 months
 - No increase in neonatal mortality or congenital abnormality
 - No difference in risk for asthma, eczema, respiratory infections, or allergies
- Lower vitamin D doses (≤ 2000 IU/day) were associated with lower mortality, while higher doses (> 2000 IU/day) were not.
- Timing of supplementation (< 20 weeks vs. ≥ 20 weeks gestation) was not associated with risk for SGA or neonatal mortality.

COMMENT: Prenatal vitamin D supplementation typically would fall under the purview of obstetricians, family practitioners, and others caring for pregnant women, but these data remind us to encourage women we see in our practices to ask their prenatal care providers about vitamin D. It is becoming apparent that vitamin D both before and after birth can positively affect child health, and we are in a position to advocate for early exposure for our patients-to-be.

CITATION(S): Bi WG et al. Association between vitamin D supplementation during pregnancy and offspring growth, morbidity, and mortality: A systematic review and meta-analysis. *JAMA Pediatr* 2018 May 29; [e-pub]. (<https://doi.org/10.1001/jamapediatrics.2018.0302>)

Obstet Gynecol 2018 May 17

Staying on Top of Postpartum Pain

Maximizing nonopioid approaches to managing pain during the early postpartum period.

Sponsoring Organization: American College of Obstetricians and Gynecologists (ACOG)

Target Population: Obstetric and women's healthcare providers

Background and Objective: Approaches to managing postpartum pain vary widely throughout the world. With the goal of improving and standardizing management practices in the U.S., ACOG, the American College of Nurse Midwives, and the American Academy of Family Physicians jointly developed a guideline.

Key Recommendations

- Follow an individualized, stepwise approach to postpartum pain management.
- Whenever possible, encourage nonpharmacologic options first:
 - Breast engorgement: cold packs, increased frequency of breast-feeding
 - Nipple pain: apply breast milk to nipple; use breast shield
 - Uterine cramps: heating pad
 - Perineal pain: ice packs, cold gel packs
- Promote use of nonsteroidal anti-inflammatory drugs (NSAIDs) and acetaminophen.
- Prescribe opioids only if the highest allowable doses of NSAIDs (e.g., ibuprofen 400 mg every 4 hours; maximum daily dose, 3200 mg) and acetaminophen (650 mg every 4 hours; maximum daily dose, 3250 mg) fail to provide sufficient pain relief.
- Consider alternating NSAIDs and acetaminophen every 4 hours.
- Intravenous ketorolac (30 mg every 6 hours), albeit effective, should not be given to women with allergies to ketorolac or aspirin, renal dysfunction, or a bleeding diathesis.
- If opioids are prescribed at discharge, limit the number of doses and provide education about safe disposal of unused tablets.
- The FDA recommends against prescribing codeine or tramadol for breast-feeding women. (Pharmacogenetic differences in *CYP2D6* may cause rapid metabolism to morphine, which may enter breast milk in excessive quantities).

COMMENT: In a large study involving opioid-naive women with cesarean deliveries, 1 in 300 became persistent users of opioids during the first postpartum year — and factors that raised this risk included past use of cocaine or other recreational drugs, tobacco use, history of back pain or migraines, and use of antidepressants or benzodiazepines (*Am J Obstet Gynecol* 2016; 215:353.e1). Clearly, excessive administration of opioids for postpartum pain represents a major deficiency in U.S. clinical practice. Our protocols have been based on teachings from an outdated generation of clinical authorities. Only scant evidence from randomized trials demonstrates that opioids are better than NSAIDs for postpartum pain. In the U.K., women and their clinicians typically manage such pain without routinely turning to opioids



(see [NICE Guideline](#)). We can learn from their best practices, thereby minimizing our reliance on opioids to treat women with this multifaceted condition.

CITATION(S): American College of Obstetricians and Gynecologists. ACOG Committee Opinion No. 742: Postpartum pain management. *Obstet Gynecol* 2018 May 17; [e-pub].
(<https://doi.org/10.1097/AOG.0000000000002683>)

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Neurology 2018 Jun 12; 90:e2107

Cortical Lesions Increase Risk for Secondary Progressive Multiple Sclerosis

Presence and number of cortical lesions is associated with disease severity.

Cortical lesions are present throughout the multiple sclerosis (MS) disease course, with increased frequency in progressive MS. Investigators studied the value of cortical lesions for predicting development of secondary progressive (SP) MS in patients with relapsing remitting (RR) disease.

They enrolled 219 patients with RRMS and a mean disease duration of 8 years (range, 5–12 years). Cortical lesions (CLs) were detected in 76% of patients. Secondary progressive (SP) MS was diagnosed in 27%. SPMS was more frequent in those with a greater number of CLs. SPMS was also more prevalent in men, in patients with older age at onset, and in those who had a higher number of early exacerbations. Patients with two CLs had a twofold increased risk for developing SPMS compared with those without CLs. Patients with five CLs had a fourfold increased risk, and those with seven had a 12-fold increased risk. Frequent early relapses and greater volume of white matter lesions on the first MRI were additional predictors of SPMS.

COMMENT: Although reliable measurement of cortical lesion counts and volume is not yet available in clinical practice, these findings highlight the need for better clinical imaging measures to establish MS prognosis and treatment response. Cortical lesions were frequently detected in relapsing MS, and they seem to be present in those who have other signs of inflammatory activity. Although confirmation is required, this observation suggests that early cortical lesions are one of several prognostic indicators that can mean an increased risk for future disability.

CITATION(S): Scalfari A et al. The cortical damage, early relapses, and onset of the progressive phase in multiple sclerosis. *Neurology* 2018 Jun 12; 90:e2107. (<https://doi.org/10.1212/WNL.0000000000005685>)

Neurology 2018 Jun 20

Dopamine Agonists in Parkinson Disease: When Patients Can't Stop Themselves

Longitudinal data strengthen the association between these medications and impulse control disorders.

Impulse control disorders (ICDs), including compulsive sexual behavior, gambling, shopping, and eating, have been reported to occur in patients with Parkinson disease who are treated with dopamine agonists (DAs). These researchers examined data from a longitudinal cohort study in France to determine links between these medications and ICDs in 411 Parkinson disease patients (mean age, 62; 41% women).

Annual semistructured interviews included assessment of symptoms of dopaminergic dysregulation (compulsions). During the mean follow-up of 3.3 years, 356 participants (87%) used a DA at least once. In analyses of participants without an ICD at baseline, 52% of 260 ever-users of DAs developed an ICD vs. 12% of 46 never-users. ICDs gradually resolved after the DA was discontinued. Patients with ICDs were more often male, had longer disease duration, and used a higher dose of DA. Use of DA in the previous year was associated with a 2.23-fold higher prevalence of ICD. Risk for ICD was highest with pramipexole and ropinirole (prevalence ratios, 4.67 and 4.86 compared with no DA use), but patients who had used another DA (bromocriptine, apomorphine, rotigotine, piribedil) also had increased risk (prevalence ratio, 2.74). ICDs were not associated with levodopa use.

COMMENT: This large longitudinal study has several take-home implications. Patients with Parkinson disease who are prescribed DAs need education and vigilant monitoring for the development of ICDs. Psychiatrists using these medications for patients with refractory mood disorders need to be watchful for subtle (or obvious) ICDs. Further afield, if this association is an effect of increased dopamine levels, might it also occur with stimulants?

CITATION(S): Corvol J-C et al. Longitudinal analysis of impulse control disorders in Parkinson disease. *Neurology* 2018 Jun 20; [e-pub]. (<https://doi.org/10.1212/WNL.0000000000005816>)

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Pediatrics 2018 Jan; 141:e20171703

Earlier Menarche Is Associated with Depression and Antisocial Behavior in Adulthood

Longitudinal data show persistence of these associations into women's late 20s and early 30s.

To determine if girls who enter puberty earlier than their peers — a risk factor for numerous mental health problems during adolescence — continue to have excess risk for those problems during young adulthood, investigators analyzed data on 7800 girls from a national longitudinal study in the U.S. Girls were followed up at four time points (mean ages at enrollment and final follow-up were 15 and 28 years, respectively), and reported their age at menarche and how often in the past 12 months they engaged in various antisocial behaviors (e.g., property damage, stealing). Participants also completed a depression assessment tool.

Consistent with other studies, earlier menarche was associated with increased risk for depression during adolescence, and also in adulthood. Further analyses (controlling for other factors such as race/ethnicity, absence of father, etc.) showed that the increased risk in adulthood was primarily due to persistence of adolescent depression. Earlier menarche was also associated with increased levels of antisocial behavior during adolescence and young adulthood; further analyses indicated persistence of the behaviors to adulthood and some slight worsening in adulthood as well.

COMMENT: Because these results indicate that risks for depressive symptoms and antisocial behaviors associated with early menarche persist well into adulthood, prevention is key. Anticipatory guidance in pediatrics is generally age based, but for adolescent girls who mature early, focusing on their age and ignoring their physical development may well result in missing a critical window for intervention. Pediatricians can counsel parents that their early-maturing daughters (particularly those maturing much earlier than peers) will need extra support and supervision, as their cognitive development may lag behind their pubertal development, leaving them ill-equipped to negotiate being treated as older by peers and adults.

CITATION(S): Mendle J et al. Age at menarche, depression, and antisocial behavior in adulthood. *Pediatrics* 2018 Jan; 141:e20171703. (<https://doi.org/10.1542/peds.2017-1703>)

Proc Natl Acad Sci U S A 2018 Jan 2; 115:115

Children's Lives After Sibling Loss

A national longitudinal study is the first to systematically observe both acute and long-term effects of sibling death on a child's development.

Sibling loss occurs in 5% to 10% of families, but few studies have examined learning and emotional effects on surviving siblings. To learn more, researchers examined data on 2418 mothers and their 6558 offspring who were enrolled in a national survey in 1979 and followed biannually since 1986. During that time, 121 children died, leaving 331 surviving siblings.

Children were 51% male, whether families had or had not suffered child death. Mothers with a deceased child scored lower on a proxy measure of IQ than those without deceased children. Immediately after the loss, surviving siblings showed decreased reading, reading comprehension, math, and vocabulary skills compared to preloss and had diminished family emotional and cognitive support (e.g., being read to). Older siblings and those who felt guilty had greater learning decrements. Effects waned over follow-up.

COMMENT: After a sibling's death, surviving children feel abandoned both by the lost sibling and by parents who are consumed with grief. Key areas of inquiry by clinicians should include how life after the loss changed at school, with friends, and within the nuclear family and whether any psychiatric problems began before or after the death. Does the child feel not only sadness, but also survivor's guilt? Depression after parental loss is more likely in children with prior major depression (*J Affect Dis* 2011; 135:277), and the same may be true after a sibling's death. Sibling death, like all nuclear family premature deaths, is significantly more common among black than white children (*NEJM JW Psychiatry* Mar 2017 and *Proc Natl Acad Sci U S A* 2017; 114:915). Thus, some black children may need interventions for continuous grief.

CITATION(S): Fletcher J et al. Dynamic and heterogeneous effects of sibling death on children's outcomes. *Proc Natl Acad Sci U S A* 2018 Jan 2; 115:115. (<http://dx.doi.org/10.1073/pnas.1709092115>)

