



## Psychological Tests that Examine Brain Functioning

Psychology 372

Physiological Psychology

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### 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

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### 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

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### Types of Tests

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### 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

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### 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

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### Issue

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- 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.

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### Additional Tests added to the H-R

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- Memory Tests such as the WAIS-III
- MMPI
- Others

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### Luria-Nebraska Neuropsychological Test Battery

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- 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.

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### Some Scales

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

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### Conclusions

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- Some people really like it
- Others find problems
- Results mixed

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### Aphasia Screening Tests

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

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### Examine

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

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### Bender Gestalt Test

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- 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

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### Porteus Maze Test

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- 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

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### Conclusion

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- 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.

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### ARE TO BE GIVEN AND INTERPRETED BY TRAINED PROFESSIONALS.

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- 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)

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