



May 2020

ABCD Scientists' Newsletter

NEWS

COVID-19. First and foremost, our hearts go out to all those affected by the coronavirus (COVID-19) outbreak. Our team at the ABCD Study is keeping a close eye on local, state, and federal policies that are rapidly changing in response to this pandemic. As always, our focus is on the health and safety of the families, communities, and workers impacted by the situation.

We understand that this difficult time may bring unexpected challenges to our staff, participants, and their family. Our team has worked diligently to modify our protocol to better accommodate continued participation in our study. We are offering the opportunity to complete assessments virtually (over video chatting platforms or phone) with compensation, eliminated a few components of the protocol for the duration of the pandemic, and have created greater scheduling flexibility.

Our ABCD Team hopes that you and your family stay safe and healthy during this difficult time.

ABCD renews for an additional seven years. With new funding for seven years to research institutions around the USA, the [National Institutes of Health renewed its commitment to the ABCD Study.](#)

HIGHLIGHTS

COVID-19 and Adolescent Development. In March 2020, as our ABCD participants are ages 11-13, the world became substantially affected by the COVID-19 pandemic, leading to an upheaval in the economy and the lives of almost every family. We received funding from the National Science Foundation (2028680) to query all ABCD participants and their parents about the impact of the pandemic on their lives and, in a subset of participants, examine their physical activity and sleep with Fitbit activity trackers, over the months of school closures, job loss, and disease spread. These valuable new data will help researchers address the influence of this pandemic on adolescent development such as mental, physical health and educational outcomes.

TECHNICAL TIPS

Random effects. In the ABCD Data Exploration and Analysis Portal ([DEAP](#)), we model for three types of random effects. The Site option is to control for the geographical location of the site and should be used in the non-imaging analysis. The Device option is to control for the scanner instance and should be used instead of Site when performing neuroimaging analysis (Site and Device cannot be used together due to collinearity). For longitudinal analysis, also add the Subject random effect to control for intra- and inter-individual variations. All other default random effects are recommended.

When should I use field maps? The "minimally processed" (mproc) images have been corrected for B0 distortion using the field maps. As a result, field maps are not shared in the mproc data releases. If you are obtaining Fast Track data (i.e., unprocessed), you would want to correct using

the field maps provided in Fast Track. To know which field map goes with a particular scan, here are some pointers:

- The study date and series time are included in the fast track file names.
- The protocol calls for two scans per task-fMRI session (i.e., two for MID, two for SST, and two for nBack).
- The pair scans should be directly preceded by a field map scan (or pair of field map scans).
- On GE scanners, the field map is an integrated sequence of forward and reverse phase-encode polarity scans (i.e., one field map for GE). On Philips and Siemens scanners, the forward and reverse scans are separate series (i.e., two field map for Philips and Siemens).

RECENT PUBLICATIONS

- Delfina Janiri, MD, Gaelle E Doucet, PhD, Maurizio Pompili, MD, Gabriele Sani, MD, Beatriz Luna, PhD, David A Brent, MD, Sophia Frangou, MD (2020). [Risk and protective factors for childhood suicidality: a US population-based study](#). The Lancet Psychiatry, March 12, 2020. DOI:[https://doi.org/10.1016/S2215-0366\(20\)30049-3](https://doi.org/10.1016/S2215-0366(20)30049-3)
- Danielle C. DeVillie, MA; Diana Whalen, PhD; Florence J. Breslin, MS; Amanda S. Morris, PhD; Sahib S. Khalsa, MD, Ph; Martin P. Paulus, MD; Deanna M. Barch, PhD (2020). [Prevalence and Family-Related Factors Associated With Suicidal Ideation, Suicide Attempts, and Self-injury in Children Aged 9 to 10 Years](#). JAMA Netw Open. 2020;3(2):e1920956. doi:10.1001/jamanetworkopen.2019.20956.
- Wei Cheng, Edmund Rolls, Weikang Gong, Jingnan Du, Jie Zhang, Xiao-Yong Zhang, Fei Li, Jianfeng Feng (2020). [Sleep duration, brain structure, and psychiatric and cognitive problems in children](#). Molecular Psychiatry, 2020; DOI: 10.1038/s41380-020-0663-2.
- Marshall AT, Betts S, Kan EC, McConnell R, Lanphear BP, & Sowell ER (2020). [Association of lead-exposure risk and family income with childhood brain outcomes](#). Nature Medicine 26, 91–97 (January 13, 2020) doi:10.1038/s41591-019-0713-y
- Fair DA, Miranda-Dominguez O, Snyder AZ, Perrone A, Earl EA, Van AN, Koller JM, Feczko E, Tisdall MD, van der Kouwe A, Klein RL, Mirro AE, Hampton JM, Adeyemo B, Laumann TO, Gratton C, Greene DJ, Schlaggar BL, Hagler D Jr, Watts R, Garavan H, Barch DM, Nigg JT, Petersen SE, Dale AM, Feldstein-Ewing SW, Nagel BJ, Dosenbach NUF. (2020) [Correction of respiratory artifacts in MRI head motion estimates](#). Neuroimage, Volume 208, March 2020, 116400. Epub ahead of print.

ABCD CALENDAR

- June 2020: **Preview of the Adolescent Brain Cognitive Development (ABCD) Study Release 3.0**. Society of Biological Psychiatry Meeting (Virtual Meeting). New York, NY, USA.
- June 2020: **Researcher's Guide to the Adolescent Brain Cognitive Development (ABCD) Study: Release 3.0**. Organization for Human Brain Mapping (OHBM) Annual Meeting (Virtual Meeting). Montreal, Canada.
- August 2020: **Tentative date for the curated ABCD Data Release 3.0**. For neuroimaging assessments, this release contains all baseline data and half of the 2 Year followup. For non-imaging assessments, this release contains all baseline data and followup data for the 6 month, 1 year, 18 month, 2 year, and 30 month visits.
- Postponed until July 2021: **Leveraging novel statistical tools in the Adolescent Brain Cognitive Development (ABCD) Study**. Australian and New Zealand Statistical Conference. Gold Coast, Queensland, Australia.