What is Neuropsychology and What’s the (Power)Point?

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Comparative Anatomy: BRAINS

Dogs

- Ball sports
- Chasing cats
- Love of the pet
- Commitment to family
- Selfless devotion to loved ones
- Gland

Men

- Ball sports
- Math
- Sex
- T.V.
- Computer
- Interruption
- Loan
- Air guitar
- Listening

Commitment to molecule
- Intimate
- Listening
- Intimate
- Air
- Hygiene arm
What is Neuropsychology

The study of brain-behavior relationships.
Who is a Neuropsychologist?

Doctoral degree, Ph.D., Psy.D. (6-8 years post BA) usually in clinical psychology
1-year pre-doctoral clinical internship
2 years post-doctoral fellowship/residency

Board Certifications: ABN, ABPP-Cn, ABPdN (rare, not necessary, but indicates peer review)

Focus on: neuroanatomy, neurobiology, psychopharmacology, neurological illness/injury, and use of neuropsychological tests.
Differences between Neuropsychology and Neurology / Psychiatry

- **No prescription privileges** (in all but 3 states)
- **Neurologists**: 15-60 minutes contact
  (history, neuro-radiology, and pathognomonic signs)
- **Psychiatrist**: 30-60 minutes contact
  (history and labs)
- **Neuropsychologist**: 4 to 8 hours contact
  history, standardized test procedures
  Normative data bank for comparative analyses
  Far more detailed cognitive & psychological exam
A Neuropsychologist performs in depth testing assessing cognitive as well as psychological processes with the specific goal of understanding:

- how the brain is actually functioning, and
- the impact of brain function on the patient’s ability to understand, problem-solve, cope, and interact.
Diagnoses typically referred to Neuropsychology

**BRAIN RELATED DIAGNOSES**
- Stroke, TIA, Brain Injury, Seizures/Epilepsy
- Dementia
  - (Alzheimer’s, Vascular, Subcortical, Frontal, Fronto-temporal,
  - Lewy-Body, Primary Progressive Aphasia, Parkinson’s, Huntington’s, etc.)
- Concussion, mild TBI, Memory Loss, Mild Cognitive Impairment (MCI)
- Movement Disorders: Tourette’s, Cerebral Palsy, Multiple Sclerosis
- ADHD and/or Learning Disabilities: Dyslexia, Dyscalculia, Dysgraphia
- Developmental Disorders: Autism, Asperger’s, Rett’s, Etc.
- Brain tumors and/or chemotherapy, radiation
- Toxic insults: exposure to heavy metals such as lead, mercury

**OTHER DIAGNOSES** where contributions of brain related dysfunction needs assessment
- Conversion and Somatization Disorders
- Personality Disorder
- Behavior problems
- Chronic Pain
- Psychiatric decompensation
Neuropsychological Assessment: The Domains

- Intellectual Functioning (I.Q.)
- Attention/Concentration
- Memory/Learning
- Verbal/Language Processing
- Visual-Spatial Ability
- Visual-Motor Ability
- Sensory-Perceptual Functioning
- Motor Skills
- Executive Functioning
- Emotional/Personality Functioning
- Motivation-Symptom Validity
Neuropsychological Evaluation
Sensitivity

- Neuropsychological evaluation is *more sensitive to brain dysfunction than MRI*

- Unfortunately, research demonstrates that on-call, attending radiologists miss fully 67% of non-hemorrhagic contusions identified by senior neuroradiologists


- Neuropsychological assessment more efficient than MRI for tracking disease progression in memory clinic patients

Neuropsychologist Purpose:
Team Member

- Neuropsychological evaluation is designed to assess function, not just identify a lesion, diagnosis.
- Assess capabilities, assistance necessary, family involvement and education, driving capacity, capacity to make decisions, living setting, amount of care, etc.
- A neuropsychologist acts as a crucial team member with the neurologist, psychiatrist, physiatrist, and psychotherapist.
UNIQUE SKILL: Assessment of Effort, Symptom Validity, Motivation

• Assessment of whether the patient:
  ➢ tried their best
  ➢ purposefully performed poorly
  ➢ was impacted by secondary gain
    *(money, disability psychological needs, school or test accommodations, etc.)*

• Research has consistently demonstrated that intuition, feel, gut, history, behavior etc., have absolutely no bearing on accurately assessing motivation, effort, or malingering.
Neuropsychological Assessment: Symptom Validity: Terms

Motivation

Dissimulation

Effort

Exaggeration/Enhancement

Malingering *(CRIMINAL INTENT)*

Factitious Disorder: Psychiatric reasons (sick role)
Neuropsychological Assessment: Symptom Validity Types

Domains of Malingering

- Cognitive Malingering
- Somatic Malingering
- Psychiatric Malingering
Neuropsychological Assessment: Symptom Validity: Base Rate-Malingering

Mittenberg: Base-rates of Malingering

- 30% Personal Injury
- 41% Mild TBI litigants
- 32% Disability/work comp
- 22% Criminal cases
  - 8% Medical or psychiatric cases
- 38% Fibromyalgia/chronic fatigue
- 33% Pain/somatoform
  - 8% Moderate/Severe TBI
- 2% Vascular Dementia
Larrabee reviewed 11 studies yielding 548/1363 mTBI litigants failing SVT’s 40% 

(TCN, 2003, v. 17, pp 410-425)
## Neuropsychological Assessment: Symptom Validity: Base Rates - PCS

<table>
<thead>
<tr>
<th></th>
<th>Headache</th>
<th>Dizziness</th>
<th>Irritability</th>
<th>Memory</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>mTBI</strong></td>
<td>42%</td>
<td>26%</td>
<td>28%</td>
<td>36%</td>
<td>25%</td>
</tr>
<tr>
<td><strong>College Students</strong></td>
<td>36%</td>
<td>18%</td>
<td>36%</td>
<td>17%</td>
<td>42%</td>
</tr>
<tr>
<td><strong>Chronic Pain</strong></td>
<td>80%</td>
<td>67%</td>
<td>49%</td>
<td>33%</td>
<td>63%</td>
</tr>
<tr>
<td><strong>Depressed</strong></td>
<td>37%</td>
<td>20%</td>
<td>52%</td>
<td>25%</td>
<td>54%</td>
</tr>
<tr>
<td><strong>PI Claimants-NO TBI</strong></td>
<td>77%</td>
<td>41%</td>
<td>63%</td>
<td>46%</td>
<td>71%</td>
</tr>
</tbody>
</table>

Neuropsychological Assessment: Symptom Validity Tests

- Passing
- Questionable
- Random
- Below Random

Graph showing percent correct for different conditions:
- Patient: y, x. Test administered on May 12, 2014.
- Early dementia, age 74, sd 12 (Dr. R. Brockhaus)
- Advanced dementia in hospital, age 78, sd 12 (Dr. R. Brockhaus)
- Prob. early dementia, age 75, sd 3 (Dr. Montijo, Spanish)
- Abnormal Performance Area
Mr. X (Army Vet) in an accident. He initially stated that he had no recall of the accident. However, with great encouragement, he recalled more details.

He recalled that it was raining, there was ice on the road, and he put on his emergency signals due to the bad weather. He recalled seeing a car on the opposite side of the road flip over into a ditch. The next thing he recalls is the hospital. *(He did help her and went back to his car).*

When his wife arrived at the hospital, he was complaining of pain in his head and the physicians were stitching his forehead. She stated that he seemed disoriented, confused, and sleepy.

NO LOC, PTA<1 hour, GCS=15, Following Commands
Medals

Certificate of Release or Discharge from Active Duty:

- Army Commendation Medal (4th award)
- Army Achievement Medal (4th award)
- USN Unit Commendation
- USA/USAF Presidential Unit Citation
- Army Good Conduct Medal (4th award)
- National Defense Service Medal
- Global War on Terrorism Expeditionary Medal
- Global War on Terrorism Service Medal
- Korean Defense Service Medal
- Iraq Campaign Medal with Campaign Star
- Noncommissioned Officer Professional Development Ribbon (3rd award)
- Army Service Ribbon, Overseas Service Ribbon (5th award)
- Combat Action Badge
4 Prior Neuropsychological Evaluations:

- Dementia due to head trauma, mild-moderate
- Post-traumatic Stress Disorder, chronic
- Major Depressive Disorder, recurrent, severe without psychosis

- “…evidence of impairment in the functional integrity of the brain. The severity of the brain impairment was mild-to-moderate.”

- “…residual neurological sequelae of mild-moderate TBI, neurocognitive deficits associated with PTSD, neurocognitive deficits associated with Major Depressive Disorder and possible neurological sequelae of chronic sleep apnea as well as iatrogenic effects of medications suppressing the central nervous system function.”
Mild TBI?
Moderate TBI?
Depression or Anxiety?
PTSD?
Mild TBI AND PTSD?
Malingering?
Conclusions

Failed Effort Tests

• Multiple failed symptom validity performance on 11 measures and suspect or marginal performances on a host of other measures.

• “…multiple SVT failures… provide strong evidence for a diagnosis of probable malingering when two SVTs are failed, and very strong evidence for probable malingering, if not definite malingering, when 3 SVTs are failed.” (Larrabee, 2008)
Neuropsychological Assessment:

Be Not Afraid of The Brain!!
The Brain: Finally Fully Explained