Psychological Tests that Examine Brain Functioning

Psychology 372

Physiological Psychology

Steven E. Meier, Ph.D.

Listen to the audio lecture while viewing these slides or view the video presentation available through Blackboard
Background

- Often involves giving a battery of tests.
- Tests are often based on what you are trying to examine
  - Motor function
  - Memory
  - Sensory-Perceptual Ability
  - Abstract Reasoning
  - Others
Two Approaches

- **Patient Centered**
  - Is more flexible
  - Types of tests are based on presenting symptoms and referral issues.

- **Fixed Battery of Tests**
  - Involves giving specific tests to everyone
  - Adding others if necessary
Types of Tests
Halstead-Reitan Neuropsychological Test Battery

- Contains 10 subtests that examine a variety of brain functions
  - Abstract reasoning
  - Kinesthetic and Sensimotor Ability
  - Attention
  - Auditory Perception
  - Sensory-Perceptual ability
  - Others
Some Tasks

- Have person close their eyes with their hands held out. Have them say which hand is touched when touched.
- Which ear receives a barely audible finger snap.
- Identify a number or shapes traced on a finger or hand.
- Key tapping
- Measuring grip strength by squeezing a dynamometer
- Others
Issue

- Normal person can perform the tasks well.
- Persons with neurological damage have difficulty with certain tasks.
- Based on anatomy and physiology, you can deduce where the brain damage has occurred.
Additional Tests added to the H-R

- Memory Tests such as the WAIS-III
- MMPI
- Others
Luria-Nebraska Neuropsychological Test Battery

- Is a second common test battery
- Consists of 269 discrete items
- Has high reliability
- Also has some problems
  - High rates of false positives in older patients.
Some Scales

- Motor
- Rhythm
- Receptive Speech
- Reading
- Writing
- Memory
- Others
Conclusions

• Some people really like it
• Others find problems
• Results mixed
Aphasia Screening Tests

- Many types
  - Multilingual Aphasia Examination
  - Western Aphasia Battery
  - Boston Diagnostic Aphasia Examination
  - Token Test
  - Others
Examine

- Spontaneous speech
- Sentence or phrase repetition
- Reading
- Writing and copying
- others
Bender Gestalt Test

- Used to examine complex motor tasks
- Has nine figures
- Patient is asked to copy one at a time on a blank sheet of paper.
- Accuracy is the key
Porteus Maze Test

- Is very good at assessing executive functioning
  - Reasoning
  - Planning
  - Flexibility of thinking
- Person has to trace a line through different mazes without lifting a pencil and avoiding dead ends.
- Is very sensitive to brain damage in the frontal lobes
Conclusion

• There are many types of tests that examine brain functioning
• Some tests are very sensitive and can be highly accurate in assessing damage.
• Can be used to help target brain damage before other techniques are used.
• Are not cheap to administer.
ARE TO BE GIVEN AND INTERPRETED BY TRAINED PROFESSIONALS.

- Training to give these tests is time intensive.
- Interpretation requires very specific knowledge and skills.
- Tests take lots of practice to be given and interpreted correctly.
- CT Scans and are interpreted by Radiologists.
- MRIs.
- Neuropsychological test batteries are interpreted by trained psychologists (usually neuropsychologists).