



## **Cognition is the Key to the Way We Think and Act**

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Cognition is defined as the conscious process of being aware of thoughts or perceptions, including understanding and reasoning. In simpler terms, it is the way we organize our thoughts and make sense of our environment. As a consequence of brain injury, that conscious process may be disrupted. Learning more about this disruption is the first step in developing and implementing treatment to increase, compensate for or remediate functional capabilities.

Physical recovery after brain injury is better understood by most people because of its visible nature. Many individuals with brain injury will undergo a period of recovery and rehabilitation to rebuild physically. Some will require extended physical or occupational therapy to regain motor skills, while others must be taught new ways for performing tasks when damage to motor areas of the brain or brain stem no longer support these functions. Assistive devices frequently are used to support ambulation, improve upper body mobility and increase the potential for a higher quality of life.

Once adjustments to physically impairing conditions are made, it is not unusual that impaired cognition becomes the most disabling and limiting consequence of brain injury. Exhaustion of insurance monies and/or limitations of coverage can be a barrier to accessing cognitive rehabilitation, and all too often people are discharged with little or no planning. Some common problem areas after traumatic brain injury include:

**Orientation:** Individuals with diffuse or bilateral damage are more likely to experience problems with orientation to time, place and person. External cues—such as calendars, bulletin boards, watches with beepers, pictorial systems for identifying persons and places—and other commonly used objects can be helpful. Orientation difficulties lead to a great deal of confusion for the individual, but consistency and structure in every aspect of life can keep him/her better oriented.

**Attention/concentration:** Arousal and attention are important for processing information. Attention and concentration skills are needed to support most of the other cognitive functions on this list. For individuals with brain injury, it can be overwhelming to try to maintain attention, make sense of information, integrate it and use it appropriately.

**Overload-breakdown of comprehension:** Fatigue plays havoc with comprehension. Trying to manage too much information at once inevitably leads to overload. Too much stimulation in the environment (i.e., a noisy classroom, bright lights, blaring music, large crowds of people) can cause overload and shut down for the individual with brain injury.

**Reasoning and problem solving:** Solving problems—even simple ones—in the course of daily living may be problematic for some individuals with brain injury. A spilled cup of coffee may create a major problem-solving dilemma and result in an odd reaction (e.g., throwing the cup in the trash instead of getting a cloth to mop up the spill). Many poor decisions are made when a person is unable to weigh various options and their effects before determining an action plan. For the individual with brain injury, it is often very difficult to organize and sequence information to solve problems responsibly.

**Organizational skills:** As injury to frontal lobes of the brain often disrupts organizational skills, individuals may experience many problems in organizing both information and tasks. An external “cuer” or “prompter” may need to identify the problem areas and develop strategies to enhance organization (e.g., organization trays labeled to note the items kept there, cue cards for various activities to enable greater independence, “a place for everything and everything in its place” and strategies for breaking down tasks or information into manageable steps).

**Rate of processing:** Slowed processing of information creates problems for individuals when extra time is required to formulate a response or manage a cluster of information, particularly while under pressure.

**Rate of performance:** When the ability to perform tasks is slowed by injury, this decreased performance must be a consideration when setting realistic goals particularly in developing a student’s Individual Education Plan (IEP) and vocational planning.

**Perseveration:** Many individuals with brain injury have trouble shifting their attention and find themselves “trapped” in one area of focus. There is a tendency to repeat a response or activity after it is no longer needed. External cueing or redirection may help shift the focus to another topic.

**Staying on task/topic:** Distractibility is a major problem for some individuals with brain injury. External cueing devices (e.g., cue cards, beepers, task lists) may be helpful. Some persons may need external redirection to get back on task. Safety can be compromised; for example, when a housewife browning meat for a casserole is distracted by a telephone call, a fire can erupt as a result of the disruption causing her to forget the

task at hand. On the job, a worker distracted by other activities in the environment may be unable to resume his/her work without external cueing.

**Initiation/Motivation:** Families often express their concern that an individual is a “couch potato.” Often this is a direct result of damage in areas of the brain responsible for initiating action or a plan. Some suggested choices of activities or assistance in starting an activity may be all that is needed to get the family member with brain injury moving and occupied productively.

**Generalization:** Most individuals with brain injury will need help transferring skills learned in one setting (i.e., a rehabilitation program) back into a home setting. In a job setting, a promotion to a new position may prove unsuccessful without assistance to “retrain” learned skills to a different setting. Upon completion of rehabilitation, a well-executed discharge plan will make this transition easier and more successful.

**Agitation:** A diminished level of frustration is very common after severe brain injury. The offending stimuli may be external and obvious or internal and less obvious. Well-planned strategies are very helpful to offset this problem and families are advised to seek both medical evaluation to rule out seizure activity or other possible medical problems and neuropsychological evaluation to learn more about the individual’s deficits and methods for managing the agitation.

**Fatigue/stress:** Understanding the fatigue level for your family member can save many difficult situations. Many individuals with brain injury are unable to maintain attention, concentration and skill levels, as well as behavioral control for extended periods without time out to revitalize. This can be a problem for children and adolescents in school and persons on the job if they are expected to maintain attention for long periods of time without respite. Once a person’s fatigueability is identified and understood, special accommodations often may be arranged and contribute to improved performance.

**Memory:** Memory dysfunction is possibly the most common residual effect of brain injury and one that families generally find the most troubling. Memories of events that occurred prior to the injury usually are retained but new information and recent events may not be accessed easily. Additionally, there often is a problem with retrieving information on an as-needed basis. To retrieve or recall information one must have the ability to initiate; sustain and switch attention; recognize relevant and irrelevant information; rehearse, organize and apply it to the task or question at hand. These are all very complex cognitive abilities and ones that often are impaired as a result of brain injury.

As discharge dates draw nearer, the family must ensure that that planning has prepared them adequately to assist the individual with brain injury in managing his/her day-to-day existence in a meaningful and productive way. Inroads made during rehabilitation can be lost when acquired skills are not reinforced and realistic goals met after the individual

with brain injury leaves the rehabilitation setting. When possible, periodic reevaluations are most helpful in setting new goals that may lead to greater independence.

In conclusion, the most practical method for helping an individual with cognitive deficits is to help him/her devise strategies to compensate for these deficits. Providing a structured and consistent setting, at least initially, can be very helpful. Compensatory strategies may include calendars, daily journals, watches with easily set alarms, post-it notes, telephone dialers, stovetop timers, cue cards, task cards that organize and sequence various tasks the individual is expected to perform and many other tools developed to increase the individual's ability to control those aspects of his/her life that can be managed as independently as possible. Cognitive rehabilitation is not a magic formula that ensures every person with brain injury will become an independently functioning adult; however, good strategies improve the quality of life not only for the individual but for his/her family as well.

Carolyn Rocchio is the parent of a son with a brain injury sustained in a 1982 automobile crash. She is the founder of the Brain Injury Association of Florida and a former member of the Board of Directors of the Brain Injury Association.

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