



Adolescent Brain Cognitive Development®  
*Teen Brains. Today's Science. Brighter Future.*

# ABCD Protocol Summary

Three-year Follow-up

ABCDStudy.org



# The Adolescent Brain Cognitive Development (ABCD) Study

The ABCD Study is the largest long-term study of brain development and child health in the United States. The ABCD Research Consortium consists of a Coordinating Center (CC), a Data Analysis, Informatics and Resources Center (DAIRC), and 21 research sites across the country (see map), which have invited more than 10,000 children ages 9-10 to join the study. Researchers will track their biological and behavioral development through adolescence into young adulthood.

The ABCD CC, DAIRC, and Consortium Workgroups have established standardized and harmonized assessments of physical and mental health, neurocognition, substance use, and culture and environment. They also have established multimodal structural and functional brain imaging and bioassay protocols. Brain imaging and biospecimen collection for genetic analyses will be done every other year, and the remaining assessments will be conducted and additional biospecimens will be collected semi-annually or annually.

During the COVID-19 pandemic, in-person ABCD visits were suspended. Most protocol elements for the 3-year follow-up protocol were administered remotely where possible, via video chatting platforms, tablet or phone. Limited components of the protocol that could not be administered virtually (e.g., biospecimens collection) were not completed for those participants.

## ABCD Open Science Model

One goal of the multisite longitudinal ABCD Study is to create a unique data resource for the entire scientific community by embracing an open science model. Curated data are released annually through the NIMH Data Archive. For more information on what is included in each data release, please see <https://abcdstudy.org/scientists/data-sharing/>.

Sharing ABCD data in this way will allow scientists from all over the world to conduct analyses, pool resources, and enrich the value of this study by rapidly expanding the types of scientific questions answered.

## Locations of ABCD Research Sites in the United States

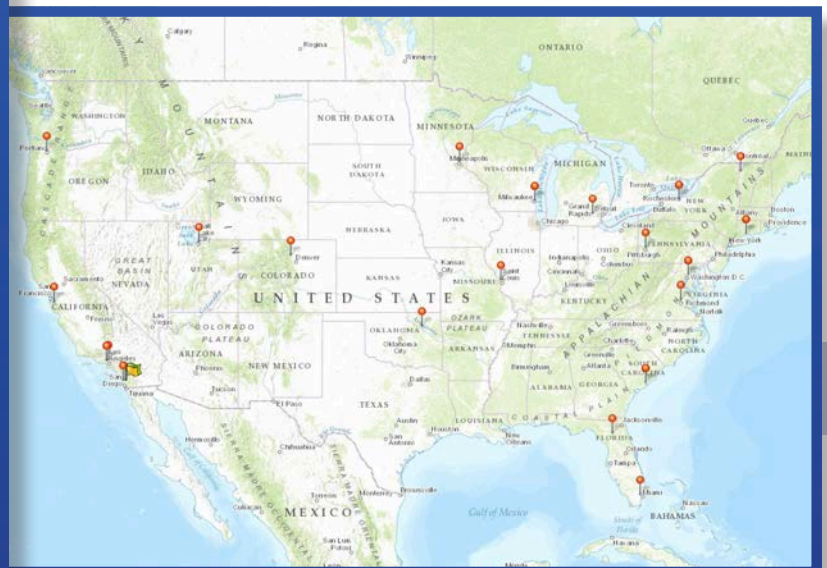


**Coordinating Center** University of California, San Diego

**Data Analysis and Informatics Center** University of California, San Diego

**Research Sites**

- Children's Hospital of Los Angeles
- Florida International University
- Laureate Institute for Brain Research
- Oregon Health & Science University
- SRI International
- University of California, Los Angeles
- University of California, San Diego
- University of Colorado
- University of Florida
- University of Maryland
- University of Michigan
- University of Minnesota
- University of Pittsburgh
- University of Rochester
- Medical University of South Carolina
- University of Utah
- University of Vermont
- Virginia Commonwealth University
- Washington University in St. Louis
- University of Wisconsin-Milwaukee
- Yale University



# Physical Health

ABCD 3-Year Follow-up	What it measures:	Youth (min)	Parent (min)
Anthropometrics*	Height, weight, waist circumference	2	
Youth Risk Behavior Survey - Exercise	Physical activity	1	
Pain Questionnaire	Pain	2	
Munich ChronoType Questionnaire	Sleep, chronotype	6.5	
Pubertal Development Scale & Menstrual Cycle Survey	Pubertal stage and menstrual phase	3	2
Block Kids Food Screener	Foods child ate in past week	3	7
Sports and Activities Involvement Questionnaire	Involvement in sports, music and hobbies, reading and listening to music, TBI risk	1	4
Demographics Survey*	Demographics, race, gender, family structure, SES, education and occupation; youth resilience		5
Medical History Questionnaire	Medical history and health services utilization		3
Breast Feeding Questionnaire*	Medications and substances used during breast feeding of participant		1
Medications Survey*	Current and past medications		3.5
Sleep Disturbance Scale for Children	Sleep and sleep disorders		2
Ohio State TBI Screen-Short	Traumatic brain injury of youth		1
International Physical Activity Questionnaire	Parent/guardian physical activity and sedentary behavior		1.5
Total Minutes		18.5	30

\*Modified from PhenX

# Mental Health

ABCD 3-Year Follow-up	What it measures:	Youth (min)	Parent (min)
Kiddie Schedule for Affective Disorders and Schizophrenia (KSADS 5)			
Background Items Survey	<b>Youth:</b> School, sexual orientation	0.5	
	<b>Parent:</b> School, family, social relations		4.5
Diagnostic Interview for DSM-5	<b>Youth:</b> Suicidality, Alcohol Use Disorder, Drug Use Disorders	3.5	
	<b>Parent:</b> Psychosis, Eating Disorders, Attention Deficit Hyperactivity Disorder, Conduct Disorder, Tic Disorders, Alcohol Use Disorder, Drug Use Disorders		12
Prodromal Psychosis Scale	Prodromal psychosis level	5	
7-Up Mania Items	Youth mania symptoms	1.5	
Youth Resilience Scale	Peer friendships	1	
Self-Reported Delinquency Scale - Causes and Correlates of Delinquency Program	Youth delinquency behaviors	1.5	
NIH Toolbox Positive Affect Questionnaire	Current level of positive affect	1	
Brief Problem Monitor Scale	Attention, internalizing and externalizing functioning	2	
Peer Experiences Questionnaire	Peer bullying and peer victimization	1.5	
Cyberbullying Questionnaire	Cyberbullying experiences	0.5	
Life Events Scale	Lifetime and past year stressful and traumatic events	3	2
Gender Identity Questionnaire	Gender identity; early dating and sexual behavior	3.5	1.5
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# Mental Health (cont.)

ABCD 3-Year Follow-up	What it measures:	Youth (min)	Parent (min)
Child Behavior Checklist	Dimensional psychopathology, adaptive functioning		5
Difficulty in Emotion Regulation Scale	Parent report on youth's difficulty with emotional regulation		6
Occupation Survey	Parent occupation		3.5
Perceived Stress Scale	Parent report on own perceived stress		2
Total Minutes		24.5	36.5

\*Modified from PhenX

# Substance Use

ABCD 3-Year Follow-up	What it measures:	Youth (min)	Parent (min)
Participant Last Use Survey	Tobacco/caffeine/medication usage in the last 24 hours	1	1
Community Risk & Protective Factors*	Perceived availability for youth	1	2
Parent Rules	Parental SU approval and rules		2
Household Substance Use, Density, Storage & Second-Hand Exposure	Use, access and exposure to substances in household		8
Peer Group Deviance*	Peer group deviance & influences	1	
Sibling Use	Sibling use of alcohol, cannabis, tobacco, and other substances	1	
PATH Intention to Use Tobacco Survey	Intention to use, susceptibility (if haven't used yet)	1	
Perceived Harm of Substance Use*	Youth perceptions of harm caused by use of substances	1	
Peer Tolerance of Use*	Acceptability of peers' use of substances	0.5	
Alcohol Expectancies Questionnaire – Adolescent, Brief	Expectations of alcohol's effects if one used it	1	
Adolescent Smoking Consequences Questionnaire	Perceptions of tobacco use and consequences	0.5	
Electronic Cigarette Expectancies Questionnaire	Expectations of e-cigarette use if one used it	0.5	
Marijuana Effect Expectancies Questionnaire	Perceptions of marijuana use and consequences	1	
Caffeine intake	Caffeine use, type & quantity (if one used it)	1	
Having tried alcohol, tobacco/nicotine, marijuana (e.g., sip or puff) since last visit:			
iSay II Q2 Sipping Items	Early alcohol use (if sipped alcohol)	0.5	
Tobacco Low-Level Use Measure	Early tobacco use (if puffed or chewed tobacco)	0.5	
Marijuana Low-Level Use Measure	Early marijuana use (if puffed or tasted marijuana)	0.5	
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# Substance Use (cont.)

ABCD 3-Year Follow-up	What it measures:	Youth (min)	Parent (min)
Having used alcohol, tobacco/nicotine, marijuana (more than just a sip or puff) since last visit:			
Timeline Follow-back	Quantity/frequency of all substance use	3-20	
Acute Subjective Response to Alcohol*	Sensitivity to alcohol effects	0.5	
Acute Subjective Response to Tobacco*	Sensitivity to tobacco effects	0.5	
Acute Subjective Response to Marijuana	Sensitivity to marijuana effects	0.5	
Having 2 or more occasions of the respective substance use since last visit:			
Hangover Symptom Scale	Alcohol hangover experiences	2	
Rutgers Alcohol Problem Index	Alcohol use consequences	1	
Nicotine Dependence (from PATH)	Nicotine use consequences	2	
Marijuana Problem Index	Marijuana use consequences	2	
Cannabis Withdrawal Scale	Past 24-hour experience of cannabis withdrawal symptoms	0.5	
Drug Problem Index	Other drug use consequences	1	
Total Minutes		10.5-41	13

\*Modified from PhenX



# NeuroCognition

ABCD 3-Year Follow-up	What it measures:	Youth (min)	Parent (min)
Delay Discounting Task	Discounting and valuation of proximal and distal rewards	3	
Emotional Faces Stroop Task	Inhibition of prepotent responses, affective regulation	4	
Stanford Mental Arithmetic Response Time Evaluation	Enumeration, arithmetic fluency and recall; math anxiety	7	
Barkeley Deficits in Executive Functioning Scale – Short Form	Parent report of youth executive functioning		3.5
Total Minutes		14	3.5

# Culture & Environment

ABCD 3-Year Follow-up	What it measures:	Youth (min)	Parent (min)
Parental Monitoring Survey	Parental monitoring/supervision	1	
Acceptance Subscale from Children's Report of Parental Behavior Inventory (CRPBI) - Short	Environment – Family & Religion	1	
Pet Ownership	Pet ownership	0.5	
School Risk & Protective Factors*	Risk and protective factors	1.5	
Wills Problem Solving Scale	Self-control, planning	1	
Peer Behavior Profile: Prosocial Peer Involvement & Delinquent Peer Involvement	Prosocial activity; academic achievement, and rule breaking of youth's friends	0.5	
Peer Network Health: Protective Scale	Positive/protective features of youth's network of friends	1	
Multidimensional Neglectful Behavior Scale	Parental attention/neglect	1	
Mexican American Cultural Values Scale	<b>Youth:</b> Familism, religion, self-reliance	1.5	
	<b>Parent:</b> Familism, religion, independence, self-reliance		1.5
School Attendance of Youth & Grades	Number of excused and unexcused school absences, grades, and participation in an Individualized Education Program	1	1.5
Prosocial Behavior Survey	Resilience	0.5	0.5
Acculturation Survey*	Cultural factors	1	0.5
Family Environment Scale - Family Conflict Subscale*	Family dynamics, cohesion, expressiveness, conflict	1	4
Vancouver Index of Acculturation	Participation in culturally relevant activities	2.5	1.5
Multi-Group Ethnic Identity - Revised	Assessment of self-identification with ethnic group	1.5	1
Total Minutes		16.5	10.5

\*Modified from PhenX

# Mobile Technology and Other Data Sources

ABCD 3-Year Follow-up	What It Measures:	Youth (min)	Parent (min)	Teacher (min)
Geocoding from Residential History	Environmental risk		3	
School Records	Educational attainment		3	
Brief Problem Monitor-Teacher Form	Dimensional psychopathology, adaptive functioning			2
Screen Time Survey	Screen time utilization	15	13	
Total Minutes		15	19	2

# Biospecimens\*

ABCD 3-Year Follow-up	What It Measures:	Method	Youth (min)	Parent (min)
Alcohol Screen**	Past day alcohol use	Breathalyzer	1	
Drug Screen**	Past day drug use	Oral fluid-Drager	1	
NicAlert**	Past day nicotine use	Urine	1	
Substance Use History	Metabolites of past 3 month substance use	Hair (~100 strands)	4	
Pubertal Hormones	Estradiol, testosterone, DHEA	Oral fluid	6	
Baby Teeth	Substance & environmental toxin exposure	Prior/newly shed baby teeth		5
Total Minutes			13	5

\*Biospecimens were not collected from participants for whom protocol elements were administered remotely.

\*\*Subset of participants





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