Spinal cord injury and outdoor experiences
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Anecdotal evidence from spinal cord injury (SCI) rehabilitation clients suggests that nature experiences and outdoor pursuits are valued ingredients in a SCI rehabilitation program, in particular for those individuals who were outdoor enthusiasts pre-injury and/or who sustained their injury during outdoor pursuits. Model SCI centres in North America offer outdoor activities as components of SCI rehabilitation. A literature review on the effects and dynamics of nature experiences and outdoor pursuits in SCI rehabilitation and adjustment reveals a lacuna of empirical research in this area. Studies on leisure and recreation following SCI offer insights into how non-vocational rehabilitation activities assist functional independence, quality of life, and community re-integration. Systematic research is needed to ascertain the value and contribution of outdoor experiences in SCI rehabilitation; further, research is needed to document how contact with ‘blue-green nature’ may assist in the identity reconstruction process and in adjustment to life with a physical disability.


Los datos anecdóticos precedentes de los clientes de rehabilitación por lesión de la médula espinal (LME) indican que las experiencias en la naturaleza y las actividades al aire libre son componentes apreciados en un programa de rehabilitación de LME, en particular en las personas muy aficionadas a las actividades al aire libre antes de la lesión o que se lesionaron durante tales actividades. Los centros de LME modelos de Norteamérica ofrecen actividades al aire libre como componentes de la rehabilitación en la LME. La revisión de la bibliografía sobre los efectos y la dinámica de las experiencias en la naturaleza y de las actividades al aire libre en la rehabilitación y adaptación a la LME revela la falta de investigación empírica en esta materia. Estudios sobre el ocio y el entretenimiento después de una LME ofrecen nuevas perspectivas sobre el modo en que las actividades de rehabilitación no profesionales facilitan la independencia funcional, mejoran la calidad de vida y contribuyen a la reintegración en la comunidad. Es necesaria una investigación sistemática para determinar el valor y la contribución de las experiencias al aire libre en la rehabilitación por LME; además, se necesita investigar para confirmar que el contacto con la “naturaleza azul y verde” puede ser útil en el proceso de reconstrucción de la identidad y en la adaptación a la vida con una discapacidad física.

L’évidence anecdotique sur les traumatismes médullaires émanant de la rééducation de sujets ayant subi un traumatisme médullaire (TM) suggère que les expériences de la nature et les activités de plein air sont des éléments précieux des programmes de rééducation TM, notamment chez les sujets qui étaient amateurs de plein air avant leur traumatisme et/ou qui l’ont subi pendant une activité de plein air. Des centres TM expérimentaux en Amérique du Nord proposent des activités de plein air dans le cadre de la rééducation TM. Un examen de la littérature sur les effets et la dynamique des expériences de la nature et des activités de plein air dans la rééducation et la réadaptation TM révèle une pénurie de recherche empirique dans ce domaine. Les études sur les loisirs et les activités récréatives après un TM donnent un aperçu de la manière dont les activités de rééducation non professionnelles améliorent l’indépendance fonctionnelle, la qualité de vie et la réinsertion dans la collectivité. Une recherche systématique est nécessaire afin de déterminer la valeur des expériences de plein air et leur contribution à la rééducation TM ; une recherche est nécessaire en outre afin de documenter la manière dont le contact avec ‘la nature bleue/verte’ peut favoriser le processus de reconstruction de l’identité et l’adaptation à la vie avec un handicap physique. *International Journal of Rehabilitation Research* 27:7–15 © 2004 Lippincott Williams & Wilkins.


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Outdoor experiences and outdoor recreation therapy have been recognised as valuable tools in spinal cord injury (SCI) rehabilitation. Two of the leading SCI rehabilitation centres in North America—the G.F. Strong Rehab Centre in Vancouver, Canada and the Shepherd Centre in Atlanta, Georgia, USA—offer outdoor pursuits in their rehabilitation program. Anecdotal evidence from clients suggests that outdoor recreation is a valued ingredient in psycho-emotional as well as functional adjustment to mobility impairment following SCI. Outdoor experiences possibly surpass more conventional therapeutic modalities such as psychological counselling in the SCI adjustment process. Comprehensive and systematic empirical research is needed to document the outcomes and dynamics of outdoor recreation therapy in SCI rehabilitation.

This paper reviews the research literature on SCI rehabilitation and outdoor recreation. It is guided by the question how experiences in ‘nature’ and/or participating in outdoor pursuits may facilitate adjustment to SCI and mobility impairment, during institution-based (acute, inpatient) as well as in the course of community-based (subacute, outpatient) rehabilitation. Nature is a social construction—it has different meanings for different individuals at different times. To highlight its subjective meanings, I place ‘nature’ in quotation marks. In generally, ‘nature’ for the purposes of this paper broadly refers to the ‘blue-green-brown’ natural or semi-natural environment, as contrasted with the human-built environment. The focus of the literature analysis is on emotional and psychosocial adjustment to physical disability following SCI: how experiences in and with ‘nature’ impact an affected individual’s identity transformation process, from being healthy and able-bodied to being ‘a person with a physical disability,’ and how outdoor experiences influence the transition from being ‘normal’—i.e., ambulatory—toward being a ‘wheelchair user’.

This literature review aims to illuminate several questions: (1) the usefulness and effectiveness of outdoor recreation therapy (as a subset of therapeutic recreation) in SCI rehabilitation compared to other, more conventional therapeutic modalities, such as psychological counselling; (2) the differential impact of various types of ‘nature’ experiences or outdoor pursuits on adjustment and rehabilitation; (3) the frequency with which outdoor experiences should be included in an SCI rehabilitation program to be effective; and others. The overarching purpose of this inquiry is to assess the role ‘nature’ experiences/outdoor recreation may play in the transitions from pre-injury to rehabilitation to post-injury life in the community. Should the research indicate that ‘nature’/outdoor experiences are beneficial to SCI adjustment and rehabilitation, for which individuals and under which circumstances, this paper would also seek to make a case for more widespread and comprehensive outdoor recreation therapy in SCI rehabilitation. Ultimately, the practical goal with this research is to make ‘nature’ and outdoor pursuits accessible to all who wish to experience them—in acute SCI rehabilitation as well as beyond.

SCI and outdoor recreation—preliminary insights

Until about the mid-1980s, people with physical disabilities were excluded from many recreational activities (Webre and Zeller, 1990: iii). As research attests, ‘nature’ experiences and outdoor activities can be a profound force for well-being and quality of life—not only for individuals with a disability, and not only for those who enjoyed an outdoor lifestyle prior to their injury and subsequent mobility impairment (Frumkin, 2001; Stilgoe, 2001). In recent years, adaptive outdoor equipment, instruction manuals (e.g., Webre and Zeller, 1990), and community-based recreation programs (e.g., Recreation Integration Victoria, Power to Be, Victoria, B.C.) have made the outdoors more accessible to people of all abilities. The sentiment expressed by Janet Zeller, co-author of Canoeing and kayaking for persons with physical disabilities (1990) is echoed by many; the notions of ‘freedom’, ‘equality’, ‘being able’, and ‘fun’ emerge in research interviews and are reflected in more informal anecdotal evidence:

The freedom I discover each time I paddle is a gift to my spirit. ... On the water I am just another sea kayaker. My equality with other paddlers is based on my skill and that feels great. ... I have worked with other paddlers with physical disabilities across the country and have seen them make the same discovery ... experience the freedom, equality, and fun of paddling (p. ii).

Like Webre, Amy Doffenbaker acquired a mobility impairment and is active as a kayaker. ‘Freedom’, ‘equality’ and ‘fun’ also appear in her assessment of kayaking:

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It’s glorious. You glide through the water, see birds and rock climbers. You’re just free, you’re out with nature, out with healthy people, and they don’t see your [disability] (cited in Montgomerie 1999: 46).

The themes of ‘freedom’, ‘equality/being able’ and ‘fun’ also emerged in a qualitative research project investigating the role of ‘nature’ and outdoor pursuits in SCI rehabilitation. The study, conducted with five individuals (four men, one woman) with SCI living in the community, explored how people’s relationship with ‘nature’ may have changed as a result of SCI and using a wheelchair. It further asked about the impact of ‘nature’ experiences in people’s lives pre- and post-injury (Beringer, 2000).

These notions become even more evident as they enter our ‘interpretive forestructure’ with respect to the outcomes and dynamics of outdoor pursuits for individuals with acquired physical disability. For instance, while conducting interviews in a SCI rehabilitation unit for a follow-up study, I noticed a poster above my colleague’s desk depicting a double lower arm amputee scuba-diving, surrounded by the deep blue sea and colourful fish. The caption to the poster read just one word: ‘freedom’. Similarly, a recent brief clipping on the nightly news showed a glider with paraplegia disembarking from the plane into his wheelchair; he was heard saying, ‘in the air I’m just like everyone else, no one notices my disability’. Accounts by prominent outdoor enthusiasts Mark Wellman (Wellman and Flinn, 1996), Warren MacDonald (1999), and Vinny Lauwers (online see ref. list), while focusing on their respective activities (rock climbing, backpacking and mountaineering, sailing) and physical achievements in the outdoors, touch on similar feelings.

What the above suggests is that being in ‘nature’/the outdoors, and at least some outdoor activities, seem to elicit experiences which help affected individuals transcend their mobility impairment and which reduce or negate the culturally constituted experience of physical disability (see also Beringer, 2000). What it is about ‘nature’/the outdoors and/or outdoor pursuits that leads to these effects is a question currently being investigated, and one neither documented in the literature to date nor comprehensively and systematically studied.

A few other studies have explored outdoor pursuits and acquired physical disability. Taylor and McGruder’s (1996) study investigated the meaning of sea kayaking to persons with a spinal cord injury. They interviewed three recreational sea kayakers, one woman and two men, who had sustained an incomplete SCI three, 10, and 13 years earlier, respectively, leaving them non-ambulatory with some upper extremity function. Apart from the novelty and challenge of the activity which can be attributed, at least in part, to the fact that none of them had kayaked prior to their injury, the three research participants valued ‘the natural environment’ and ‘perceptions of self as able in the eyes of others’, among others (Taylor and McGruder, 1996: 39).

A study by a team of medical doctors in Japan investigating outdoor winter activities of spinal cord-injured patients living in the community found that outdoor activities and mobility were restricted by inadequate equipment. They recommend a wheelchair specifically designed for winter conditions (Shirado et al., 1995).

Pasek and Schkade (1995) studied the effects of a six-day snow-skiing experience on 14 adolescents with congenital or acquired limb deficiencies. They were primarily interested in occupational adaptation and found that skill mastery was an important component of skiers’ positive self-evaluation. Pre-existing self-esteem and social aspects of the trip were as likely to produce positive effects as mastery of skiing.

These studies, as well as informal evidence via stories and non-refereed media sources such as those cited, suggest that outdoor experiences can have positive effects in adjustment to acquired physical disability. Moreover, such experiences can contribute to post-injury quality of life, particularly for individuals with a pre-injury lifestyle of ‘embodied activity’—those active in the outdoors prior to their injury or illness (see also Lee et al., 1993; Lee et al., 1996; Rohe 1996). The next section of this literature review looks at the experience of SCI more broadly, and how ‘nature’ and outdoor pursuits may be implicated in facilitating and successfully completing psycho-emotional tasks associated with SCI.

Adjustment to SCI—the role of ‘nature’ in identity reconstruction

Spinal cord injury has been described as one of the most traumatic incidents one can sustain and—while suffering is difficult to quantify and, thus, compare—as one of the most devastating conditions in life (Guttmann, 1976 in Lee et al., 1993). While the physical trauma to the spinal cord is the instigator, a psychological trauma is the corollary; at times, the psychological aspects of SCI are considered to be the more traumatic aspect of the injury or illness, which results in complete or incomplete paraplegia or quadriplegia (tetraplegia). Psychologically, SCI is assessed as being traumatic rather than being merely distressing as it affects one’s total lifestyle, resulting in radically altered life circumstances beyond physical-functional to include vocational, economic, and social consequences (Lee et al., 1993). Depending on which theoretical framework one applies, a shattered self-body identity reconstruction (Kleiber et al., 1995), one’s personal life narrative being disrupted (Lee et al., 1993; Kleiber et al., 1995; see also Lee and Skalko, 1996; Seymour 1998), or a forced...
identity reconstruction process (Goldstein, 1996) constitutes the psychological trauma of SCI.

Kleiber et al. (1995) have described SCI as an illness experience, which, like any other illness experience, is judged as unpleasant. Illness threatens one’s personhood or sense of self by separating the self from the physical body. Our primary experience of the world is through our bodies; under normal, healthy circumstances, this embodiment of experience—a unity of the body-self or ‘primary immediacy’ (Gadow, 1982: 88, in Kleiber et al., 1995)—occurs unconsciously. An illness raises awareness of certain body parts and their functions; through their failings, the affected individual becomes conscious of them, often for the first time. Consequently, a self which has, in part, been defined by and through the body is challenged; the question, ‘who am I now, with this injury/illness/impairment?’ gains prominence. This is especially so when the self and identity have been defined and constituted primarily via physical activity which, due to the injury/illness/impairment, is no longer possible (see also Seymour, 1989; 1998).

In the context of their study on the experience of SCI, Carpenter (1994) refer to this as ‘an experiential split between the individual’s concept of external and internal selves’. The external self refers to the ‘radical alteration in body image and physical functioning’ caused by SCI, while the internal self is unchanged and represents the accumulated life history and experience, ‘the person they (the individuals with SCI) knew themselves to be’. In this model, successful adjustment to SCI has occurred when the external and internal selves have been reconciled into a new self-body unity. This new self-body unity needs to be grounded in a new sense of reality, one which now includes physical disability. Resolving this experiential split is contingent on acknowledging self-responsibility, assimilating the disability experience, and time (Carpenter 1994).

Drawing on the work of Brody (1987), Lee et al. (1993) and Lee et al. (1996) have applied narrative analysis to the SCI and disability experience. They suggest that SCI is an unwelcome and unanticipated interruption to one’s life story, and to one’s projected future self. One of the psychological tasks resulting from SCI is thus the editing and rewriting of one’s life story (‘who am I now and what can I still do?’), and creating a life trajectory and resultant story that fits the new reality.

Building a new self-body unity and rewriting one’s personal narrative are implicated in the process of identity reconstruction, as Goldstein (1996) has acknowledged. This process—of adjusting from being an ambulatory, ‘normal’ individual to being a ‘disabled wheelchair user’—is probably the foundational psychological aspect of SCI, one that requires active psychological work. The literature variably describes this process as identity transformation (Goldstein, 1996), identity reconstruction, creating a new identity, and/or rediscovering the self. Recreation therapy activities have been noted to have significant potential for the demands of identity transformation and reconstruction (Henderson, Bedini and Hecht, 1994; 84; see also Nosek and Hughes, 2001; Wright 1983 in Henderson et al., 1994: 74).

This identity reconstruction process does not occur in isolation. Social relations impact quite markedly on individuals undergoing this transition. As Carpenter (1994) shows, at first rehabilitation staff affect one’s coping with disability and changed life circumstances. Close relations have either positive or negative impacts; accumulating positive social experiences and reasserting relationships with family, friends and partners are important factors in clients restoring a sense of community and identity. Friends and family who were still able to see the ‘inner’ person beyond the distortion of the physical changes were valued as emotional support by all of Carpenter’s, (1994) study participants; losing friends and persons in authority who presented obstacles to achieving personal and/or rehabilitation goals affected the identity reconstruction process negatively (Carpenter, 1994). Rediscovering the self and integrating disability into one’s life proceeds gradually and non-linearly, in a pattern of advance and retreat. Kendall and Buys (1998) confirm that psychosocial adjustment to acquired disability is ‘best described as a recurrent process, characterised by ongoing sorrow’ (see also Gordon and Brown, 1997).

The natural environment, ‘nature’ experiences, and the human–nature relationship also affect the identity construction process. Whether we live in a rural or urban environment; whether we spend little or much time outdoors, especially as children (see Kahn and Kellert, 2002); and what role ‘nature’ and the outdoors play in our adult lives—all these influence who we are and how we define ourselves. Given that the human–nature relationship has only been recently acknowledged in psychology (Kindner, 1994; Metzner [online, see ref. list]; Oskamp, 2000; Stern, 2000; Winter, 2000), it is perhaps not surprising that the impact ‘nature’ experiences and outdoor pursuits may have in adjustment to SCI has not been seriously studied. Equally non-surprising from this perspective is that no mention is made to the natural, apart from the social, influences that impact on the identity reconstruction process which SCI demands. Additional reasons can be contemplated: leisure and recreation—during which contact with ‘nature’ occurs for many—being neglected in SCI rehabilitation in favour of physical-functional rehabilitation (Lyons, 1993); functional independence rather than meaning considered to
be the goal of rehabilitation, and furthermore, functional independence being interpreted in a vocational-domestic context; and coping initially taking precedence over quality of life for individuals with SCI (Trieschmann, 1992). In addition, ‘nature’ and outdoor recreation therapy may perhaps not have been the subject of conceptual–theoretical or empirical SCI rehabilitation and adjustment research because much of what we know about SCI stems from health, medical, disability and rehabilitation researchers and practitioners, rather than from individuals with SCI themselves (Carpenter, 1994). As such, the role and possible significance of the human–nature relationship may have escaped attention.

A recent special edition of Topics in Spinal Cord Injury (Winter, 2002) on environmental effects of SCI rehabilitation and adjustment outcomes seeks to address the lacuna of SCI research with an environmental perspective. As the editor remarks, ‘environment’ can refer to ‘nature’, the human–made environment, and/or the social climate (Dijkers, 2002). In his editorial aptly titled, On turning an ocean liner, Dijkers (2002) laments that, for three decades, disability advocates have argued that ‘disability’ is the product of social, cultural, political, and the physical milieu; despite this, disability research and studies have concentrated on the person (see also Gordon and Brown, 1997). Dijkers (2002) attributes this to the time a paradigm shift takes, as well as to inadequate research tools and methods, for instance those which can be used to assess how people are changed by their environments in the long term (Dijkers, 2002).

Contributing to this paradigm shift are two studies by Fougeyrollas, Noreau and Boschen (2002) and Noreau, Fougeyrollas and Boschen (2002). Fougeyrollas et al. (2002) apply an ecological-systemic approach to SCI research, exploring environmental factors in the genesis of long-term consequences of disease and traumas. They found that the perceived influence of environment varies among individuals according to their personal characteristics (age, gender, level of injury), which illustrates the dynamics of the interactive process between personal (intrinsic) and environmental (extrinsic) factors. The study concluded that ‘consideration of the environment is the key to an adequate understanding of the long-term consequences of disease and trauma’ (Fougeyrollas et al., 2002: 13). The study by Noreau et al. (2002) looked at major perceived environmental facilitators and obstacles to social participation. They state, ‘[t]here is a need to better understand the influence of environment in the lives of persons with spinal cord injury (SCI)’ (Noreau et al., 2002: abstract).

SCI—an insider’s perspective

Most of the research on SCI, its rehabilitation and adjustment to it, have been done from an outsider’s perspective, by individuals who have not themselves sustained a SCI. As Carpenter (1994) advises, ‘[t]he input of the clients involved (in SCI rehabilitation) has not been solicited in a systematic way’. Given the traumatic nature of SCI, this is perhaps not surprising (see also Duff, 1994). Yet even in those studies that have looked at SCI from the ‘inside’, ‘nature’ and the outdoors do not figure prominently. Following Dijkers (2002) and Fougeyrollas et al. (2002), I suspect this is because ‘nature’ is not part of the disciplinary paradigms and ‘lenses’ through which the SCI experience has been studied.

Nelson (1990a; 1990b) studied patients’ perspectives of a spinal cord injury unit using an ethnographic approach. Her analysis of the subculture of a 30-bed SCI facility to describe the rehabilitation process yielded a re-integration process characterised by four phases (buffering, transcending, toughening and launching). Her study further found that to be optimal and successful, rehabilitation needs to be creative and attentive to individual needs and desires. While Nelson (1990a; 1990b) does not mention these, such individual needs and desires could include contact with ‘green nature’ and outdoor activities. Beringer (2000) identified such unmet needs during acute SCI rehabilitation in her study of how a person’s relationship to ‘nature’ might change as a result of wheelchair use and the potential role of ‘nature’ experiences for healing and recovery from SCI.

As a rehabilitation practitioner, Carpenter (1994) became aware of the discrepancy between health care professionals’ perception of SCI and its consequences and those experiencing the injury long-term. Carpenter’s qualitative study with 10 individuals (nine men, one woman) three-to-five years post-injury and considered ‘successfully rehabilitated’ aimed to explore the subjective dimensions of SCI. The emerging commonalities of the SCI experience centred around rediscovery of self, redefining disability, and establishing an identity as a person with a disability. By applying a theoretical–conceptual framework of adult learning and a theory of transformative learning to SCI experience and rehabilitation, Carpenter (1994) also advocates a more client-centred approach to rehabilitation practice, thereby providing an alternative to the dominant clinical rehabilitation model.

Spencer et al. (1995) also sought an insider’s perspective to the SCI rehabilitation process in order to learn about important adaptive problems and how such problems were addressed. The findings from daily interviews with their research participant, a 30-year-old male, confirm the centralities of learning a new identity as a person with a long-term disability and reconstructing the life story in SCI rehabilitation. Teaching new skills, the rehabilitation
staff’s main objective, sidelined the patient’s past experience and competencies and his need to connect his pre- and post-injury life story.

Additional insights into what it means to acquire an illness of the spinal cord and resulting paralysis can be gleaned from Murphy (1987). Murphy, a cultural anthropologist by training, shares perhaps the most detailed and in-depth analysis of an insider’s perspective to date. Moore (1991) also provides insights into the depth of psychological upheaval that can result from physical injury. Hannaford (1985) adds a social–political perspective. Oliver Sacks’ (1984; 1985; 1990) now classic accounts of neurological phenomena, including A leg to stand on (1984; in which Sacks reflects on a leg injury he sustained while hiking), add to our understanding of psychological trauma and distress that can accompany bodily changes.

In a study which deliberately targeted individuals with SCI who had a self-reported interest or enthusiasm for ‘nature’/the outdoors, some of whom had sustained their SCI during outdoor pursuits, research participants commented on the lack of ‘nature’ in their acute rehabilitation program. All commented that they missed contact with ‘nature’ during this trying time. Outdoor activities and re-establishing their relationship with ‘nature’ upon community re-integration helped these individuals adjust to their life as an individual using a wheelchair (Beringer, 2000).

The dominant outsider’s perspective, the pervasive medical–functional perspective, and the radical impact of SCI—the irreversible nature and consequences of SCI being felt in all areas of life—confound to SCI often being interpreted as a tragedy. Following on from the insiders’ viewpoint and the transformative adult learning model, Carpenter (1994) suggests it might be more appropriate to frame SCI as a ‘significant life event’, which can be positive or negative. While not negating the traumatic and challenging aspects of SCI, this gives those who have sustained a SCI room to evaluate the event and assign meaning to it in their own terms, meanings which can be both negative and positive, and which can change over time.

**SCI rehabilitation, active recreation, and outdoor pursuits**

Given prevalent socio-cultural values and attitudes regarding impairment and their physical manifestations, the disability experience that results from SCI continues to be characterised by negative common denominators: stigma, encountering stereotypical images of disability, and a devaluing of identity by others (Lee et al., 1993; see also Wright, 1983 in Henderson and Bedini 1995; Nosek and Hughes, 2001); loss of social relationships and social isolation (Lyons et al., 1995; Lyons 1991; Nosek and Hughes, 2001); excessively high unemployment rates coupled with few leisure opportunities and activities (e.g., Brown et al., 2002); and a lack of meaning in life (in Lyons 1993: 256). The stigma associated with mobility impairment (paralysis) and the resultant physical disability and change in body image are considered to be the more devastating aspects of the injury. While incidents of depression do not seem to be higher among individuals with SCI (Cushman and Dijkers, 1991; Trieschmann, 1992: 58), grief and recurring sorrow over lost abilities, opportunities, and dreams are also very common characteristics of the disability experience arising from SCI (see also Kendall and Buys, 1998; Trieschmann, 1992: 58). It is against this backdrop that the ‘freedom’, ‘equality/being able’ and ‘fun’ of rewarding outdoor activities must be seen.

The increase in longevity following SCI due to medical advancements and the high unemployment rates among individuals with SCI results in many individuals with SCI having more free time than their non-disabled counterparts. However, this increase in free time does not necessarily yield increases in satisfying leisure or more frequent rewarding leisure experiences (see also Dattilo et al., 1998; Lee, Mittelstaedt and Askins, 1999). On the contrary, studies which have investigated leisure following SCI report a movement from active to passive forms of leisure—watching TV being the most prominent one (Anson and Shepherd, 1990 in Lee et al., 1993; Yerra and Locker, 1990 in Dattilo et al., 1998) and a reduction in or loss of activity and active recreation (Dew et al., 1983 in Lee et al., 1993; Gordon and Brown, 1997). A number of studies have found less frequent involvement of individuals with SCI in active recreation and a reduction in engagement in sports and recreation after onset of injury (Brown et al., 2002; Lyons, 1987). Reasons cited include active recreation requiring greater physical capabilities and environmental supports, often including gaining entry into public settings (Brown et al., 2002: 94). Brown et al. (2002: 94) advise that recreation participation is confounded by SCI consequences on marital status, income and educational achievements. With regard to active recreation (as opposed to passive leisure such as watching TV), one of the factors that has to be taken into account is that the use of a wheelchair is itself physically demanding and strenuous—this form of movement requires more energy than walking (in Henderson and Bedini, 1995: 6).

In the study by Brown et al. (2002) unmet needs for active recreation were significantly greater for the SCI sample than for the non-disabled sample. This confirms McAweeney, Forchheimer and Tate’s (1996) findings regarding the unmet independent living needs of persons with a SCI. Their study reported unmet needs for peer
recreation, particularly for those with minimal deficits and those with severe impairments. Research on whether level of injury and associated physical limitation has an influence here is inconclusive. Some studies show a negative correlation between level/completeness of injury and social–recreational activity/integration (Brown et al., 2002: 96) whereas others have found a negative relationship only for some types of social activity (Brown et al., 2002: 96). Coyle and McKinney’s (1990) study on the leisure characteristics of adults with physical disabilities, for instance, documented a correlation between functional impairment and leisure satisfaction: the more functionally impaired the individuals were, the less satisfied they were with their free-time leisure opportunities.

Lee et al. (1996) explored how people with SCI perceived their return to previously enjoyable activities. Participants in their qualitative study (15 men, five women) reported actively seeking previous activities and negotiating the meaning of the activities to continue their participation. Approximating pre-injury activities facilitated establishing a sense of continuity.

To address the lack of information available about the leisure of women with a physical or sensory disability—a group of people who have been under-researched and who can be classified as being ‘doubly discriminated’ (Trausdottir, 1992 in Henderson et al., 1994)—Henderson and Bedini (1995) investigated how women with mobility impairments experience physical activity such as sport, recreation, exercise, fitness, dance or outdoor activities. Their study, based on interviews with 30 women living independently in their communities, confirms findings of a Fitness Canada (1989 in Henderson and Bedini, 1995) study in which over 80% of the women with disabilities surveyed felt their current level of physical activity was insufficient. These women felt they should be more active (Fitness Canada, 1989 in Henderson and Bedini, 1995). Their study also found that prescribed physical activity (for rehabilitation and/or daily physical functioning) was viewed as therapy and not leisure or recreation. When done outside, for instance, bicycling was leisure/recreation, when done inside on a stationary bike, it was therapy (Henderson and Bedini, 1995). This example suggests that the perception of leisure/recreation versus therapy is confounded by the kind of environment (outdoors versus indoors) in which the activity occurs. The Henderson, Bedini and Hecht (1994) study, exploring how the self-identity and leisure of women with physical or sensory disabilities were related, found that ‘the degree to which a physical disability was viewed as central to one’s functional self-identity was likely to influence social and leisure outcomes’ (Henderson et al., 1994: 79). Leisure seemed to offer possibilities for women to come to terms with their bodies that departed from the cultural norm of acceptability and attractiveness (Fine and Asch, 1988 in Henderson et al., 1994: 82).

While levels of active participation differ between individuals with and without SCI, this does not seem to apply to social leisure. The level of unmet need did not differ for socialising and pure social activities (Brown et al., 2002, cf. Lyons, 1987). There seems to be a positive relationship between time since injury, mobility and social activity. Krause’s (1997) study (in Brown et al., 2002: 96), however, alerts us that time since injury and activity/integration may not be linearly associated: he found a decline in adjustment in the final decade of a 20-year study after initial increases.

If quality of life or a meaningful life is the goal of rehabilitation and community life, the above-cited findings are somewhat disturbing. Meaningful and rewarding leisure (social–recreational activity), it has been found, is closely correlated with quality of life for individuals with SCI (Brown et al., 2002: 84; Coyle et al., 1993; see also Coyle et al., 1994). Moreover, meaningful and rewarding leisure also has an impact in the mentioned identity reconstruction process and in community integration (Dattilo et al., 1998). As Henderson and Bedini (1995) report, the social value of physical activity is essential in the transition from hospital to the community. Further, leisure and recreation are important avenues to construct an identity and meaning in life, and to develop skills and talents. Lost leisure opportunities and activities are thus one of the aspects of SCI most grieved (Kleiber et al., 1995). Enabling continued participation in valued leisure and recreation both during the acute rehabilitation phase as well as upon re-entry into the community must therefore seem a desirable goal in SCI rehabilitation.

Lack of transport seems to be the most prominent constraint or barrier to successful leisure (Brown et al., 2002, Henderson and Bedini, 1995). Caldwell, Adolph and Gilbert (1989 in Henderson and Bedini, 1995) found the number one barrier to participation in leisure for people with SCI to be environmental, followed by a perceived lack of ability. Similarly, Henderson and Bedini’s (1995) study confirmed that the actual disability (medical and illness-related factors) was not the primary factor that limited physical activity. The required use of a wheelchair is not necessarily reason for exclusion and a barrier to satisfying leisure/recreation, especially not when social contacts as distinct from social activities constitute meaningful leisure (Carlson and Myklebust, 2002; see also Brown et al., 2002: 94). Lack of social support and social isolation (Lyons, 1993), inaccessible spaces and venues, safety, physical abilities, weather (see Shirado et al., 1995), lack of information (Fitness Canada, 1989 in Henderson and Bedini, 1995), stigma/social fears
Therapeutic recreation during SCI rehabilitation, it seems, would be able to counteract at least some of the barriers to meaningful leisure/recreation upon community re-entry. However, Lyons (1993: 258) claims that introducing the notion of recreation as a legitimate rehabilitation service is often met with resistance—resistance from rehabilitation staff to the idea that recreation and leisure perform substantive functions in our lives. Clients, in contrast, attest to benefits: therapeutic recreations, especially outings, were considered a valuable component of rehabilitation (Caldwell et al., 1994/95). As Henderson et al. (1994: 84) found, recreation therapy activities can facilitate and encourage an individual’s acceptance of her body. Active recreation/leisure can function as an avenue to establish social contacts, which can smooth the transition from acute rehabilitation to life in the community (Dattilo et al., 1998; Lee et al., 1996). This seems particularly relevant given skills and self-esteem gained in acute rehabilitation can be lost upon community re-entry (Caldwell et al., 1994/95). The beneficial aspects of recreation in rehabilitation arise from recreation being perceived as empowering, as providing ‘a rewarding set of I am’s to offset the negative messages sent by society regarding employment’ (Trieschmann, 1992: 59). Further, especially via recreational outings, one can escape the deprivational and restrictive environment—‘jail,’ according to Carpenter’s (1994) research participants—of the rehabilitation hospital (Trieschmann, 1988, see also Moore, 1991).

Conclusion—recommendations for research

This literature review on SCI, SCI rehabilitation and outdoor pursuits has found some evidence that ‘nature’ experiences and outdoor pursuits can have positive outcomes on quality of life following SCI and other forms of mobility impairment/acquired physical disability. The sentiments of ‘freedom’, ‘equality’, ‘being able’, and ‘fun’ were noted, as was the impact of outdoor activities on identity and self-esteem. Further empirical investigations are needed to document in more depth and breadth these sentiments, as well as being open to others which may emerge. Qualitative research, which allows for an insider’s perspective, i.e., which enables individuals with SCI and other forms of physical disability to give voice to their thoughts, feelings, and experiences, seems paramount here. This is not only because the insider’s perspective has not received as widespread attention in SCI research as have the ‘treatment’ perspectives (medical, rehabilitation, disability perspectives); it is also because insiders’ views can highlight how disability (versus impairment) is created and can help ‘turn the ocean liner’ away from person-centred toward environmentally, including socio-cultural, concerns in SCI and other disability research.

While research on the outcomes of outdoor experiences in SCI rehabilitation is timely and important, research on the dynamics of these experiences seems equally necessary, if not more so. How are the outcomes (whatever they may be) achieved? Why do ‘freedom’, ‘equality’, ‘being able’ and ‘fun’ seem to emerge repeatedly and independently when such activities and experiences become the focus of empirical attention? Is it more the activity (e.g., kayaking, sailing) or the environment (e.g., water) which gives rise to such experiences of freedom and equality? If the natural environment is implicated here, what is it about the natural environment that contributes to these positive experiences? In other words, is the natural environment qualitatively different to built and/or socio-cultural environments? Results from a recent study suggest that ‘freedom’, ‘equality’ and ‘fun’ originate, at least in part, from the non-judgmental attitude that characterises natural settings and features (Beringer, 2000). Freedom from stigma, feeling oneself to be able and being perceived by others to be so—i.e., being equal in skill to non-disabled fellow individuals and thus, often in extension, in value—these contribute to being able to transcend one’s physical limitations when in ‘nature’. In activities such as kayaking, sailing or gliding, which ‘hide’ mobility impairment, this notion of transcendence seems plausible. Is this also so when more noticeable and ‘uncommon’ adaptive equipment, e.g., an off-road wheelchair or a dune buggy, highlights one’s physical limitations? Future research needs to distinguish between different kinds of outdoor pursuits (land- and water-based) and needs to pay careful attention to the nuances of outdoor experience.

If it can, indeed, be confirmed, that the non-judgmental and enabling/empowering atmosphere of ‘nature’ is critical for the experience of ‘freedom’ and ‘equality’, then research on SCI and outdoor pursuits has a pointed message and lesson: it is an advocate and reminder to all of us to continue to strive toward transforming prevailing socio-cultural values and attitudes toward disability and difference, and toward making available such quality ‘equalising’ experiences in built and social environments.

References


