

# **COGNITIVE IMPAIRMENT**

## **Cognitive Functions: Five Phases of Cognitive Processing**

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Brain disorders directly affect a person's ability to think. This reduced ability to think, (i.e., impairment in cognitive functions) can lead to emotional distress, behaviors disturbing to others, confusion and distress caused by other people's behaviors, and difficulty performing a variety of tasks.

Some of the cognitive functions that may be impaired are listed below. The cognitive functions are listed in the order in which the brain (every brain, healthy or not) processes information from the environment and other people.

It is important to remember that in addition to brain dysfunction, other factors may affect a person's ability to perform cognitive functions, including emotional disorders, effects of medications, or normal age-related changes, such as sensory loss and the effects of life events.

Interventions that address cognitive functions can include compensation for the impaired function, increased support to enable a person to perform an impaired function, and increased reliance on intact cognitive functions and other strengths and resources. Intervention strategies often include modification of the environment, tasks, and interactions between the person and others.

### **1. Sensory Functions**

(Receiving information from the environment with the five senses)

- Seeing
- Hearing
- Feeling
- Tasting
- Smelling

### **2. Perception and Comprehension**

(Recognizing and understanding the information received)

- Recognizing objects (whole and parts of: things, faces, parts of the body)
- Recognizing colors, shapes, sizes
- Recognizing distances and orientation of objects to each other in space
- Judging distances of objects from self
- Noticing objects in all parts of visual field
- Understanding pictures
- Understanding gestures and facial expressions
- Understanding speech and written words
- Recognizing music (pitch, tune, rhythm)
- Sensing balance and where one's body parts are in space
- Recognizing when and which of one's own body parts are being touched
- Recognizing touch: pressure, temperature, texture
- Recognizing objects by feel

### **3. Executive Functions**

(Organizing, categorizing, manipulating, and using the information received)

- Attention and concentration: sustained focus on relevant stimuli (figure-ground)
- Knowing when a task is done
- Orientation
- Speed of processing and reaction time
- Memory (for various lengths of time, for various types of content & presentation)

Knowing and remembering the big picture  
Knowing and remembering details  
Logic  
Ordering (Sequencing)  
Problem solving  
Anticipation or expectation  
Abstraction  
Choosing among options: producing, remembering, recognizing, evaluating Shifting  
from one idea or activity to another  
Quantity appreciation  
Knowing how much time has passed  
Getting started  
Stopping, censoring, or delaying thoughts, acts, and impulses  
Recognizing and identifying various types of pain in one's own body parts  
Recognizing abilities, disabilities, needs, desires (own and others)  
Recognizing mistakes (own and others)  
Conscious awareness of what one knows, thinks, feels  
Interpreting other's behaviors and feelings through observation and analysis  
Adapting one's behaviors and body position in response to other peoples'  
words, behaviors, or expressions of emotion  
Empathy and sympathy  
Recognizing and interpreting an environment and situation  
Adapting to new environments and to unfamiliarity and change

#### **4. Expressive Functions**

(The brain telling the body what to do)

Using gestures  
Moving and coordinating body parts (walking, rising to a standing position)  
Modulating body movements (pacing, rhythm, variation, speed, cadence)  
Being able to do something when she/he wants to (intentionally)  
Being able to do something spontaneously, in imitation, and when requested  
Producing sound and with variation (pitch, tune, rhythm, cadence)  
Finding or producing words to speak and write  
Copying written words and drawings  
Coordinating actions into meaningful performance  
(Daily tasks, building, drawing, pulling, taking)

#### **5. Motor Functions**

(The body doing what the brain tells it to do)

Strength  
Range of motion  
Coordination (physical) of body parts (e.g., dysarthria)  
Speed (time required to physically move body parts)  
Pain

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