

# CLSA: Cognitive Health

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# Major public health goal: To maintain and enhance cognitive health and well-being throughout the lifespan

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## **Detecting decline:**

- When does aging-related decline begin?
- Why do these changes occur (e.g., health)? Can these changes be prevented, delayed, or treated?
- Is this individual changing more rapidly than they have in the past?

## **Context:**

- What is the impact of early life characteristics (e.g., childhood cognition; early life distress) and changing cohort contexts (e.g., SES, education, nutrition) on later life outcomes?

## **Dynamics:**

- Are within-person dynamics (e.g., stress reactivity) predictive of future outcomes (e.g., change in cognition and health)?

# Role of lifespan factors on health and functioning

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## **Investigation of factors influencing chronic disease risk and changes in physical and cognitive capabilities**

- Hazards during gestation (e.g., low SES, poor parenting, stress, lack of stimulation), childhood, adolescence, young adulthood, later adult life, and across generations
- Focus on long periods of lifespan
- Multiple cohort comparisons (historical, generational)
- Ability to modify risk factors; greater impact of interventions during critical periods

# Risk Factors: Dementia and Cognitive Decline

INCREASED RISK	DECREASED RISK
Dementia (AD, Vascular) Head injury / trauma Cardiovascular disease (e.g., atherosclerosis, stroke, hypertension) Diabetes APOE e4 genotype Depression Vision and hearing deficits Smoking	Physical activity Cognitive engagement Social interaction Mediterranean diet Educational attainment Socioeconomic status Higher childhood IQ

Additional risk factors include blood lipid levels, absence of antihypertensive medication, atrial fibrillation, left ventricular hypertrophy, hyperhomocysteinemia, orthostatic hypotension, cardiac arrhythmias, hyperfibrinogenemia, sleep apnea, chronic infection and elevation of C-reactive protein.

# RAVLT- Rey Auditory Verbal Learning Test

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- This test assesses memory retention and learning abilities
- The RAVLT is a sensitive measure for detection of early cognitive decline in younger individuals

## Results

- Women were able to recall slightly more words in their age group than men were

# Animal Naming

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- Measures verbal category fluency to assess, as well as dissociate, normal cognitive decline from early-stage dementia

## Results

- Within each age group, both men and women had similar results
- English speaking participants were able to name more animals than French speaking participants

# MAT- Mental Alternation Task

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- Measures cognitive processing speed and mental flexibility
- The MAT test requires a participant to alternate between the alphabet and numbers from 1-26 for a desired pattern of 1-A, 2-B, 3-C

## Results

- Youngest men achieved the highest scores by completing the longest pattern while older women scored the lowest

# Stroop Test

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- The **Stroop Test** measures the “attention, mental speed and mental control” of an individual by asking them to identify the name of a colour and the colour of a word on a page

red blue orange purple  
orange blue green red  
blue purple green red  
orange blue red green  
purple orange red blue  
green red blue purple

## Results

- The youngest participants were able to complete the test with the fewest number of interferences whereas the oldest participants indicated higher levels of interference



# FAS Verbal Fluency

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- The FAS test asks participants to say as many words as possible in 60 seconds. Using the letters “F” “A” and “S”

## Results

- The youngest women were able to say the most words whereas the oldest men recorded the least number of words



## Healthy aging is a lifelong process

