Neuropsychological assessment

Differentiating between typical aging vs. abnormal performances

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Normal Cognitive Aging vs. "Dementia"

"Optimal" vs. "Typical" Normal Aging

- **Optimal Aging:** Studies often exclude people with medical illnesses or those taking medications that may impact cognition (e.g. diabetes, COPD, anxiety)
  - In other words, studies look at "Super Normals"
  - Cross-sectional studies: looking at different groups of different ages
    - Compare performances of older adults to younger adults

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- **Typical Aging**: Assumes that people will experience age-associated medical problems and changes in cognition that are part of physical aging process
  - Crystallized vs. Fluid Cognitive Skills
  - Compares performances longitudinally with a focus on changes within the same group of people.

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Clinical utility of neuropsychological assessment

- Age and education adjusted norms - compares your scores to your true peers
  - Better able to determine whether cognitive changes are typical for someone's age
  - Comprehensive neuropsychological testing - 80-90% accurate in detecting underlying AD found on autopsy (Hu et al., 2010; Salmon, 2002).
- Crystallized intelligence tests against which other fluid measures (memory, processing speed, attention) are compared, to determine whether there is a significant change for each individual person
  1. Establish if there is a DECLINE compared to your peers
  2. Establish if there is an IMPAIRMENT, compared to individual's own level of past optimal level of functioning
- Can serve as one of the biomarkers of disease recognition and treatment

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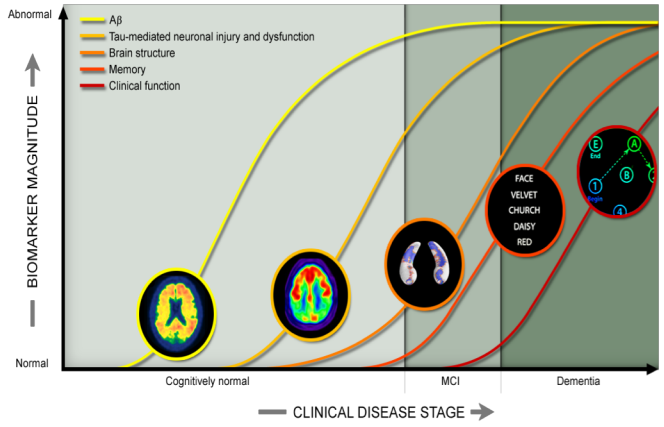
Disease Progression and Biomarkers



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FORMAL NEUROPSYCHOLOGICAL ASSESSMENT

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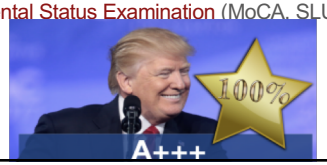
Typical Neuropsychological Battery

- Varies in length and the nature of tests included
- Tests are geared toward a referral and research question
  - Typical length in ages 25-65: 3-4 hours of testing
  - Typical length in ages 65+: 2-3 hours of testing

Why not brief testing?

- Brief Screening measures:
  - Best at ruling out whether cognitive impairment exists
  - Not great at diagnosis or differentiating what type of cognitive impairment exist
  - Easy to obtain a perfect score-but may still have subtle problems that a general measure cannot detect
  - Examples: Mental Status Examination (MoCA, SLUMS, or MMSE)



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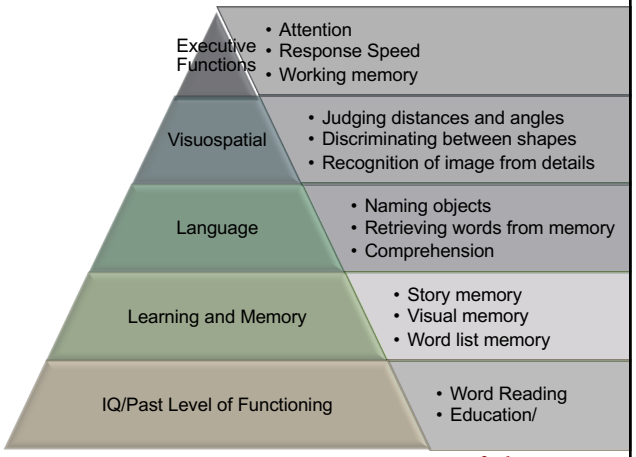
Cognitive Domains Assessed



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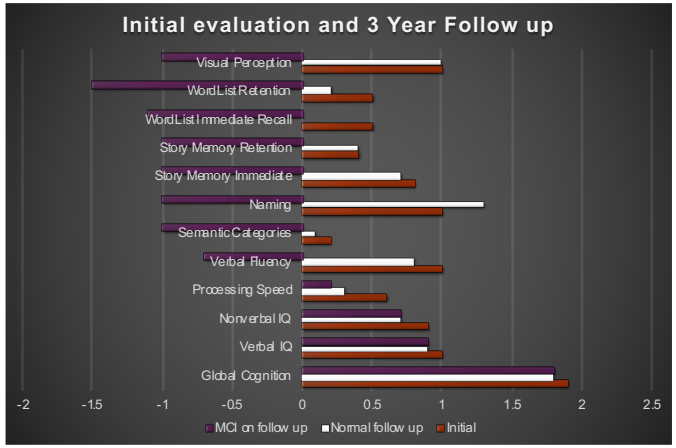
Neuropsychological Profiles Over Time:



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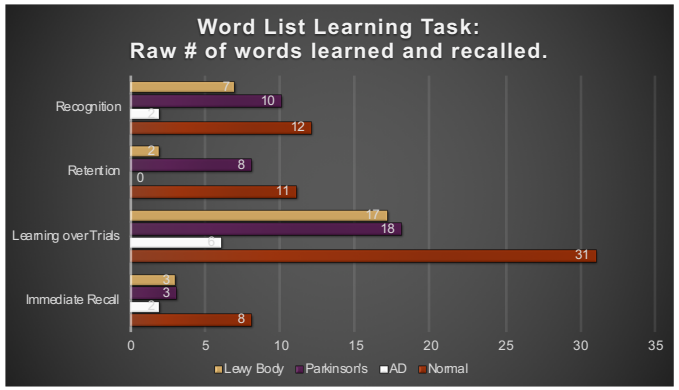
Patterns of Memory Performance



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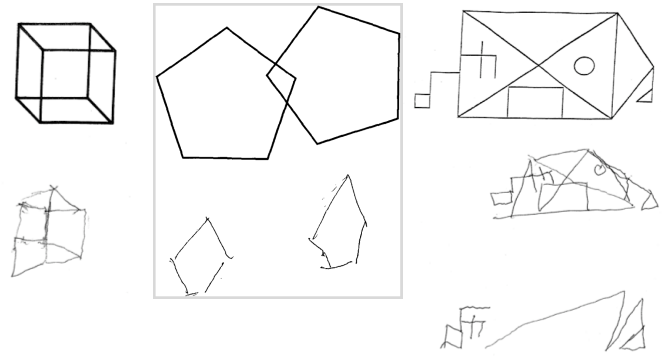
Visuospatial Distortions (Lewy Body Dementia)



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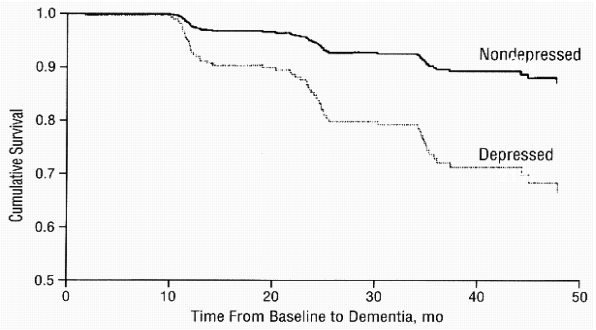
Depression and Dementia



From: Devanand et al., *Archives of General Psychiatry*, *53*, 175-182, 1996

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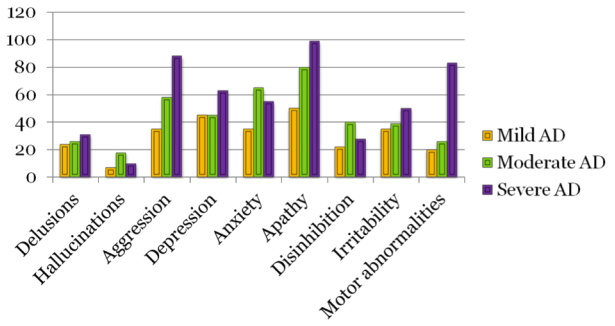
Neuropsychiatric symptoms in AD (Hwang et al., 2004)



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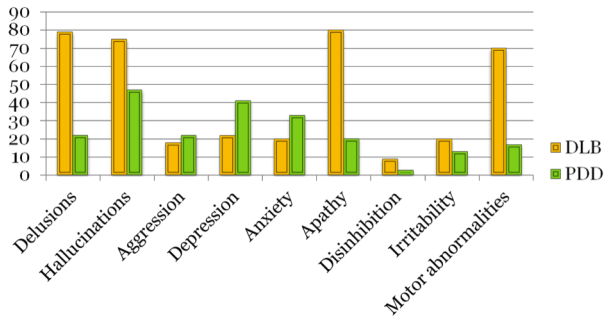
Neuropsychiatric symptoms in LBD and PDD
(Aarsland et al., 2001)



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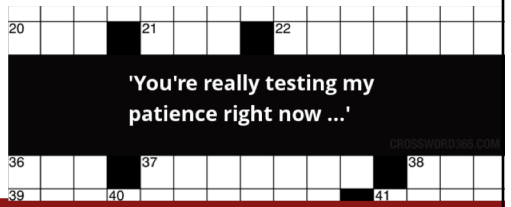
Thank you for your time, participation and patience.



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