Association of High Screen-Time Use With School-age Cognitive, Executive Function, and Behavior Outcomes in Extremely Preterm Children

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Background & Objectives: To assess the association of high screen time with cognition, language, executive function, and behavior of EPT children aged 6 to 7 years; a second objective was to examine the association between high screen time and rates of structured physical activity and weight.

Methods: This cohort study was a secondary analysis from the Eunice Kennedy Shriver National Institute of Child Health and Human Development Surfactant Positive Airway Pressure and Pulse Oximetry Randomized Trial Neuroimaging and Neurodevelopmental Outcomes school-aged cohort and includes 414 EPT children born between February 1, 2005, and February 28, 2009, and evaluated at ages 6 years 4 months to 7 years 2 months between 2012 and 2016. The study was conducted from July 7, 2012, and August 15, 2016, and data were analyzed between December 10, 2018, and April 1, 2021.

Exposures: Cohorts included children exposed to low (≤2 hours per day) vs high (>2 hours per day) amounts of screen time and by the presence (no vs yes) of a television/computer in the bedroom.

Main Outcomes and Measures: In addition to growth parameters, assessments included the Wechsler Intelligence Scale for Children-IV, the Behavior Rating Inventory of Executive Function, the Developmental Neuropsychological Assessment, the Conners 3rd Edition–Parent Short-Form, and the Social Communication Questionnaire.

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet

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Results: Of the 414 children included in the analysis, 227 (55%) were boys; mean (SD) birth weight was 870.6 (191) g. A total of 238 children (57%) had high screen time and 266 (64%) had a television/computer in their bedroom. In multivariable linear regressions adjusted for center, male sex, gestational age, and social determinants of health, high screen time was independently associated with the following mean (SE) test score changes: lower full-scale IQ (−3.92 [1.64]; P = .02); an increase in association with deficits in executive functions, including metacognition (8.18 [3.01]; P = .007), global executive function (7.49 [2.99]; P = .01), inhibition (−0.79 [0.38]; P = .03), and Conners 3rd Edition–Parent Short-Form inattention (3.32 [1.67]; P = .047). A television/computer in the bedroom was associated with an increase in inhibition (−0.80 [0.39]; P = .04) and hyperactivity/impulsivity (3.50 [1.75]; P = .046) problems.

Conclusion:The findings of this study suggest that **high screen time contributes to adverse cognitive, executive function, and behavior outcomes at ages 6 to 7 years in children born at less than 28 weeks.** These findings support the need for clinicians to have heightened awareness of the risks for EPT children and discuss both the benefits and risks of screen time with families.

EXPERT COMMENT

“These findings suggest that a high level of screen time contributes further to an increase in risk of cognitive, executive function, and behavior outcomes at age 6 to 7 years in extremely premature children, supporting the need for health care professionals to discuss both the benefits and risks of screen time with families and share the Indian Academy of Pediatrics recommendations.”

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With warm regards,

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Reference

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