Data Access

This dataset is available free of charge to qualified biomedical or biobehavioral researchers who are studying normal brain development, disorders or disease, and/or who are developing image processing tools.

Application forms, available through the website, include a Data Access Request using form 424 and a Data Use Certification, which must be signed by the applicant and countersigned by an institutional official. Institutions must be covered by a federalwide assurance (FWA), and applicants must have an NIH Commons user account or an NIH login.

Under the terms of the Data Use Certification, users agree not to attempt to identify participants, not to transfer data to others or to another institution, to identify in publications the version of the dataset analyzed, to report publications to the NIH, and to appropriately acknowledge the project in publications. They further agree to provide a 1-year progress report and to allow the posting of information contained in their Data Access Request on the NIH Pediatric MRI website.

Approvals for data access remain in effect for 1 year, after which a new application is required.

Data Releases

Version 1 – 2006
Version 2 – 2007
Version 3 – 2009
Version 4 – 2010
Version 5 – 2012

For further information, visit:

www.pediatricmri.nih.gov

NIH Pediatric MRI Data Repository

Contributors:
Participating sites (and Principal Investigators) included six **Pediatric Study Centers:** Boston Children's Hospital (Michael J. Rivkin, M.D.), Children's Hospital Medical Center of Cincinnati (William S. Ball, M.D.), Children's Hospital of Philadelphia (Dah-Jyuu Wang, Ph.D.), University of California at Los Angeles (UCLA) (James T. McCracken, M.D.), University of Texas Health Science Center (Michael Brandt, Ph.D., Jack Fletcher, Ph.D.), Washington University (Robert McKinstry, M.D.); a **Data Coordinating Center** at the Montreal Neurological Institute Center (Alan Evans, Ph.D.); a **Clinical Coordinating Center** at Washington University (Kelly Botteron, M.D.); a **Diffusion Tensor Processing Center** at NICHD (Carlo Pierpaoli, M.D.); and a **Spectroscopy Processing Center** at UCLA (Joseph O'Neill, Ph.D.).

Powered by:
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National Institute of Mental Health (NIMH)

National Institute of Neurological Disorders and Stroke (NINDS)

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National Institutes of Health (NIH)

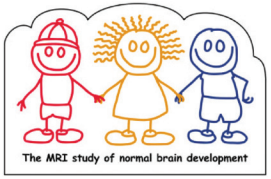
Pediatric MRI Data Repository

A Resource for the Scientific Community

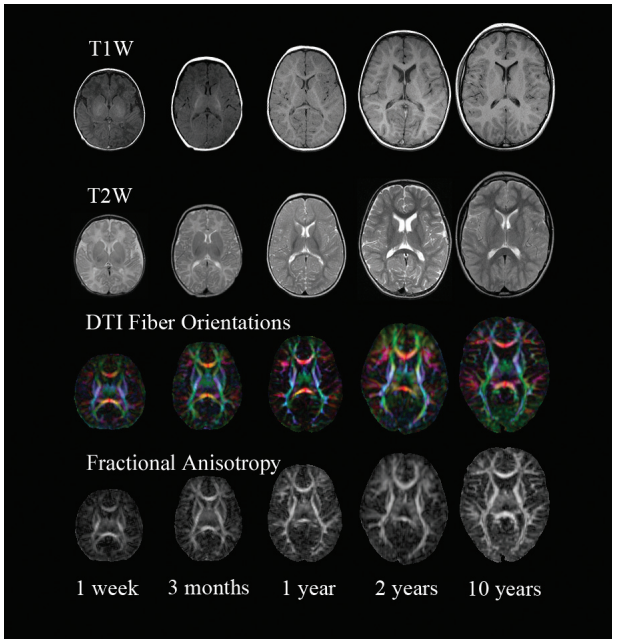
Purpose: To further our understanding of healthy, normal brain development as a basis for understanding childhood disorders and to facilitate the development of new image processing tools.

Features:

- Longitudinal anatomic MRI data
- Ages newborn to early adulthood
- Clinical/behavioral measures
- Ancillary spectroscopy and DTI



2012



Sample anatomic MRI and DTI images

Overview

Participants: 554 unsedated medically healthy, psychiatrically normal children and adolescents/young adults

Two age cohorts
Objective 1: Ages 4 years, 6 months to 18 years upon enrollment, 3 timepoints, 2-year intervals (N = 431)

Objective 2: Newborn to 4 years, 5 months upon enrollment, up to 10 timepoints, intervals range from 3 months to 1 year (N = 123)

Study design and procedures

Epidemiological sampling strategy — stratified by age and sex, matched to U.S. Census on family income and race/ethnicity

Longitudinal design

Core imaging modality — anatomic MRI

Clinical/behavioral measures — at each scanning time point

Ancillary modalities — proton MR spectroscopy, diffusion tensor imaging, collected on subsamples

Data

Anatomic MRI

Multispectral (T1, T2/PD) datasets (~1500)
Raw images — native space
Stereotaxically normalized images
- Tissue-classified images
- Segmented images
- Scalar values for regional volumes
- Cortical thickness, surface area, gyrification index

Proton MR Spectroscopy

Objective 1 only

Single-voxel
293 datasets from 145 subjects. Each dataset includes frontal white matter, thalamus, and parietal white matter (all on left) and midline occipital gray matter.
- Raw Images
- Spectra with LC model printout
- Anatomic images showing voxel placement

MRSI
57 datasets from 34 subjects — raw images

Diffusion Tensor Imaging (DTI)

DTI (3 mm resolution): 498 datasets from 274 subjects

Expanded DTI (2.5 mm resolution): 193 datasets from 152 subjects

Diffusion-weighted images
Raw images (native resolution and orientation)
Processed/corrected images (motion and distortion corrected)
- Reoriented to a standardized reference frame
- Resampled to 2mm isotropic resolution

Tensor-derived quantities
- Diffusion tensor elements computed from corrected images
- Trace of diffusion tensor (equal to 3x mean diffusivity)
- Eigenvalues
- Fractional anisotropy index
- Lattice anisotropy index
- Directionally encoded color (DEC) maps

Clinical/Behavioral

Demographics — age, sex, parental education, family income, race/ethnicity

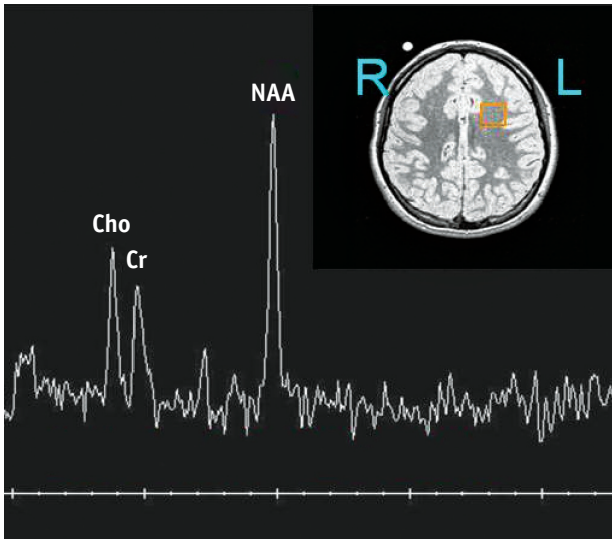
Physical neurological exams

Hormonal measures — cortisol, DHEA, estradiol, testosterone

Structured psychiatric interviews — Family Interview for Genetic Studies, Computerized Diagnostic Interview for Children (DISC) — Parent and youth versions, DISC Predictive scales

Tests — Bayley Scales of Infant Development, California Verbal Learning, CANTAB, Differential Ability Scales, Handedness, Verbal fluency, Preschool Language Scales-3, Purdue Pegboard, Wechsler Digit span, Digit symbol and Coding, Wechsler Abbreviated Scale of Intelligence (WASI), Woodcock-Johnson Tests of Achievement-III

Behavioral rating scales — Behavior Rating Inventory of Executive Function, Cary Temperament Scales, Child Behavior Checklist, Parenting Stress Index



Sample proton MR spectrum