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PAPER OR POSTER ABSTRACT SUBMISSION DETAILS:**Date Submitted (still in DRAFT if blank):** August 10, 2018, 7:24 PM**Control ID:** 3046604**Abstract Title:** Physical activity and neurocognitive outcomes in adult survivors of childhood cancers: A report from the Childhood Cancer Survivor Study (CCSS)**Preferred Presentation Type:** Poster Only**Selected Category:** Cancer**Selected Keyword(s):** cancer, neuropsychological outcome, self-report.**Contact / Submitting Author:** Emily Barlow-Kreolina**Presenter (underlined in list below):** Emily Barlow-Kreolina**—**
ABSTRACT PROOF--PLEASE REVIEW CAREFULLY:**TITLE:** Physical activity and neurocognitive outcomes in adult survivors of childhood cancers: A report from the Childhood Cancer Survivor Study (CCSS)**AUTHOR(S):** E. Barlow-Kreolina¹, Y. Chen², Y. Yasui², T. Gibson³, K. Ness³, W. M. Leisenring⁴, R. Howell⁵, P. Nathan⁶, K. C. Oeffinger⁷, L. L. Robison³, G. T. Armstrong³, K. R. Krull³, K. Edelstein⁸**Affiliations:** E. Barlow-Kreolina, York University, Toronto, Ontario, CANADA;

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ABSTRACT BODY:**Objective :** To investigate associations between physical activity (PA) and neurocognitive outcomes in adult survivors of childhood cancer.**Participants and Methods:** 12,294 5-year survivors diagnosed between 1970-1999 (median [range] age at diagnosis 8[0-21] years, time from diagnosis 23[15-34] years), and 727 siblings self-reported PA and completed the Neurocognitive Questionnaire (NCQ), a measure of Task Efficiency (TE), Emotion Regulation (ER), Organization (ORG) and Memory (MEM). PA was collected at baseline, and PA and NCQ data were obtained 7[1-12] years later. 4621 survivors completed another follow-up 12[9-14] years later. PA was defined as consistency in meeting the Centers for Disease Control and Prevention criteria (i.e., ≥ 75 min vigorous or 150 min moderate activity/week) across surveys. Associations between PA and NCQ scores and change in NCQ scores were assessed using multiple linear regression stratified on CNS tumor status. Potential mediating effects of body mass index (BMI) and severe chronic health conditions (CHCs) were explored.**Results :** Survivors were less likely to report consistent PA (26% vs. 32%, $p < 0.001$) and were at risk for more neurocognitive symptoms than siblings (TE: CNS, $\beta = 12.3$, $p < .001$; non-CNS, $\beta = 3.34$, $p < .001$; MEM: CNS, $\beta = 4.3$, $p = .01$; non-CNS, $\beta = 1.8$, $p = .04$). Consistent PA over time was associated with fewer symptoms compared to consistent inactivity (TE: CNS, $\beta = -3.0$, $p = .002$; non-CNS, $\beta = -3.1$, $p < .001$). CNS survivors benefited from consistent PA to a greater extent than siblings (TE: $\beta = -4.0$, $p = .002$; MEM: $\beta = -2.7$, $p = .03$). BMI and CHCs partially mediated the impact of PA, but the effects were small (change in $\beta < .65$, $p \leq .01$). Consistent PA was associated with improved neurocognitive symptoms over time across all domains, in both survivor groups ($p \leq .05$).**Conclusions :** Adult survivors of childhood cancer who report more consistent PA have fewer neurocognitive

symptoms and larger improvements in symptoms many years after treatment.

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