

## Returning to Work after TBI

Recent research in traumatic brain injury (TBI) rehabilitation has focused on measuring outcomes, specifically the impact rehabilitation has on a survivor's quality of life. Because there is a clear link between financial status and self-esteem, vocational success has become one of the most important outcomes measured in brain injury rehabilitation and research (Jacobs, 1997). However, it is often difficult for individuals with brain injuries to achieve vocational success. Many survivors suffer with significant psychological, cognitive and physical deficits that negatively affect their ability to seek and maintain employment. Research points to the importance of addressing these deficits using a supportive rehabilitation team approach focused on assessing the wide range of physical, cognitive and functional variables (Vandiver, et al, 2003).

### Factors Affecting Employability

Difficulties with physical changes, thinking abilities (such as problem solving and memory), behavior and social skills can delay the success of post-acute treatment. These issues must be addressed in order to promote and ensure employability. Addressing these challenges with occupational and speech-language pathology sessions can promote a greater ease of transition into the work place. This is accomplished through the development of foundational skills that are easily generalized.

### Physical Changes

Physical deficits, if they exist, are always the most obvious or noticeable. Unlike subtle cognitive impairments, physical deficits frequently become the central issue. They often are the result of damage to the brain centers that control motor functions rather than by direct injury to the extremities. Deficits may include loss of motor coordination, spasticity (muscular hypertonicity with increased tendon reflexes), poor balance, an inability to walk unassisted, and a loss of eye-hand coordination. Hemiplegia (paralysis affecting one side of the body) and hemiparesis (weakness of one side of the body or part of it) may further complicate employment issues, particularly when these conditions affect the use of the dominant hand.



### Cognitive Changes

Individuals with brain injury may exhibit problems in a variety of cognitive areas such as:

- basic arousal
- attention
- memory
- planning
- problem solving
- alertness
- concentration
- abstract thinking & conceptualization
- organizing
- judgment

They may also have difficulty processing verbal and visual information.

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### **Arousal**

Hallmark signs of arousal problems include an inability to attend to the environment, a lack of (or reduced) alertness; an inability to accurately observe environmental details and occurrences; and a severely slowed capacity for information processing. People with arousal impairments are slow in reacting and responding to others and are highly susceptible to fatigue following cognitive or physical exertion (Western Neuro Sensory Stimulation Profile, 1989).

### **Attention and Concentration**

Impaired attention and concentration abilities can exhibit as distractibility. This may be a response to interference either by external or internal stimuli. For the person with brain injury, the inability to “screen out” external noises makes concentration difficult. Environmental noise is found in most work settings, such as conversation, office traffic, humming of machines and the general related “buzz” of activity. If external noise can be controlled or minimized, concentration usually improves.

For the person with brain injury, another possible source of distracting noise is internal conversation, which takes place in the mind. Intrusive inner thoughts can limit productivity and are exceedingly hard to manage. They become visible (observable) only when they interrupt performance (Sohlberg and Mateer, 1989).

### **Memory**

Loss of adequate memory function and the inability to immediately recall new information (anterograde amnesia) are common symptoms following brain injury. While significant improvement in memory function may be noted during initial recovery, this deficit is often observed in varying degrees for most survivors. Intact memories and over-learned information (for example, riding a bike or performing a sequence of job tasks) frequently represent areas of strength. These preserved skills can be drawn upon when helping redevelop vocational goals.

Sometimes an individual may appear to have a memory impairment when, in fact, they have difficulty paying attention. Inattentiveness can be remediated or, at least improved by cognitive rehabilitation (Sohlberg and Mateer, 1989).

### **Abstract Thinking and Conceptualization**

An important concern for return to work is whether the

## **Predicting Employability**

Predicting the employability of an individual following a brain injury is a complex process. Many variables affect productivity outcomes. Reported unemployment rates vary widely, from 10–99 percent (Cifu, 1997; Gollaher, 1998). Most samples show about a 30 percent return to employment; although a 2003 study by Kreutzer and his colleagues found in that 42 percent were employed and 34 percent were stably employed three years after their injury date. Those who were unemployed were most likely to be members of ethnic minority groups, non-high school graduates, unmarried, unable to drive their own vehicles and had severe impairments (2003).

In 1998, Gollaher and colleagues reported that individuals with higher education levels and less disabilities were most likely to be employed at one to three years post-injury. Sherer and associates (1999) found that individuals with no history of substance abuse were eight times more likely to be employed at two years post-injury.

TBI Model Systems researchers established that early neuropsychological testing appeared to be useful for predicting outcome after injury. Boake and colleagues (2001) noted that early completion of neuropsychological tests (completed less than two months from injury) with scores in the normal range increased the likelihood of a productive outcome by 40–130 percent. Further, early neuropsychological test results were predictive of productivity outcomes one year post-injury (Scherer et al 2002). At one year follow-up, 43 percent of the 388 participants were classified as productive. Scherer and fellow researchers also found in a subsequent study (2003), that those with more accurate self-awareness were nearly twice as likely to be working as those with less accurate self-awareness.



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individual with brain injury is able to engage in abstract thought. They may find it difficult to shift to other aspects of a problem or to readily search for alternatives. They may lack the capacity for imaginative thought and remain poor problem solvers. Difficulty with abstract reasoning limits the types of productive activity an individual can pursue autonomously and impacts the range, complexity and variety of tasks they can successfully attempt.

Conceptualization, which is dependent on the capacity to think abstractly, is another area in which the individual may exhibit cognitive deficits. The ability to effectively conceptualize lies within the realm of higher-level cognition. One must possess a store of learned material that is reliably and readily drawn upon in order to “imagine” or form a mental picture, organize these mental events and be able to translate this cognitive activity into an observable behavior/skill. Problems in the ability to conceptualize can significantly impact employment pursuits (Brain Injury Handbook, 2006).

### **Executive Functioning**

Deficits in executive functioning are the result of frontal lobe damage. Intact executive functions allow an individual to engage in autonomous, independent, well planned, effectively organized, sufficiently monitored, self-regulated, purposeful or goal-directed tasks or behaviors. When these capabilities are diminished as the result of brain injury, individuals have difficulty sustaining employment, maintaining satisfactory social relationships and, at times, maintaining adequate self-care, regardless of how well other cognitive capacities are retained.

When executive skills are impaired, individuals have difficulty functioning productively. These individuals are viewed as poor self-managers. Those who appear capable are probably the most difficult to treat or evaluate vocationally. They cannot accurately monitor their abilities and need frequent feedback. Without feedback, they do not understand how their weaknesses impact their ability to work.

While capable of engaging in complex activities, those impaired in executive functioning may lack the capacity to develop plans or initiate purposeful activity. In extreme cases, these individuals may appear apathetic and unable to initiate except in response to external stimuli. The ability to become engaged dynamically in interactive and intentional behavior is basic to executive skills. As mentioned earlier, when this capacity falters, persons with brain injury can erroneously be labeled lazy or unmotivated (Brain Injury Handbook, 2006).

### **Psychosocial Issues**

Work, both volunteer and paid employment, is deeply valued in our society. Because of this, more than just an injured worker’s physical and cognitive abilities should be considered when trying to help him or her return to work. Work helps to establish personal identity, self-worth and standing in the community, family and social groups. When a person is engaged in meaningful, gratifying work, it contributes to his overall sense of well-being and life balance.

When a person’s ability to work is affected by a brain injury, psychosocial issues must be considered. They can be equally if not more debilitating than the physical and cognitive effects. When unable to return to their former work role, individuals may experience many or all of the following psychosocial effects:

- Grief and feelings of loss related to personal identity in the role of worker and wage earner
- Grief and loss of standing or authority in the family
- Actual loss of wages/income
- Lack of appropriate leisure skills or interests, especially if the person was considered a “workaholic” previous to his or her disability
- Excessive idle time that could lead to unhealthy or inappropriate use of time (e.g. recreational drug use or abuse)
- Loss of social contact or social network
- Isolation or withdrawal that can lead to depression, anxiety and other forms of emotional distress.

As mentioned previously, many types of cognitive and physical disabilities can be overcome with adaptations and compensations. However, psychosocial issues are often more difficult to identify and accommodate. When accommodations and adaptations are used, they are often rejected by the worker and/or the employer.

When a person experiences an injury resulting in a permanent disability, several psychosocial factors may influence their willingness or reluctance to return to work:

- Fear of the employer and/or employee that the worker no longer possesses the skills or abilities to perform the job
- Adaptations that are required are seen as bothersome by the employer, or the employee may feel embarrassed and uncomfortable asking for the adaptations
- Subtle or non-tangible disabilities such as cognitive deficits, mental illness or substance abuse disorders are difficult to accommodate and may significantly impact a worker’s performance

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- Obvious or known use of adaptations or supports on the job could be related to feelings of inadequacy and a reluctance to return to work.

A psychosocial effect often seen in brain injury that further confounds potential success is that a person may not be able to return to the same level or position they previously held. This can lead to resentment and bitterness because they are taking a position that is “beneath” them or that has “less importance” than their previous job. This presents a challenge to the rehabilitation team, family and the injured worker. They must identify a work experience that suits their current abilities and interests and that will promote satisfaction and pride.

### **The Roles and the Challenges of the Rehabilitation Team**

Rehabilitation professionals work to provide remediation in core work skills and help develop greater self- acceptance. This is done by focusing on remaining or new abilities and strengths. When skills and strengths are identified and optimized, appropriate placement can be determined, ensuring work success and satisfaction.

While our society is more accepting of people with disabilities than it has been historically, many roadblocks to acceptance still exist. Rehabilitation professionals can educate employers and the public of the value of workers with differing abilities. Our society and communities are enriched by diversity, especially when a worker is matched with the right work environment.

When assisting a person with a brain injury in ‘return to work’ skills, some objectives of the rehabilitation team include:

- Assisting the person to resume and value the role of worker
- Facilitating self-worth and self-image through graded experiences providing a balance of challenge and success
- Improving work skills related to the actual job: Physical, cognitive, technical, social (interaction with peers, ability to take direction from a supervisor) and executive skills (self-monitoring, evaluation of work completed, problem solving, initiation and motivation)
- Acting as a liaison between the workplace, insurance companies, government agencies and the worker
- Educating employers and the public of the value of workers with differing abilities.

### **Conclusion**

Returning to work is an important aspect of brain injury recovery and rehabilitation. Gainful employment is highly respected in our culture. The ability to achieve successful employment not only leads to financial stability and independence, it also provides a sense of purpose, well-being and social status.

For individuals lacking necessary work skills, assistive therapies and interventions by trained professionals can help survivors reach employment goals. Therapists can help individuals with brain injuries match their skills with meaningful jobs, help them acquire new skills or regain abilities. Assistance is often necessary in order to return to work and attain employment goals. ❖

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### References

- Boake, C., Millis, S. R., High, W.M., Delmonico, R.L., Kreutzer, J.S., Rosenthal, M., Sherer, M., & Ivanhoe, C.B. (2001). Using early neuropsychologic testing to predict long-term productivity outcome from traumatic brain injury. *Archives of Physical Medicine and Rehabilitation*, 82, 761-768.
- Cifu, D.X., Keyser-Marcus, L., Lopez, E., Wehman, P., Kreutzer, J. S., Englander, J., & High, W. (1997) Acute predictors of successful return to work one year after traumatic brain injury: A multicenter analysis. *Archives of Physical Medicine and Rehabilitation*, 78, 125-131.
- Gollaher, K., High, W., Sherer, M., Bergloff, P., Boake, C., Young, M. E., & Ivanhoe, C. (1998). Prediction of employment outcome one to three years following traumatic brain injury. *Brain Injury*, 12, 255-263.
- Gupta, Jyothi, (2006), Workplace Accommodations: Challenges and Opportunities, *OT Practice*, 11, 9-14
- Jacobs, H.E. (1997) The Clubhouse: Addressing Work-Related Behavioral Challenges Through a Supportive Social Community. *The Journal of Head Trauma Rehabilitation*; vol. 4 number 5: 42-56.
- Kreutzer, J. S., Marwitz, J. H., Walker, W., Sander, A., Sherer, M., Bogner, J., Fraser, R., & Bushnik, T. (2003). Moderating factors in return to work and job stability after traumatic brain injury. *Journal of Head Trauma Rehabilitation*, 18, 128-138.
- Miller, Denise, (2004), Psychosocial Issues and the Return-to-Work Process, *OT Practice*, 9, 16-20
- Sherer, M., Bergloff, P., High, Jr., W., & Nick, T. G. (1999). Contribution of functional ratings to prediction of long-term employment outcome after traumatic brain injury. *Brain Injury*, 13, 973-981.
- Sherer, M., Hart, T., Nick, T.G., Whyte, J., Thompson, R.N., & Yablon, S. A. (2003) Early impaired self-awareness after traumatic brain injury. *Archives of Physical Medicine Rehabilitation*, 84, 168-192.
- Sherer, M., Sander, A.M., Nick, T.G., High, W.M., Jr., Malec, J.F., & Rosenthal, M. (2002). Early cognitive status and productivity outcome after traumatic brain injury: Findings from the TBI Model Systems. *Archives of Physical Medicine and Rehabilitation*, 82, 183-192.
- Sohlberg, M.M. & Mateer, C. A. (1989) *Introduction to Cognitive Rehabilitation: Theory and Practice*. The Guilford Press
- The Brain Injury Handbook: An Introductory Guide to Understanding Brain Injury for Vocational Rehabilitation Professionals (2006) Brain Injury Association of New Jersey, Inc. Adapted from *The Brain Injury Handbook: An Introductory Guide to Understanding Brain Injury for Vocational Rehabilitation Professionals* (1991) Brain Injury Association of Florida.
- Jacobs, H.E. (1997) The Clubhouse: Addressing Work-Related Behavioral Challenges Through a Supportive Social Community. *The Journal of Head Trauma Rehabilitation*; vol. 4 number 5: 42-56.
- Vandiver, V.L., Johnson, J., & Christofero-Snider, C. (2003) Supporting Employment for Adults with Acquired Brain Injury: A conceptual model. *Journal of Head Trauma Rehabilitation*, 4, 445-456.
- Ansell, B.J., Keenan, J.E., Dela Roche, O. (1989) Western Neuro Sensory Stimulation Profile: A tool for assessing slow to recover head-injury patients. Western Neuro Care Center, Tustin, California.

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