

## Ch. 17: Neuropsychology

- Definitions
- History
- Goals
- Methods
- State of the art
- Issues
- Careers / Training

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## Clinical Neuropsychology

- Field: Subfield of clinical psychology
- Setting: both outpatient and inpatient
- Subjects/Patients: children, adolescents, adults, geriatric
- Methods: Measure function of specific brain areas & systems.
- Measures: Uses standard tests (such as IQ tests) as well as specialized test & batteries
- Norms: uses standard, as well as specialized normative data

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## Goals of NP Assessment

- Diagnosis
  - Clinical
  - Scientific
  - Medico-legal / forensic
- Understanding of neurological basis of disorder
  - Prognosis
  - Treatment plan
    - surgical, pharmacological, psychosocial, remediation
- Track changes over time

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## Neurology v. Neuropsychology

	Neurology	Neuropsychology
Education	MD	PhD
Methods	hands on, informal	hands off, structured
Decisions	clinical judgement	statistics & norms
Focus	motor / periphery	cognitive
Psychosocial	some	much
Treatments	drugs, surgery	rehabilitation, compensation

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## Behavioral tests vs. biological

- Q: Isn't it easier to diagnose a brain disease with biological measures and/or brain imaging, than by giving neuropsychological tests?
- A: In many cases most sensitive test of early dysfunction is a neuropsychological test
- Example: Alzheimer's disease shows a very specific pattern of "rapid forgetting" that can be detected by memory testing, long before it shows up on brain imaging scans.
- NP testing is relatively non-invasive, though not particularly inexpensive

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## Behavioral tests vs. biological 2

- Many behaviors are mediated by multiple brain systems, these systems may be distributed widely throughout the brain and/or intermixed with other systems. These types of systems are not easily imaged with MRI
- In many cases, behavior is the final issue. Therefore, testing behavior directly can be more accurate than testing biology.
- However, in many cases Imaging and Neuropsychology go hand in hand. Imaging shows the damage, NP tests show the effects.

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## Neuropsych. Batteries

- Two major schools of thought:
- Fixed Battery
  - Give all patients same set of tests
  - Increase chance of finding subtle/hidden impairments
  - Excellent statistics and normative data
- Flexible Battery
  - Tailor specific tests to specific patients
  - More like neurology, more hands on
  - Poor statistics, possible to miss hidden issues

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## Fixed Batteries

- Halstead-Reitan
  - WAIS-III plus additional tests of memory, learning, motor and sensory skills
  - Approx 6 hours to administer
- Luria-Nebraska
  - Luria had a flexible battery based on theory of pluripotentiality (multiple brain systems could compensate to do the same tasks)
  - Had poor psychometrics. Test battery was improved and standardized at U. Nebraska
  - Approx 24 hours(!) to administer

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## Halstead-Reitan Battery

- Full WAIS-III
- Additional tests:
  - Category test
  - Grooved pegboard
  - Rhythm
  - Speech comprehension
  - Finger tapping
  - Trail making
  - Grip Strength
  - Sensory-perceptual exam

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## Careers in neuropsychology

- Clinical Neuropsychology - subfield of Clinical Psychology
- Ph.D. (or PsyD) with about 2000 hours clinical training
- Internship : 1 year (about 2000 hours)
- Post-doc : minimum 1 year (about 2000 hours clinical training)
- Employment -- usually in hospital or clinic, sometimes forensic (legal), often joint with Univ.
- Pay -- good, often better than typical clinical psychologist, not as good as MD.

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## Today's class

- About the Final
- Ch 15 New Directions
- Make-up / Extra Credit Assignment?
- Review for final:
  - Ch 4-5

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