

The NIH Toolbox of Validated Clinical Tests

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Purpose

- The NIH Toolbox, part of the NIH Neuroscience Blueprint initiative, seeks to develop brief yet comprehensive assessment tools measuring motor, cognitive, sensory, and emotional function.

Purpose

- Upon completion, the Toolbox will be available for use in longitudinal epidemiologic studies and prevention or intervention trials for people ages 3-85.
- The complete toolbox set can be administered within two hours.
- The measures are derived from items in the public domain, and the equipment will cost less than \$2K.

Additional Objectives

- Enable cross-study comparisons and integration of data from multiple studies by providing a standard set of brief, well-validated measures
- Dynamic/adaptable over time
- Utilize state-of-the-art psychometric and technological approaches
 - including computerized adaptive testing (CAT)
 - and computer assisted evaluation

Additional Objectives

- Cover the full range of normal function (not disease states)
- Be used as the basis for detecting at-risk populations
- Be minimally burdensome to subjects and investigators

Domains

- Cognition
- Emotion
- Motor
- Sensation

Cognition

- Executive Function
- Episodic Memory
- Working Memory
- Processing Speed
- Language
- Attention

	Subdomain	Instrument	Status
Cognition	Attention	Flanker	Toolbox measure
	Episodic Memory-Visual	Imitation Based Assessment of Memory (IBAM)	Toolbox measure
	Executive Function-Cognitive Flexibility	Dimensional Change Card Sort	Toolbox measure
	Executive Function-Inhibitory Control	Flanker	Toolbox measure
	Language-Vocabulary Comprehension	Vocabulary Comprehension	Toolbox measure
	Processing Speed	Pattern Comparison	Toolbox measure
	Working Memory	List Sorting	Toolbox measure
	Language-Reading Decoding	Reading Recognition	Supplemental instrument

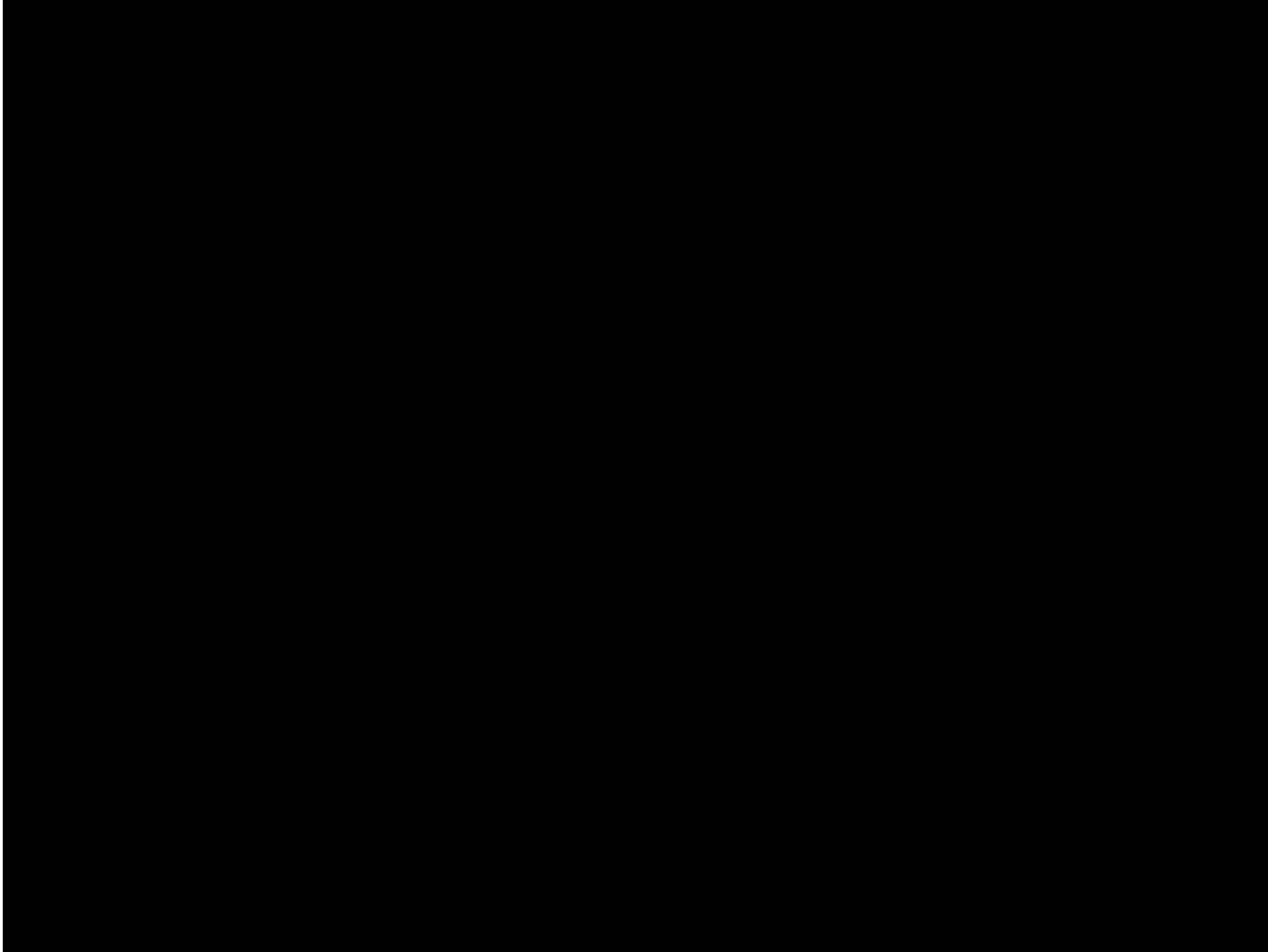
List sorting



Flanker task



Imitation Based Assessment of Memory



Emotion

- Negative Affect
- Positive Affect
- Stress & Coping
- Social Relationships

Emotion	Negative Affect	Age specific measures of Sadness, Fear, Anger	Toolbox measure
	Positive Affect	Age specific measures of Positive Feeling States, Life Satisfaction, Meaning	Toolbox measure
	Social Relationships	Age specific measures of Social Support, Companionship, Social Distress, Positive Social Development	Toolbox measure
	Stress and Self-Efficacy	Age specific measures of Perceived Stress, Self-Efficacy	Toolbox measure
	Negative Affect	Age specific measure of Apathy	Supplemental instrument
	Positive Affect	Age specific measure of domain-specific life satisfaction	Supplemental instrument
	Social Relationships	Age specific measures of Social Network Integration	Supplemental instrument
	Stress and Self-Efficacy	Age specific measures of coping strategies	Supplemental instrument

Motor

- Locomotion
- Strength
- Non-Vestibular Balance
- Endurance
- Dexterity

Motor	Dexterity	9-hole Pegboard	Toolbox measure
	Endurance	2-minute Walk Test	Toolbox measure
	Locomotion	4-meter Walk Test	Toolbox measure
	Strength-Lower Extremity	Knee Extension Dynamometry	Toolbox measure
	Strength-Upper Extremity	Grip Strength Dynamometry	Toolbox measure
	Dexterity	25-hole Grooved Pegboard	Supplemental instrument
	Strength-Lower Extremity	Timed Chair Rise	Supplemental instrument

Grip strength



Sensation

- Vision
- Audition
- Vestibular Balance
- Somatosensation
- Taste
- Olfaction

Sensory	Audition-Hearing Threshold	Hearing Thresholds	Toolbox measure
	Olfaction-Identification	Adult Odor Identification Test	Toolbox measure
	Olfaction-Identification	Pediatric Odor Identification Test	Toolbox measure
	Somatosensation-Texture Discrimination	Tactile Discrimination Test	Toolbox measure
	Taste-Ability to Perceive Taste in Different Regions of Oral Cavity	Regional Taste Test/PROP (18+)	Toolbox measure
	Taste-Sweet Preference	Sucrose Preference Test	Toolbox measure
	Vestibular Balance-Vestibular Ocular Reflex	Dynamic Visual Acuity	Toolbox measure
	Vestibular Balance-Vestibulo Spinal Function	Balance Accelerometry Measure -BAM	Toolbox measure
	Vision-Acuity	Dynamic Visual Acuity	Toolbox measure
	Audition-Hearing Loss	Hearing Handicap Inventory for Adults - Short Form	Supplemental instrument
	Audition-Speech Processing	Words-in-Noise	Supplemental instrument
	Audition-Middle Ear Function	Tympanometry	Supplemental instrument
	Somatosensation - Pain	Self-Reported Pain	Supplemental instrument
	-Proprioception	Brief Kinesthesia Test	Supplemental instrument
	Taste-Perceived Strength of the Four Basic Tastes	Taste Intensity Test	Supplemental instrument
	PROP Taste Blindness	PROP Taste Test	Supplemental instrument
Vision-Visual Function HRQOL	Vision Health-Related Quality of Life Survey	Supplemental instrument	

Balance



Testing samples

- 300-600 per each of 47 instruments for validating instruments
- Norming to include pediatric and adult, Spanish and English speaking participants

Funding source

- NIH Blueprint for Neuroscience Research
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Staff

- PI: Richard Gershon PhD (Northwestern University)
- Lead NIH Project Officer: Molly Wagster PhD

Steering Committee

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Research Sites

- Audiology Incorporated
- Emory University
- Kessler Medical Rehabilitation Research & Education Corp.
- Monell Chemical Senses Center
- National Opinion Research Center (NORC)
- North Shore University Health System Research Institute
- Northwestern University-Cognitive Neurology and Alzheimer's Disease Center
- Northwestern University-Department of Medical Social Sciences, Feinberg School of Medicine
- Northwestern University-School of Communication
- Rehabilitation Institute of Chicago
- Temple University
- University of California-Los Angeles
- University of Connecticut
- University of Kansas Medical School-Research Institute
- University of Minnesota-Institute of Child Development
- University of North Florida
- University of Pittsburgh
- University of Southern California-Keck School of Medicine
- University of Washington
- Westat, Inc.