Add CAPS

Add Health Cognitive Assesment, Physical, and Sensory Function

Wave VI

Allison E Aiello, PhD, Deputy Director
James S. Jackson Healthy Longevity Professor of Epidemiology

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Add Health
The National Longitudinal Study of Adolescent to Adult Health

Add CAPS A Team Project

Add Health Cognitive Assesment, Physical, and Sensory Function

Team:

Cherese Parker, Scott Reid, Tim Monbureau, Rebecca Stebbins, Mary Jane Hill, Lynn Ngo, Nikhil Varimalla, Nicolette Rojas, & Youngjoon Bae

Investigators:

Robert Hummer, Chantel Martin

Consultants:

Jennifer Manly, David Bennett, Brenda Plassman, John Batsis, Nicholas Reed, & Clarice Myers

Add CAPS Partners & Service Providers

RTI INTERNATIONAL

TESTMYBRAIN

NIH TOOLBOX® Motor Emotion Sensation Cognition

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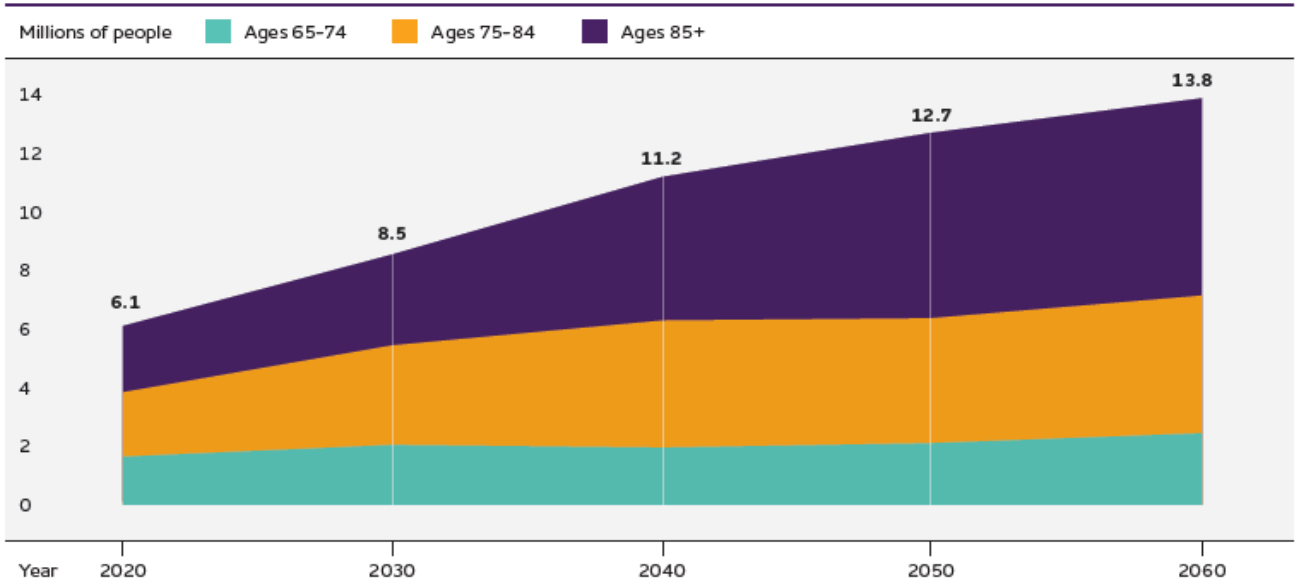
Alzheimer's Disease:
A major public health concern

Projected Number of People Age 65 and Older (Total and by Age) in the U.S. Population with Alzheimer's Dementia, 2020 to 2060



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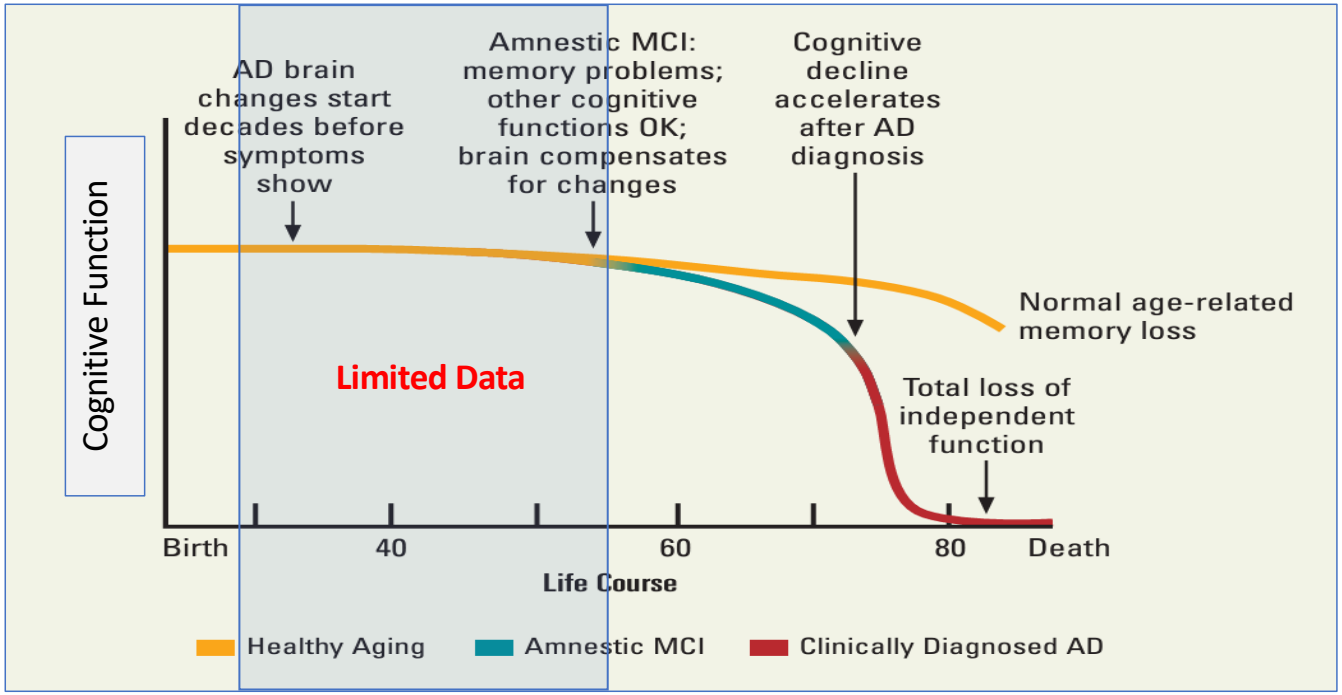
Alzheimer's Association. 2024 Alzheimer's Disease Facts and Figures. Alzheimer's Dement 2024;20(5)

Cognitive function across the life course



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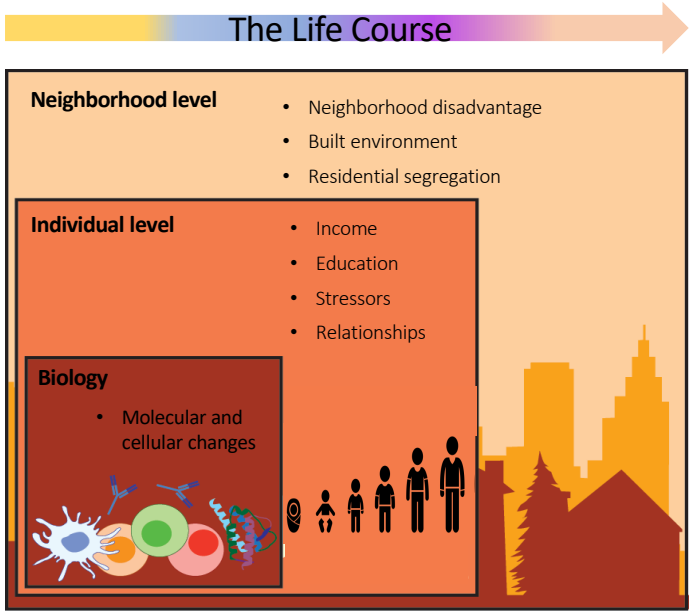
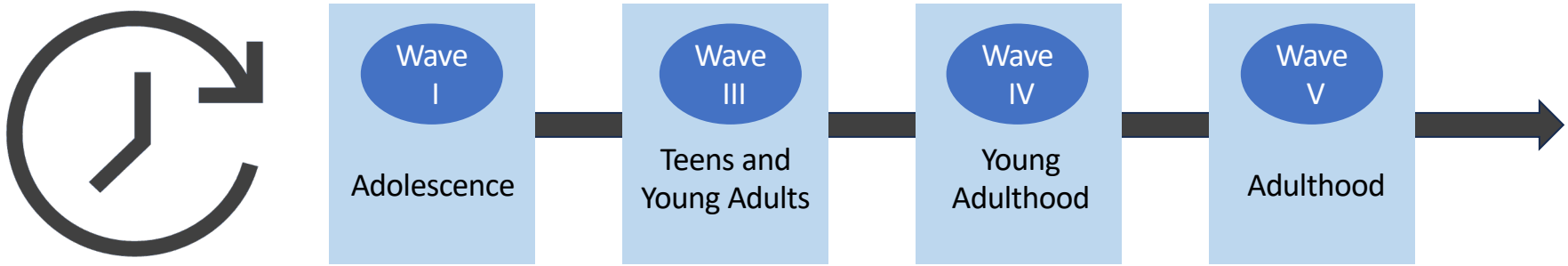
National Institute on Aging, & Alzheimer's Disease Education and Referral Center, Alzheimer's disease: Unraveling the mystery. U.S. Department of Health and Human Services NIH Publication Number: 08-3782, 2008.

Social and contextual exposures across the life course and AD/ADRD

- Educational inequalities
- Socioeconomic disadvantage
- Neighborhood characteristics
- Social support and networks



Add Health existing cognitive data



Wave I cognitive assessments

Ages	Adolescents in grades 7 through 12
***Number of participants**	20,745
Measure(s)	• Add Health Picture Vocabulary Test (PPVT) • Receptive vocabulary/language

*Approximate number with at least one measure available

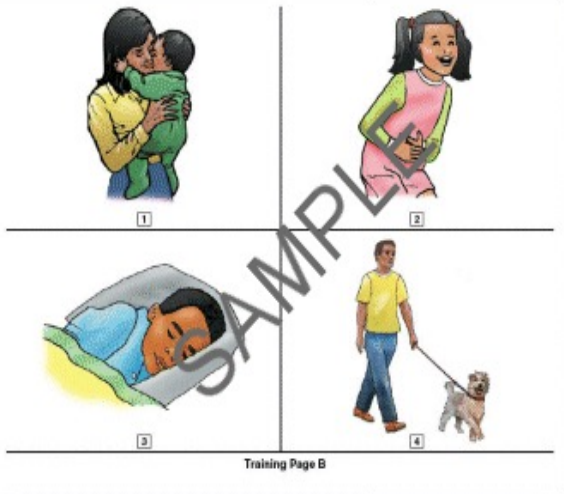


Image Source:
Link to Pearson Clinical

Wave III cognitive assessments

Ages	18 through 26
***Number of participants**	14,652
Measure(s)	• Add Health Picture Vocabulary Test (PPVT) • Receptive vocabulary/language

*Approximate number with at least one measure available

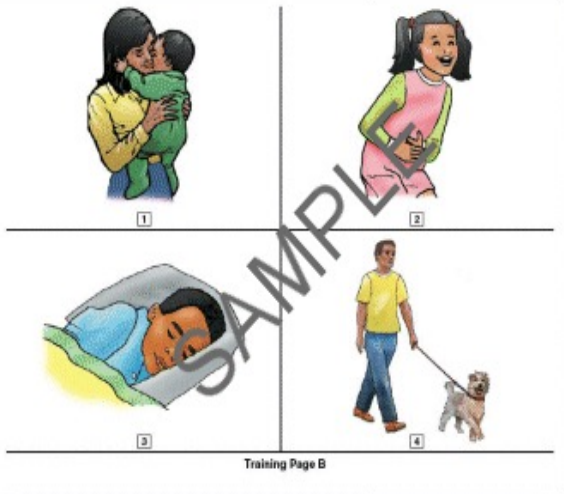


Image Source:
Link to Pearson Clinical

Wave IV cognitive assessments

Ages	24 through 32
***Number of participants**	15,693
Measure(s)	• Episodic memory • Working memory

*Approximate number with at least one measure available

Word Recall

Immediate and Delayed

Digit Span (Backward) Test

Wave V cognitive assessments

Ages	33 through 43
***Number of participants**	1,717
Measure(s)	• Episodic memory • Working memory

*Approximate number with at least one measure available

Word Recall

Immediate and Delayed

Digit Span (Backward) Test

Wave VI cognitive assessments

Add CAPS

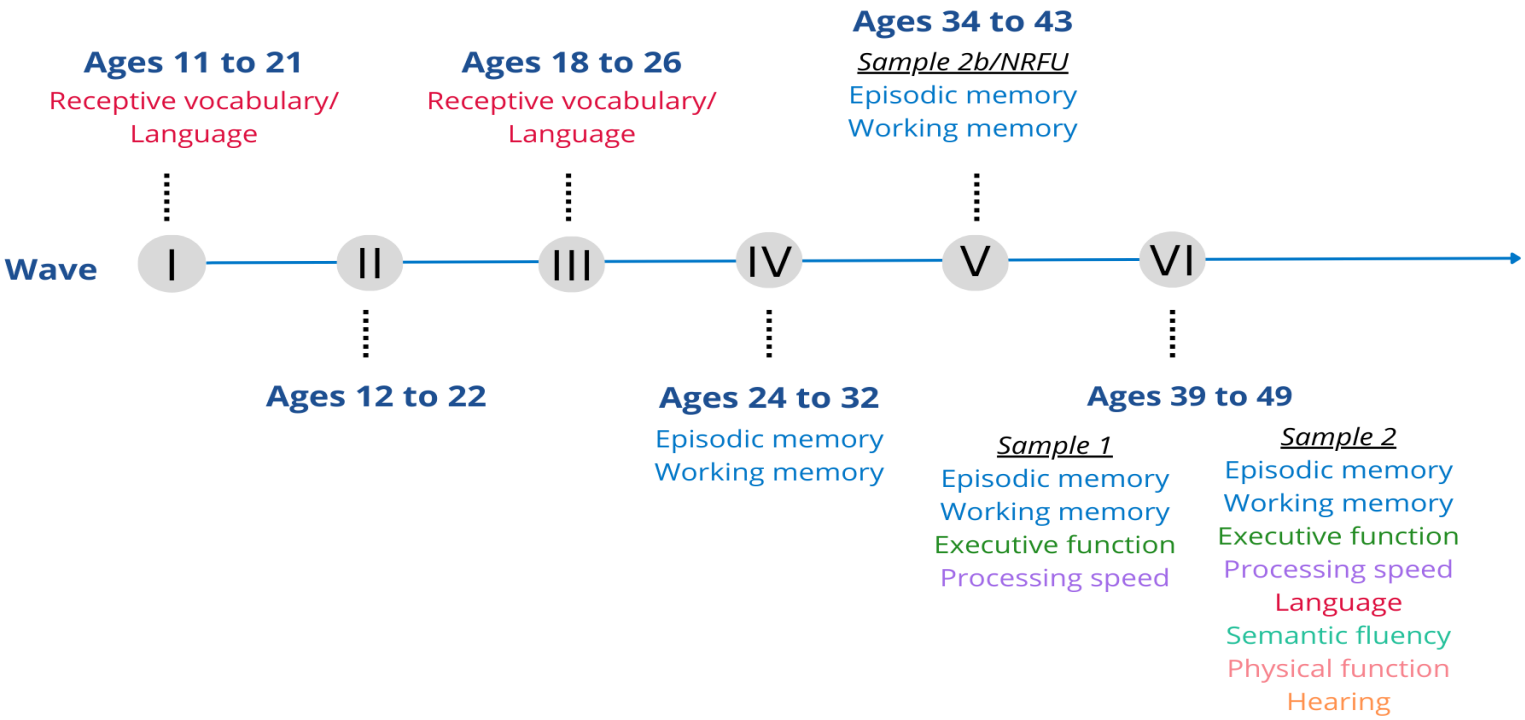
Add Health Cognitive Assesment, Physical, and Sensory Function

- Comprehensive measurement battery for assessing cognitive, physical, and sensory function
- Developed for Add Health Wave VI and tailored to provide baseline measures of cognitive health in early middle age

Goals for wave VI cognitive measures

- Build on longitudinal design
- Appropriate for early middle age
- Comparative
- Multiple domains
- Robust to mode of measurement

Goal - Build on longitudinal design



Goals - Appropriate, comparative, multi-domain

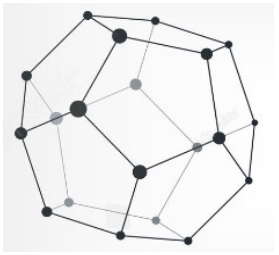
Appropriate for Early Middle Age

Challenging assessments
- Sensitive to individual differences
- Avoid ceiling effects

Adaptive assessments
- Performance-based adjustments

Comparative

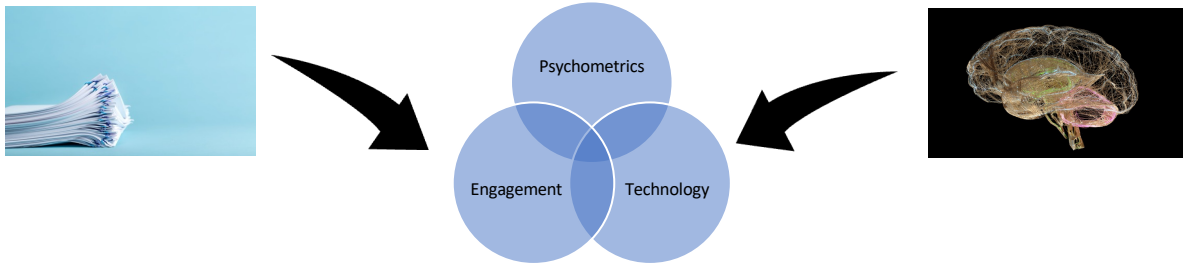
Comparative populations
- Previously used in diverse populations
- Similar domains in other population studies



Multiple Domains

Multidimensional assessments
- Comprehensive battery
- 5 cognitive domains

Goal - Robust to mode of measurement



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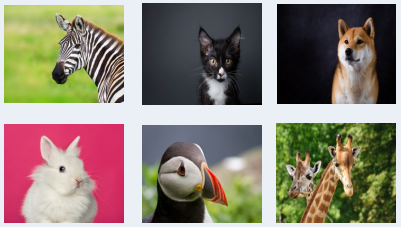
Germine, L., Nakayama, K., Duchaine, B., Chabris, C., Chatterjee, G., & Wilmer, J. (2012). Is the web as good as the lab? Comparable performance from web and lab in cognitive/perceptual experiments. Psychonomic Bulletin & Review, 19(5): 847-857.

Add CAPS Measurement tools

Add Health Cognitive Assesment, Physical, and Sensory Function

Broom
Sun
Window
Flower
Shirt

TESTMYBRAIN



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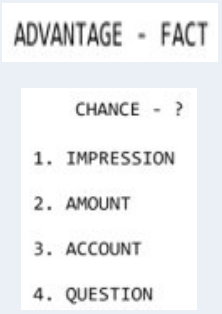
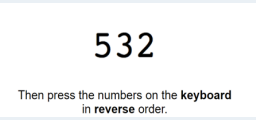
NIH TOOLBOX® Motor Emotion Sensation Cognition

TMB cognitive assessments, Samples 1 and 2

Verbal Paired Associates	Digit Symbol Matching	Gradual Onset Continuous Performance Test	Backward Digit Span
			
Episodic Memory	Processing Speed	Executive Function	Working Memory

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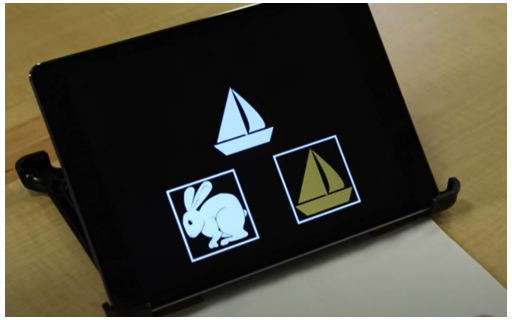
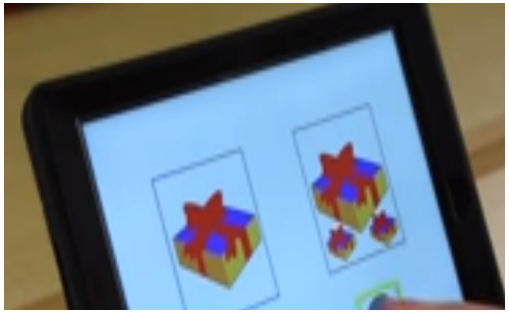
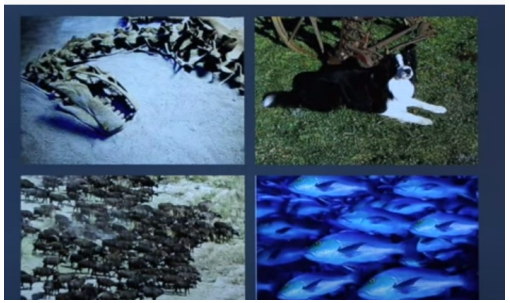
NIH Toolbox cognitive assessments, Sample 2



Dimensional Change Card Sort
Executive Function



Pattern Comparison
Processing Speed



Picture Vocabulary
Language

Standard recall tests (since Wave IV), Sample 2

Word Recall

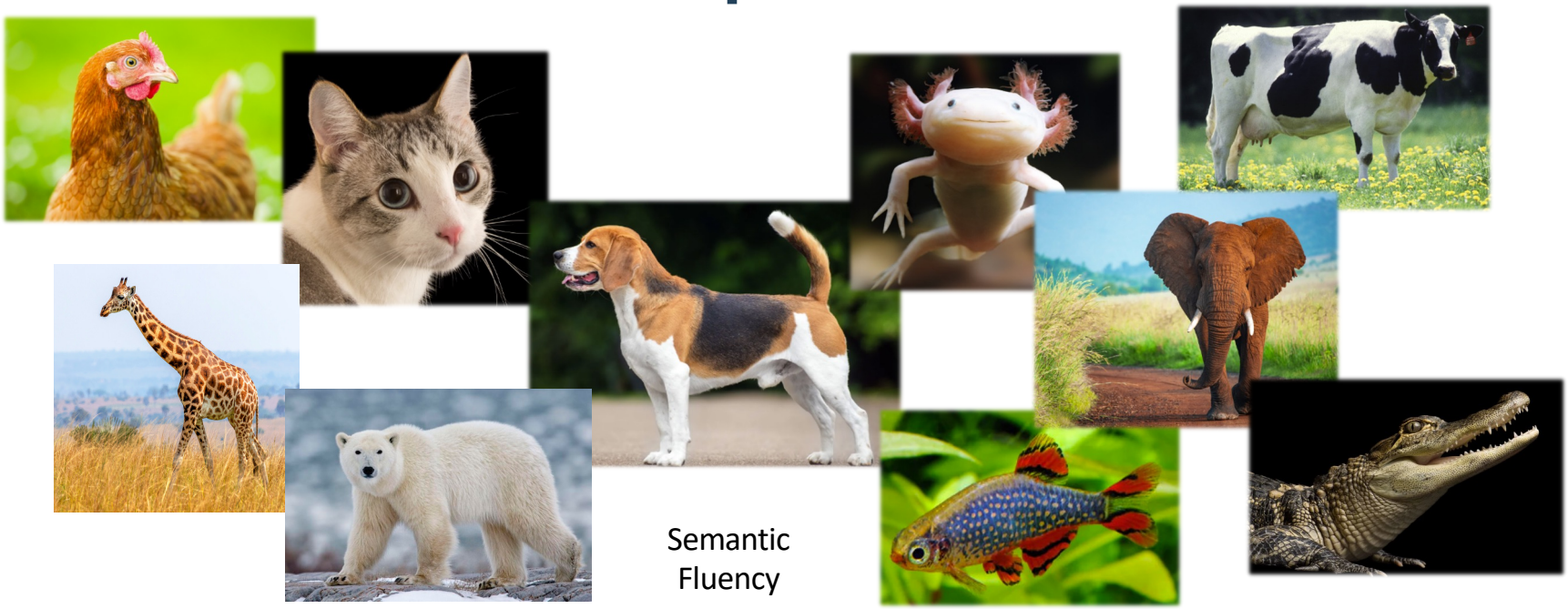
Immediate and Delayed

Episodic Memory

Digit Span (Backward) Test

Working Memory

Animal fluency standard test, Sample 2



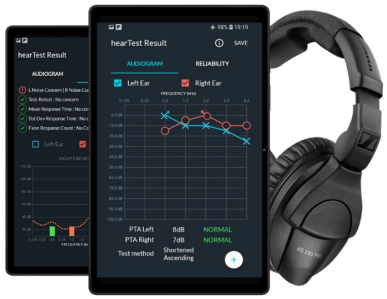
Semantic Fluency

Grip strength test, Sample 2

Jamar Plus Digital Hand Dynamometer
Performance Health

Physical Functioning

hearX HearTest, Sample 2



Pure Tone Average (PTA) for each ear
- Softest intensity

Sensory Functioning

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Summary

- Add CAPS protocol
  - New comprehensive assessment
- Potential for comparative studies
- Innovative technology
- Opportunities for longitudinal measurement

Acknowledgements

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- Add Health is currently directed by Robert A. Hummer and funded by the National Institute on Aging cooperative agreements U01 AG071448 (Hummer) and U01AG071450 (Aiello and Hummer) at the University of North Carolina at Chapel Hill.

- Add Health was designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill.

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Thank you!

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Extra slides

Test Sequence, Domains, and Duration

Test	Domain Measured	Average Duration
Test My Brain		
Verbal Paired Associates	Verbal episodic memory	1.9 minutes
Digit Symbol Matching	Processing speed	2.7 minutes
Gradual Onset Continuous Performance Test	Executive function	3.9 minutes
Backward Digit Span	Working memory	3.5 minutes
Grip Strength	Physical Function	5.9 minutes
Recall		
Immediate Word Recall	Verbal episodic memory	3.2 minutes
Delayed Word Recall	Verbal episodic memory	2.1 minutes
Backward Digit Span	Working memory	2.2 minutes

Test Sequence, Domains, and Duration

Test	Domain Measured	Average Duration
NIH Toolbox		
Pattern Comparison	Processing speed	4.5 minutes
Dimensional Change Card Sort	Executive function	2.6 minutes
Picture Vocabulary	Language	2.5 minutes
Animal fluency	Semantic fluency; executive function	3.2 minutes
Brief Smell Identification Test	Smell	8.6 minutes
HearX	Hearing	7.9 minutes
Peek Vision	Sight	4.2 minutes