

Deleterious Associations with Baby, Toddler, and Caregiver Digital Device Use: Global Research Highlights

Associations with Executive Function and Cognitive Outcomes

Associations Between Infant Screen Use, Electroencephalography Markers, and Cognitive Outcomes

JANUARY 2023 (SINGAPORE, US, NEW ZEALAND, CANADA) Evelyn Law, Meredith Han, Zhuoyuan Lai, et al

[Associations Between Infant Screen Use, Electroencephalography Markers, and Cognitive Outcomes | Child Development | JAMA Pediatrics | JAMA Network](#)

"Infant screen use was associated with altered cortical EEG activity before age 2 years; the identified EEG markers mediated the association between infant screen time and executive functions. Further efforts are urgently needed to distinguish the direct association of infant screen use compared with family factors that predispose early screen use on executive function impairments."

Associations with Executive Functioning and Emotional Reactivity

Longitudinal Associations Between Use of Mobile Devices for Calming and Emotional Reactivity and Executive Functioning in Children Aged 3 to 5 Years

DECEMBER 2022 (USA) Jenny Radesky, Niko Kaciroti, Heidi M. Weeks, et al

[Longitudinal Associations Between Use of Mobile Devices for Calming and Emotional Reactivity and Executive Functioning in Children Aged 3 to 5 Years | Child Development | JAMA Pediatrics | JAMA Network](#)

Study suggests that "frequent use of mobile devices for calming young children may displace their opportunities for learning emotion-regulation strategies over time; therefore, pediatric health care professionals may wish to encourage alternate calming approaches."

Associations with Brain Matter Integrity and Formation

Associations between digital media use and brain surface structural measures in preschool-aged children | Scientific Reports (nature.com)

NOVEMBER 2022 (USA) John Hutton, Jonathan Dudley, Tzipi Horowitz-Kraus, et al

[Associations between digital media use and brain surface structural measures in preschool-aged children | Scientific Reports \(nature.com\)](#)

Study found associations between "higher digital media use and lower cortical thickness and sulcal depth among 3- to 5-year-olds in brain areas supporting primary visual processing and higher-order functions such as top-down attention, complex memory encoding, letter recognition and social cognition."

Associations with Language Acquisition

Mobile Device Use is Associated with Expressive Language Delay in 18-Month-Old Children

FEBRUARY 2019 (CANADA) Meta van den Heuvel, Julia Ma, Cornelia Borkhoff, Christine Koroshegyi, David Dai, Patricia Parkin, Jonathon Maguire, Catherine Birken

[Mobile Media Device Use is Associated with Expressive Language Delay in 18-Month-Old Children - PMC \(nih.gov\)](#)

Study demonstrated a "significant association between mobile media device use and parent-reported expressive speech delay in 18-month-old children."

Associations with Communication and Problem-Solving Developmental Delay

Screen Time and Developmental Performance Among Children at 1-3 Years of Age in the Japan Environment and Children's Study

SEPTEMBER 2023 (JAPAN) Midori Yamamoto, Hidetoshi Mezawa, Kenichi Sakurai, et al

[Screen Time and Developmental Performance Among Children at 1-3 Years of Age in the Japan Environment and Children's Study | Global Health | JAMA Pediatrics | JAMA Network](#)

"Increased television/DVD screen time in children aged 1 and 2 years was associated with lower developmental scores at 2 and 3 years, respectively. Lower development scores were associated with increased screen time in children with maternal psychological distress."

Screen Time at Age 1 Year and Communication and Problem-Solving Developmental Delay at 2 and 4 Years

AUGUST 2023 (JAPAN) Meta Ippei Takahashi, Taku Obara, Mami Ishikuro, et al

[Screen Time at Age 1 Year and Communication and Problem-Solving Developmental Delay at 2 and 4 Years | Child Development | JAMA Pediatrics | JAMA Network](#)

Study shows "association between screen time among young children and subsequent developmental outcomes." Results suggest "a dose-response association between longer screen time at age 1 year and developmental delays in communication and problem-solving at ages 2 and 4 years."

Associations with Parent-Infant Attachment Insecurity

The impact of parent and child media use on early parent-infant attachment

JULY 2021 (USA) Lisa Linder, Brandon McDaniel, Laura Stockdale, Sarah Coyne

[The impact of parent and child media use on early parent-infant attachment - PubMed \(nih.gov\)](#) "Parental absorption in media was found to significantly predict attachment insecurity. Greater child TV media use was associated with poorer attachment security when there was limited to no parental active mediation."

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Associations with Sleep Disruption

Relationships between screen viewing and sleep quality for infants and toddlers in China: A cross-sectional study

OCTOBER 2022 (CHINA) Yumin Lin, Xueqin Zhang, Yinying Huang, Zhiwei Jia, Jing Chen, Wanling Hou, Lili Zhao, Guiyan Wang, Jiemin Zhu

[Relationships between screen viewing and sleep quality for infants and toddlers in China: A cross-sectional study - PubMed \(nih.gov\)](#)

"Screen time negatively related to total sleep time and nighttime sleep among infants and toddlers. Authors consider small portable screens used over long periods of time "real neurodevelopmental disruptors".

Association with Hand Function and Visual Motor Integration in Young Children

Relationship between screen-time and hand function, play and sensory processing in children without disabilities aged 4-7 years: An exploratory study

AUGUST 2022 (Australia) Paula Dadson, Ted Brown, Karen Stagnitti

[Relationship between screen-time and hand function, play and sensory processing in children without disabilities aged 4-7 years: A exploratory study - PubMed \(nih.gov\)](#)

Playing with toys and using object substitution in play (e.g. a child uses an object for something else other than its intended use when playing with it) potentially appear to be a moderating factor of the impact of children's screen-time on their bilateral coordination and Visual Motor Integration skills.

Associations with Atypical Sensory-processing Outcomes

Early-Life Digital Media Experiences and Development of Atypical Sensory Processing

JANUARY 2024 (USA) Karen Heffler, Binod Acharya, Keshab Subedi, David S Bennett <https://pubmed.ncbi.nlm.nih.gov/38190175/>

"In this cohort study, early-life digital media exposure was associated with atypical sensory processing outcomes in multiple domains," and specific sensory-related behaviors, including those seen in autism spectrum disorder. Study recommends further research on whether minimizing screen media at a young age can improve subsequent sensory-related outcomes.

Associations with Autism Spectrum Disorder

Association Between Screen Time Exposure in Children at 1 Year of Age and Autism Spectrum Disorder at 3 Years of Age: the Japan Environment and Children's Study

JANUARY 2022 (JAPAN) Megumi Kushima, Reiji Kojima, Ryoji Shinohara, et al, Japan Environment and Children's Study Group

[Association Between Screen Time Exposure in Children at 1 Year of Age and Autism Spectrum Disorder at 3 Years of Age: The Japan Environment and Children's Study - PubMed \(nih.gov\)](#)

"Among boys, longer screen time at 1 year of age was significantly associated with autism spectrum disorder at 3 years of age. With the rapid increase in device usage, it is necessary to review the health effects of screen time on infants and to control excessive screen time. Guidance on appropriate screen time in infancy is recommended."

Screen-Induced Syndrome

Early and Excessive Exposure to Screens (EEES): A New Syndrome.

APRIL 2020 (FRANCE) Daniel Marcelli, Marie-Claude Bossiere, Anne-Lise Ducanda - *Devenir* (Only European journal dedicated to childhood development from 0 to 3 years)

[Early and excessive exposure to screens \(EEES\): A new syndrome | Cairn International Edition \(cairn-int.info\)](#)

"Authors describe a set of clinical signs that appear in young children who are exposed to screens of all kinds from an early age. They propose grouping them together under a syndrome called "early and excessive exposure to screens" (EEES). This set of signs includes attention disorders, language delay, and difficulty acquiring fine motor skills, along with displaying an increasingly exclusive interest in screens, relational disorders that manifest in the form of aggressive behavior, and psychomotor instability. With an onset at eight/ten months in children with the highest exposure, this syndrome seems to develop gradually during the second year of life. A main feature of the syndrome is its regression, or even disappearance, if overexposure to screens is quickly ended.

Beneficial Associations of Screen Removal and Increased Social Interaction Among Toddlers with ASD

Screen time reduction and focus on social engagement in autism spectrum disorder: A pilot study

AUGUST 2022 (USA) Karen Frankel Heffler, Lori Frome, Brigid Garvin, Lindsay Bungert, David Bennett

[Screen time reduction and focus on social engagement in autism spectrum disorder: A pilot study - Heffler - 2022 - Pediatrics International - Wiley Online Library](#)

"In young children (18 to 40 months) with ASD and high screen time, this intervention study, though small, was associated with 1) a significant reduction in the children's screen time, 2) a significant reduction in the children's autism symptoms and 3) a significant reduction in parent stress."

Manipulative Design Prevalence in Apps Used by Very Young Children

Prevalence and Characteristics of Manipulative Design in Mobile Applications Used by Children

JUNE 2022 (USA) Jenny Radesky, Alexis Hiniker, Caroline McLaren

[Prevalence and Characteristics of Manipulative Design in Mobile Applications Used by Children](#)

Study of apps used by 160 children aged 3 to 5 years showed that majority (80%) were associated with manipulative design features including "parasocial relationship pressure, time pressure, navigation constraints, and lures."