

5. Community Reintegration following ABI

On behalf of the ERABI Research Group

Community reintegration is the ultimate goal of acquired brain injury (ABI) rehabilitation. However, the evidence supporting many widely held beliefs about outcomes in this domain is limited. The evaluation of clinical work in this area may not lend itself well to the rigors of a randomized controlled trial (RCT), as the situations, circumstances, deficits, and supports are as complex and varied as the individuals themselves.

The transition back to the community from acute care or post-acute rehabilitation requires diverse supports in the community, often for extended periods of time. Returning to a full range of activities within the community can prove difficult for brain injury survivors and their families. Life encompasses work, love, and play, but rehabilitation efforts often focus primarily on vocational status. The impact of a brain injury on interpersonal relationships, parenting, friendships, and leisure roles may be equally challenging and disabling.

Given that a brain injury is a relatively significant disabler of an otherwise healthy, young, and productive segment of our population, the implications for return to productivity and “normalcy” becomes paramount. This is particularly poignant for those who were not yet able to live autonomously prior to the injury – in these cases, skill-focused rehabilitation must be founded on primary “habilitation”. Clients may need to be taught basic activities of daily living (ADL), how to make friends, and complete primary or secondary schooling before considering vocational options.

5.1 Independence and Social Integration

The experiential world created by an ABI is a challenging one to navigate. Many survivors have unsatisfying social lives relative to their pre-injury status and many live in restricted settings. Thus, effective community reintegration strategies for survivors of brain injury are important for a complete recovery. Social integration encompasses a broad milieu of experiences lived by both brain injury survivors and their caregivers. Indicators of social integration include leisure and recreational pursuits, community access, interpersonal interactions, and relationships.

Q. What does the term independence imply?

Answer

- Independence is a broad category that includes the ability to take care of personal needs and carry out general activities of daily living. The required level of supervision is also an indicator of independence following brain injury.

Q. What are some of the challenges faced by those living with a brain injury?**Answers**

- Isolation and a lack of social support (Johnson & Davis 1998).
- Having fewer friends and social contacts, and a greater degree of dissatisfaction with social networks than individuals without TBI (Johnson & Davis 1998).
- Reduced self-esteem and a perceived decline in personal sex appeal have been reported as common personality changes following head injury (Kreuter et al. 1998; Kreutzer & Zasler 1989).

Q. What does the evidence tell us about the effectiveness of self-awareness training in improving an individual's awareness of his or her disability?**Answer**

- There is Level 1b evidence suggesting that self-awareness training helps to improve an individual's awareness of his or her disability.

Goverover et al. (2007) looked at an individual's ability to perform instrumental activities of daily living (IADL) with the assistance of self-awareness training or conventional therapeutic interventions (controls). Those in the treatment group had a stronger ability to perform IADLS and showed greater self-regulation than the control group but this training did not impact community reintegration.

Study Snapshot**Treatment to improve self-awareness in person with ABI (Goverover et al. 2007).**

- 20 individuals with ABI living in the community were recruited.
- The treatment group (n=10) received six sessions of self-awareness training while they performed various instrumental activities of daily living. The control group (n=10) received conventional therapeutic intervention.
- The treatment group was asked to predict their level of performance on each task prior to completing it.
- Although the between group difference was not significant for task specific self-awareness (Assessment of Awareness of Disability, $p=0.12$), those in the experimental group showed improvement (+2.1) and the controls worsened (-1.8).
- Results from the Self-Regulation Skills Inventory also showed improvement for those in the experimental group indicating that these participants had greater improvements in self-regulation than controls ($p \leq 0.001$).
- Scores on the Assessment of Motor and Process Skills improved more in the treatment group than in the control group ($p < 0.01$).
- No treatment effect was shown for general self-awareness or community integration.

Q. What does the evidence tell us about the effect of post-ABI rehabilitation on community integration?**Answers**

- There is Level 2 evidence that rehabilitation, whether hospital-based (outpatient) or community-based, does improve the level of independence for persons with ABI as confirmed by a number of non-randomized studies; these effects were maintained 1–3 years later.
- There is Level 3 evidence indicating that community-based life skills training does improve community integration, although it has little effect on an individual's satisfaction with life.
- There are fewer studies showing positive effects of general rehabilitation efforts on social integration; however, there is Level 4 evidence for the positive effects of community-based rehabilitation programs that use a peer or supported relationship model of intervention.

Social integration can also be improved through multidisciplinary rehabilitation (Goranson et al. 2003). Intensive and structured cognitive rehabilitation therapy has been reported to cause significant improvements in client reported satisfaction, when compared to standard multidisciplinary rehabilitation (Cicerone et al. 2004). Although both interventions improved community re-integration, the intensive group was over twice as likely to show clinical benefit on the Community Integration Questionnaire (Cicerone et al. 2004). It should be noted however, that there were differences in time post injury between the groups. Those in the intense treatment group had a greater time post injury; therefore, it could be argued that these individuals may have had greater incentive for success due to their heightened awareness of loss. In contrast, Cicerone et al. (2004) indicate that many of the patients in the second group were only several months' post injury and had limited experience resuming their pre-injury responsibilities. The findings suggest that cognitive gains may be a foundation for skill enhancement and subsequent community integration, but increased participation in community activities may offer functional rehabilitation challenges that also enhance cognitive skills. Hopman et al. (2012) found that the type of rehabilitation program resulted in different improvements with in-home treatment showing greater productivity scores than transitional-living treatments, but transitional-living providing greater advancements in social integration.

Patients able to live more independently, compared to individuals requiring assistance with physical functioning, revealed greater social functioning and physical health (Forslund et al. 2013). Moreover, patients with greater mobility were more likely to report better attention and cognitive functioning than patients who required extra physical care and assistance with daily activities such as personal hygiene (Esbjörnsson et al. 2013). The level of difficulty and assistance required to complete life habits, such as IADLs, is associated with living arrangements. Lamontagne et al. (2013) reported that individuals living in a structured institutionalised setting experienced greater difficulty, with social role-related life habits being performed more easily by patients living in group homes or with foster families. Similar findings were reported by Sloan et al. (2012) in that patients living in a disability-specific setting required higher levels of support than those in home-like settings. The authors argue that due to time-constraints, carers may provide more assistance than is needed, thus reducing the patients' autonomy and independence.

Malec et al. (1993) reviewed outcomes for participants in a comprehensive, outpatient, milieu-based rehabilitation program. At one-year follow-up, most of the program graduates were living with no supervision, and nearly half were competitively employed. Similarly, Johnston and Lewis (1991) found that with community retraining significant gains were made with respect to independent living and productive activities. Less encouraging results were found in another study by Schoneberger et al. (2014) when examining community based rehabilitation; however, the authors state that the findings only magnify the need to develop individual care plans for patients in order to maximise their potential for independence and for adjustment to their injuries.

5.2 Caregiver Burden

Following an injury, someone—often a family member or friend—takes on the responsibility of ensuring the individual with injury is properly cared for. The ABI literature covers prevalent issues that pertain to caregivers including: caregiver burden, adopting new roles, unmet family needs, and challenges with family functioning (Godwin & Kreutzer 2013).

Q. What does the term caregiver burden encompass and what impact does this have on the caregiver?

Answers

- Caregiver burden broadly encompasses all of the duties, responsibilities and impact faced by those who assume the responsibility of caring for someone with an ABI.
- The role may be taken on by a single or “primary caregiver” or distributed among a larger network of individuals.
- The role is both physically and emotionally challenging.
- Primary caregivers of ABI survivors experience significant levels of stress, burden, and depression.

Q. What other influences contribute to caregiver burden post ABI?

Answers

- Caregiver burden is influenced by the changes in the injured individual’s emotional control, personality, behaviour, cognitive abilities and physical abilities.
- Loss of income, loss of transportation, increased care and medication costs, ongoing therapy demands and the lack of community-based services.
- Caregiver’s perceptions of the individual’s impairments.
- Caregiver’s coping strategies.
- Education and access to information.

The caregiver role can be both physically and emotionally challenging. The former is said to be influenced by the changes in the injured individual’s emotional control, personality, behaviour, increased sense of frustration, physical abilities and varying cognitive difficulties (e.g., poor memory and slowness in thinking; Brooks et al. 1986; Hall et al. 1994; Jacobs 1988; Kreutzer et al. 1994; McKinlay et al. 1981; Oddy et al. 1978; Thomsen 1984; Willer et al. 1991). The stress may be compounded by losses of income or transportation, increased care and medication costs, ongoing therapy demands, and a lack

of community-based services. It is important to evaluate the long-term impact of these variables and provide educational and support services to help caregivers effectively manage and cope.

The caregiving experience is heavily influenced by the injury of the individual being cared for. The severity of injury was reflective of the degree of burden; with poorer recovery being associated with greater caregiver burden (Bayen et al. 2013; Boycott et al. 2013; Kreutzer et al. 2009; Manskow et al. 2014). Caregiver strain is also influenced by the individuals level of disability, dysexecutive function (Bayen et al. 2013), memory, communication abilities (Boycott et al. 2013; Stevens et al. 2012), and overall neuropsychological functioning (Lehan et al. 2012). Caregiver's perceptions of the patient's physical and mental health impairments can also have an effect on the levels of burden being felt (Stevens et al. 2012). Finally, caregivers' characteristics, such as coping flexibility, influence the amount of stress and burden experienced (Katz et al. 2005).

The need for social relationships and support systems has also been reported. Caregivers who meet with friends less frequently and receive less social support typically feel more burdened and isolated (Coy et al. 2013; Davis et al. 2009; Manskow et al. 2014). The role of the family has proven to be a vital source of support for caregivers as well. Perrin et al. (2013) reported that families scoring highly in cohesion, communication, and functioning resulted in lower caregiver burden and depression, and higher levels of satisfaction with life. Further, families whose members support each other, openly express their feelings, and are capable of being flexible to change demonstrate improved adjustment to the consequences of brain injury (Martin 1988). Leibach et al. (2014) also emphasised the importance of family functioning in that all five family needs (household, informational, health, financial and social support) were significantly associated with satisfaction with life, burden, anxiety and self-esteem.

Education and access to information have been found to have an effect on burden. Calvete and de Arroyabe (2012) reported that caregivers regarded health information support as a valuable source, particularly in the early stages of TBI care. Not meeting this need for additional information and education can result in caregivers' mental health being negatively affected. Doyle et al. (2013) revealed that the majority of unmet needs revolved around health information of the patient, thus increasing levels of anxiety and depression. However education and information may not be enough and methods of actually implementing this knowledge may be needed in tandem in order for education to be effective. As previously discussed, Rivera et al. (2008) conducted a study with two groups, a problem-solving group and an education-only group, with the education-only group showing increases in depression and more health complaints. Therefore, one area that needs additional attention is the role of education and informational supports for caregivers, both clinically and in research.

Emotional exhaustion resulting in 'burnout' has also been an issue for caregivers (Saban et al. 2013) as the burden associated with caregiving increases over time (Livingston et al. 1985). A more recent study found that burden may lessen over time as the caregiver and patient get used to the needs and requirements of the care at hand, particularly long after discharge and when reintegration has been successfully achieved (Dillahunt-Aspillaga et al. 2013).

Q. What does the evidence suggest about interventions aimed towards caregivers?**Answers**

- There is Level 2 evidence that social work liaison alleviates caregiver burden, and improves satisfaction and mastery.
- There is Level 2 evidence that an educational program provided to caregivers and their family member with ABI decreases caregiver burden.
- There is Level 2 evidence that programs that provide education in combination with problem solving training are more effective in reducing dysfunctional problem solving than educational material alone.
- There is Level 2 evidence that the caregivers supported through a teleconference technology felt less distress and less burden than those participating in an on-site support group.

Kreutzer et al. (2009) studied families who participated in a brain injury intervention program which focused on cognitive behavioural therapy and the family dynamic (coping with loss, managing stress, etc.). The results suggest that although family members did benefit from this intervention in terms of meeting their needs and service obstacles, it did not strongly influence the general family functioning or satisfaction with life (Kreutzer et al. 2009). Sinnakaruppan et al. (2005) studied the effects of an educational program administered to caregivers and their family member with an ABI on reducing caregiver distress and improving their coping ability. The educational program led to greater mean changes in the General Health Questionnaire depression scores, as well as improvements in seeking instrumental social support, than the control group (Sinnakaruppan et al. 2005). Although educating caregivers has been shown to be advantageous, the distribution of educational material alone does not have the same impact (Morris 2001). Researchers have also explored the benefit of education in combination with other interventions. The effect of behavioral management and education on the amount of stress and burden experienced by caregivers was studied by Carnevale et al. (2002). In this small sample RCT there was no demonstrated benefit of the combined program compared to education alone.

In addition to the intervention, the practicality of the programs must be taken into account. Despite the effectiveness of a program, caregivers may not have the ability or time to attend them, making home-based programs more appealing. Several studies have examined programs provided at home via the telephone or teleconference technology. A study by Rivera et al. (2008) compared caregivers who received problem solving training through home support sessions, followed by telephone sessions for one year to a control group that received only 15 minute telephone sessions for the 12 month period. Both groups showed an increase in well-being. The treatment group also had improvements in dysfunctional problem solving, depression and health complaints (Rivera et al. 2008). Caregivers attending a teleconference, in comparison to an on-site support group, reported less burden and distress (Brown et al. 1999). Further, community rehabilitation services compared to traditional outpatient services have shown favourable outcomes in terms of met needs and family functioning (Smith et al. 2006). It appears that home-based interventions are effective and may alleviate any extra stress that accompanies attending support programs. Finally, it is imperative that caregivers be educated and made aware of available services prior to their loved one being discharged; this has been shown to help caregivers feel more prepared for the future (Bowen et al. 2001).

Despite caregiver burden being well described in the literature, there is less research evaluating programs and or interventions that cater to caregivers. Using a controlled retrospective design Albert et al. (2002) evaluated the effectiveness of a social work liaison program in the three domains in which the experience of a caregiver may be viewed: Burden, Satisfaction and Mastery. The following table summarizes the characteristics encompassed within each of these domains as per Albert et al. (2002).

Table 1. Common Indicators of Caregiver Burden, Satisfaction and Mastery (Albert et al. 2002)

Caregiver Burden	Caregiver Satisfaction	Caregiver Mastery
<ul style="list-style-type: none"> • Not enough time • Anxiety • Not enough sleep • Not enough privacy • Strain on personal relationships • Depression • Interruptions at work • Low energy • Inability to get outside the home • Use of alcohol or drugs • Feeling overwhelmed • Isolation • Uncomfortable having visitors • Caregiver gets needed support 	<ul style="list-style-type: none"> • Patients appreciate caregiver • Caregivers feel close to patients • Caregivers enjoy helping patient • Caregiving adds meaning to life 	<ul style="list-style-type: none"> • Feeling that one is a good care manager • Feeling that one understands patient problems • Knowing where to go for help • Confidence handling caregiving challenges • Having a reasonable plan for the future • Effective handling benefits and insurance

Evidence from Albert et al. (2002) suggests that relatively low-cost, non-intensive social work liaison intervention may offer substantial benefit to families caring for people with brain injury in diminishing a variety of common indicators related to caregiver burden, and improving caregiver satisfaction and caregiver mastery. However, the credibility of these results is compromised when one considers that Albert et al. (2002) did not compare concurrent groups of patients, but rather compared their results to a historical sample of patients who had not had the benefit of social work liaison and were only able to contact about 30% of the individuals who participated in the social work liaison program.

5.3 Life Satisfaction

Satisfaction with life is regarded as an important indicator of the efficacy of a rehabilitative intervention. Quality of life (QoL) is a subjective measure that takes many factors into account, including but not restricted to: health and functioning, psychological wellbeing, material wellbeing, spirituality, and social functioning (Mailhan et al. 2005). Other factors such as physical functioning and mobility, vocational outcomes, cognition, and sexual functioning have also been investigated and found to be related to QoL outcomes (Esbjörnsson et al. 2013; Forslund et al. 2013; Jacobsson & Lexell 2013; Sander et al. 2013). Satisfaction with QoL is a complex issue and there does not seem to be consensus on a single definition or how it should be measured.

Q. What does the evidence tell us about the link between structured cognitive rehabilitation and the patient's satisfaction with community integration?

Answer

- There is Level 2 evidence that more intensive and structured cognitive rehabilitation therapy improves participants' satisfaction with community integration and perceived quality of life compared with standard, less structured multidisciplinary rehabilitation.

A trial by Cicerone et al. (2008) compared participants in an intensive cognitive rehabilitation program (IRCP) to controls who received a standard neurorehabilitation program. The IRCP received holistic neuropsychological rehabilitation in areas of cognitive, emotional, interpersonal and functional interventions and controls had discipline specific therapies. All participants received 15 hours per week for 16 weeks. ICRP participants had significant increases on the Community Integration Questionnaire total ($p=0.004$), the Perceived Quality of Life Scale ($p=0.004$) and in self-efficacy scores ($p=0.024$). The study found that post treatment 16 out of 34 ICRP participants were involved in employment compared to 7 out of 34 who received standard therapy.

5.4 Productivity

Of all the studies on community reintegration after ABI, a large number are concerned with productivity. Productivity is inclusive of paid employment, educational pursuits, and volunteer work. There are probably many reasons why this outcome measure is so dominant in the area of community reintegration: patients tend to be of employment age, data is accessible, and the costs are tangible. A focus on vocational goals is usually desired by the participating client, facilitated by the consulting clinicians in an attempt to promote autonomy, and promoted by the funding body/payer usually associated with this time-limited process. Unlike several other indices of outcomes in the domain of community integration, vocational outcomes are clearly linked to financial indices and vulnerable to financial pressures.

Q. Productivity post ABI is a major concern for patients, family members, and society. What are some of the reasons for this?

Answers

- Patients tend to be of employment age.
- The negative implications unemployment has on life satisfaction, social integration, and depression/ anxiety.
- Financial burden.

Vocational success has significant implications for life satisfaction following ABI. Decreased life satisfaction has been associated with unemployment, and with passive uninvolved lifestyles following ABI (Melamed et al. 1992). Life satisfaction following ABI seems to be directly related to employment and social integration (Corrigan et al. 2001; Tennant et al. 1995). In some Western societies, participation in employment starting in young adulthood is promoted as a means of achieving social and financial stability. Brain injury can deprive individuals from participating in gainful and challenging employment, thus fostering feelings of despair. Unfortunately, both depression and anxiety are more

common among individuals who are unable to return to work or who cannot find work (McCrimmon & Oddy 2006; Ponsford & Spitz 2014).

Q. What does the literature tell us about the success of returning to work following ABI?

Answers

- Those with better injury severity indicators are more likely to return to the workforce.
- Return to work is influenced by injury severity, age, functional and cognitive abilities, and pre-injury employment and level of education.
- Following ABI, those patients who reintegrate into vocational activities tend to do so at a lower capacity compared to their pre-injury levels.

For people who experience an ABI, declines can be seen in their employment and productivity rates following the injury. At one year post injury, rates of employment ranged between 27.8% and 66.5% (Andelic et al. 2012; Dikmen et al. 1994; Forslund et al. 2013; Johnson 1998; Ketchum et al. 2012; Ponsford & Spitz 2014; Rietdijk et al. 2013). At two years there was slight increase in rates, ranging between 37% and 72% (Cifu et al. 1997; Dikmen et al. 1994; Forslund et al. 2013; Ponsford & Spitz 2014). Subsequently, between 55% and 58.5% of individuals were found to be employed three years after injury (Grauwmeijer et al. 2012; Ponsford & Spitz 2014). Oftentimes those who resume vocational activities do so at a lesser capacity compared to their pre-morbid levels of employment or academics. Grauwmeijer et al. (2012) found approximately 39% returned to their pre-injury line of work. Of the eight individuals who returned to work, in a study by Rietdijk et al. (2013), six returned to their old jobs but three were in a lesser role, and two individuals had a new employer.

Evidently, the rate at which individuals return to productivity is variable. The factors that influence return to work have been well-studied in this population. Those with better injury severity indicators (e.g., admission Glasgow Coma Scale scores, Glasgow Outcome Scale scores, Injury Severity Scores) are more likely to return to the workforce (Andelic et al. 2012; Cifu et al. 1997; Forslund et al. 2013; Grauwmeijer et al. 2012). Additionally, those who returned to work were younger (Lustig et al. 2003), had shorter lengths of post traumatic amnesia (Johnson et al. 1998), short lengths of stay (Ketchum et al. 2012; McCrimmon & Oddy 2006), and higher Functional Independence Measure scores (Andelic et al. 2012; Grauwmeijer et al. 2012; Ketchum et al. 2012). Pre-injury employment and level of education are also influential; with higher education and more professional positions prior to their injury associated with increased rates of employment post injury (Ketchum et al. 2012; Ponsford & Spitz 2014). Individuals with injuries caused by violence were more likely to struggle (Ketchum et al. 2012), as were those with cognitive difficulties (planning, memory, verbal reasoning; Ponsford & Spitz 2014; Rietdijk et al. 2013).

Q. What evidence is there for cognitive strategies and/or supported employment strategies post ABI?

Answers

- There is Level 2 evidence that cognitive strategies increase the proportion of patients who successfully return to full time vocational activities following brain injury.
- There is Level 3 evidence that supported employment strategies following brain injury result in improvements in competitive job placement and retention.

It is suggested that the most important aspect of this vocational intervention seems to be on-site job training provided by vocational rehabilitation experts. As suggested by the findings of Wall et al. (1998) increased job success may be achieved through community based vocational training programs which combine the concepts of work adjustment and supported employment. Participants have shown to have increased employment success and satisfaction when techniques which foster self-confidence were used, instruction and adjustments were given for specific work tasks, and a job coach was available to minimize interpersonal problems (Wall et al. 1998). Numerous studies have shown return to work programs to be successful whether it be vocational rehabilitation (Bonneterre et al. 2013; Buffington & Malec 1997; Radford et al. 2013), resource facilitation (Trexler et al. 2010), or integration or re-entry programs (De Kort et al. 2002; Geurtsen et al. 2008; Malec & Moessner 2000).

Q. What evidence is there to support the early introduction of vocational interventions post ABI?

Answer

- There is Level 4 evidence that vocational rehabilitation strategies are more effective when they are implemented earlier following the injury.

The timing of the interventions also seems to play a key role in returning to vocational activities. Buffington and Malec (1997) found patients who received vocational services within the first 12 months post injury had more opportunities and found independent job placements more quickly than those who received the same services more than 12 months post injury. This study suggests that vocational rehabilitation strategies should be implemented as early as possible to improve the likelihood of successful vocational reintegration.

5.5 Return to Driving

For those who have an ABI the cessation of driving is one of the most challenging consequences they must deal with (Lane & Benoit 2011), as the ability to drive is often seen as a key determinant of an individual's level of social engagement and independence. It has been shown that individuals who had not returned to driving experienced significantly lower levels of community reintegration and poorer psychosocial outcomes (Fleming et al. 2014).

Driving a motor vehicle requires effective function in multiple domains, including perception, cognition, communication, and coordination. If any substantial deficits exist, careful clinical review is needed to identify appropriate augmentative or compensatory strategies that may be considered to adapt the task. First and foremost, driving depends on functional vision and rapid reliable responses, as well as quick decision-making and the ability to remain attentive despite distractions. Studies have shown that persons with ABI may have difficulty driving due to an inability to keep track of many simultaneous inputs and divide their attention, as found in complex traffic situations (Formisano et al. 2005; Masson et al. 2013; Ortoleva et al. 2012), and an inability to anticipate dangerous situations (van Zomeren et al. 1987). Adjusting to one's current abilities post ABI can also be an issue amongst returning drivers, as some drivers (mostly younger, male drivers) were less likely to modify their driving style and behaviour post injury (Labbe et al. 2014). Thus, drivers post-ABI could pose a risk to themselves and others on the road should they return to driving too soon. All these factors contribute to the increased likelihood that ABI survivors will be involved in more accidents than the general population (Bivona et al. 2012; Formisano et al. 2005).

Q. What does the evidence regarding successful return to driving post ABI suggest?**Answer**

- There is Level 4 evidence that participation in a multidisciplinary rehabilitation program increases the percentage of patients who return to driving following an ABI.

For many individuals in our society, driving represents a significant marker of independence. Reportedly, patients with ABI tend to return to driving in an effort to feel independent, even if they are not fit to do so (Leon-Carrion et al. 2005; Liddle et al. 2012). Further, those who return to driving have had better community integration post injury than those who do not (Rapport et al. 2006). In the literature, return to driving rates ranged from 36.5% to 75% (Fleming et al. 2014; Hawley 2001; Leon-Carrion et al. 2005; Liddle et al. 2012; Pietrapiana et al. 2005). Of concern, at admission to rehabilitation, one study found 30.5% of the patients were driving despite not being fit to do so (Leon-Carrion et al. 2005).

Participation in a holistic multidisciplinary neuro-rehabilitation program seems to improve the rate of patients that return to driving (Leon-Carrion et al. 2005). According to Hawley (2001) and Pietrapiana et al. (2005), return to driving may be more likely for patients with less severe injuries. Interestingly, some pre-morbid behaviours may play a crucial role in the driving fitness of individuals post injury; specifically, violations before injury, pre-injury risky personality, and pre-injury risky driving styles all decrease the likelihood of driving fitness following ABI (Pietrapiana et al. 2005). Those who return to driving have been shown to have high psychomotor speed and cognitive flexibility (Cullen et al. 2014), as well as higher Functional Independence Measure and Functional Assessment Measure scores on admission and discharge from rehabilitation (Leon-Carrion et al. 2005). Conversely, issues with seizures, community mobility and vision are more prevalent among those who do not return to driving (Hawley 2001).

It is imperative that thorough evaluations are conducted prior to the return to driving. Schanke et al. (2008) found that patients who had sustained a TBI had twice as many accidents post injury then they did pre injury. The authors felt this may be the result of a lack of adequate compensation for the patients cognitive deficits post injury, particularly deficits relating to executive function. In many cases individuals cannot return to driving and need to find alternate means of transportation. Not surprisingly, the caregivers of patients who did not return to driving had higher levels of strain (Fleming et al. 2014).

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