

# Neuropsychological Terms and Definitions

## **Agnosia**

The inability to recognize and identify objects or persons despite having knowledge of the characteristics of those objects or persons. People with agnosia may have difficulty recognizing the geometric features of an object or a face or may be able to perceive the geometric features but be unable to tell what the object is or what it is used for. For example, a person may not be able to identify a rose by looking at it but may be able to by smelling it. Agnosia can be limited to one sensory modality such as vision or hearing. A person may have difficulty identifying an object as a cup or a sound as a cough. Agnosia typically results from damage to specific brain areas in the occipital or parietal lobes of the brain. A person with agnosia may retain their cognitive abilities in other areas.

## **Alogia**

Complete or partial lack of speech. Is synonymous with expressive aphasia.

## **Aphasia**

One in a group of speech disorders in which there is a defect or loss of the power of expression by speech, writing, or signs, or a defect or loss of the power of comprehension of spoken or written language. Less severe forms of aphasia may be called dysphasia. An individual may have "receptive aphasia" where they are unable to interpret information that they receive (can be through verbal or written means) or "expressive aphasia" where a person is unable to accurately express his or her thoughts through language (either written or spoken). There are varying degrees and combinations of each modality. Less severe forms of aphasia may be called dysphasia.

## **Apraxia**

Describes the condition of not being able to perform coordinated motor activities (it specifically refers to the inability to use an object correctly) when the person is *not* suffering from paralysis or damage to muscles, bone, or sensory organs.

## **Arithmetic**

The ability to correctly manipulate numeric information according to basic mathematical rules including division, subtraction, multiplication or addition. Level of reasoning and problem format may vary, ranging from addition of single digit numbers to word problems involving hypothetical financial transactions.

## **Association**

A skills dependent on patients' ability to determine the relationship (e.g., similarities and differences) between objects and/or concepts.

## **Attention and Concentration**

The ability to respond consistently to auditory or visual stimuli for an appropriate period of time. The required length of attention varies from program to program, and in some cases, can be directly controlled by the therapist. Furthermore, software may focus on minimizing *distractibility*, which refers to the patient's inability to sustain attention because of competing internal or external stimuli. The process of reducing distractibility often involves presentation of irrelevant stimuli as the patient is focused on an assigned task.

## **Auditory Discrimination**

The ability to differentiate and recognize sounds. The patient may be required to distinguish between sets of noises or words which may be similar.

### **Auditory Memory**

The ability to recall series of numbers, lists of words, sentences, or paragraphs presented orally. In some cases, the therapist has the opportunity to vary the sequence complexity of the presented material and the interval between presentation and response.

### **Categorization**

The ability to sort or group objects and concepts based on shared attribute(s) and apply a label depicting the attribute(s). Task difficulty is greater in circumstances requiring formation of new categories. *Categorization* is similar to *association* in that patients must understand the relationship between objects or concepts. However, *categorization* requires an extra step, the ability to provide a label describing the group of objects or concepts.

### **Cause and Effect**

The ability to perceive and anticipate the consequences of a given action or statement.

### **Concept Formation**

A reasoning process which requires individuals to discern, develop, explicate, or apply rules which govern relationships between various types of information or stimuli.

### **Fund of Information**

A type of remote memory as well as a measurement of the amount of information an individual has retained about his/her environment. The information can include, for example, knowledge regarding current events, politics, and book learning (e.g., the capitals of the states, past presidents, etc.)

### **Generalization**

The ability to take information, rules, and strategies learned about one situation and apply it appropriately to other, similar situations.

### **Hand-Eye Coordination**

The ability to respond to visual stimulus with a designated set of hand movements.

### **Judgment of Safety**

The extent to which an individual can correctly judge the dangers and risks in a variety of situations.

### **Level of Abstraction**

Reasoning is often characterized as being *concrete* or *abstract*. *Concrete* reasoning involves the ability to understand the literal meaning of a phrase. *Abstract* reasoning requires that the individual recognize a phrase has multiple meanings and select the meaning most appropriate to a given situation. Multiple meanings are often learned or discovered through problem solving: *Abstract* reasoning is required for accurate interpretations of humor, idioms, sarcasm, absurdities, and proverbs.

### **Mental Flexibility**

This is an executive function task. Mental flexibility is the ability to handle different situations in different ways, and to effectively respond to new, complex, and problematic situations. This includes seeing things from different perspectives (problem solving), adapting to change, and it is the ability to switch from one task to a different task. Often a person who has problems with mental flexibility will have challenges when switching from one task to another or even with understanding view points that are contrary to their own.

### **Motor Coordination and Dexterity**

*Motor coordination* refers to using both hands efficiently to perform a designated response (sometimes called *gross motor skills*). *Dexterity* refers to the ability to perform fine movements with one or both hands (also called *fine motor skills*).

### **Nonverbal Memory**

The ability to retain nonlinguistic information (e.g. a visual image) for a specified time period.

### **Organization**

The ability to arrange or group information in a manner, which improves task efficiency.

### **Perseveration**

The repetition of the same thought. The repetition of a word, phrase or action after the stimuli for this has ended. Sometimes a person will perseverate on something he or she needs to do and will only focus on that task, ignoring everything else. Sometimes a person may repeat the same word answer for a later question (particularly common with people with some degree of aphasia).

### **Problem Solving**

The ability to analyze information related to a given situation and generate appropriate response options. *Problem Solving* is a sequential process that typically proceeds as follows: identification of problem; generation of response options; evaluation of response option appropriateness; selection and testing of options on a trial/error basis; analysis as to whether a solution has been reached.

### **Reaction Time**

The amount of time required to respond to a stimulus. Typically, stimuli are either visual or auditory.

### **Reading Comprehension**

The ability to provide accurate responses regarding questions concerning written language. Reading comprehension is dependent on accurate reading ability, reasoning skills, attention and memory.

### **Reasoning**

Reasoning is a complex process involving a number of abilities including association, categorization, cause and effect, problem solving, organization, generalization, and judgment of safety.

### **Sequencing**

The ability to organize information or objects according to specified rules; or the ability to arrange information or objects in a logical progressive manner. Nearly every activity, including work and leisure tasks, requires *sequencing* activity. For example in cooking certain foods it is important that ingredients be added and mixed in a specified order; in dressing, undergarments must be put on prior to outer-wear. *Sequencing* is often considered a reasoning process.

### **Spatial Orientation**

The ability to accurately judge the relationship between visual stimuli. In many cases, the ability to judge size, distance, and left from right is required.

### **Spelling**

The ability to arrange letters correctly to form designated words. Typically, software tasks require patients to type in correct spellings. In some cases, a written or oral response may be required.

**Verbal Memory**

The ability to retain linguistic information for a designated time period. Information to be retained is typically presented orally (though sometimes visually). *See Auditory Memory.*

**Verbal Skills**

A general category referring to various language related abilities commonly used in reading and writing including organization of sentences and syntax. Verbal skills are typically acquired during formal education as well as through modeling experience.

**Visual Discrimination**

A process requiring differentiation between stimuli based on sight.

**Visual Memory**

The ability to recall information from pictures, lists of words, or other information presented visually. In some cases, the therapist has the opportunity to vary the sequence complexity of the presented material and the interval between presentation and response.

**Visual Scanning**

An active search process requiring the ability to recognize designated stimuli within a given area using sight.

**Visuospatial Abilities**

A general category referring to processes dependent on vision. Tasks include stimulus recognition, mental rotation of objects, and determinations of relationships between stimuli (e.g., based on size or color.)

**Working Memory**

Is also sometimes called short-term (recent) memory.

Working memory is a system for temporarily storing and managing the information required to carry out complex cognitive tasks such as learning, reasoning, and comprehension. Working memory is involved in the selection, initiation, and termination of information-processing functions such as encoding, storing and retrieving data.

One test of working memory is memory span, the number of items, usually words or numbers, that a person can hold onto and recall. In a typical test of memory span, an examiner reads a list of random numbers aloud at an approximate rate of one number per second. At the end of a sequence, the person being tested is asked to recall the items in order. The average memory span for normal adults is 7 items.