# Work and Employment Following Spinal Cord Injury

## Executive Summary

The consequences of spinal cord injury are profound and extend well beyond the immediate loss of mobility and sensation; employment is a common rehabilitation goal [1]. The International Classification of Functioning, Disability and Health (ICF) of the World Health Organization defines employment as "engaging in all aspects of work, as an occupation, trade, profession or other form of employment, for payment or where payment is not provided, as an employee, full or part time, or self-employed" [2]. Gainful employment helps to achieve economic self-sufficiency and it is considered a source of personal growth [3], disability adjustment [4] and is associated with social integration, life and financial satisfaction and better health [5, 6].

Many people with SCI can work and maintain employment. Recent data from the U.S. Spinal Cord Injury Model Systems database suggests that 35% of people with SCI are employed 20 years post-injury (https://www.nscisc.uab.edu) compared to an average unemployment rate of the US general population of 6.1% for a 20-year period (1993-2013). On the other hand, it was found that although 61% of Australians with SCI were engaged in employment at some point after injury, problems experienced in sustaining employment led to a decrease in employment rate of 31 [7]. Some factors outside of the health realm, such as societal perceptions and attitudes, can affect whether someone with SCI is employed or not [8].
The objective of this chapter is to identify modifiable and non-modifiable factors related to the person and to the environment (like in the International Classification of Disability Framework, or ICF). We can also evaluate the research evidence re: interventions designed to promote return to work post-SCI.

Personal Factors - Non-Modifiable/Modifiable

Non-modifiable personal characteristics (such as being male, Caucasian, younger at injury, with a longer duration of injury (20-30 years), with higher pre-injury education, being less severely injured, and being employed at injury in a low-intensity job) increase the likelihood of employment post-SCI. There is level 5 evidence [9] that the severity of injury is also a non-modifiable personal factor that negatively influences employment opportunities after SCI. There are multiple studies that show secondary health conditions (e.g., medical complications, bowel incontinence, urinary tract infection, chronic pain, depression, pressure ulcer) are a barrier to employment post-SCI.

Modifiable personal characteristics such as being highly educated post-SCI, limiting the occurrence of health complications, having a higher level of independence (including wheelchair skills), and having the trait of valuing work can increase the likelihood of employment post-SCI. There is a recent RCT showing 3 psychological constructs that led to effects on employment post-SCI: affective experiences, quality of life, and life satisfaction [10] .

Environmental Factors

A single environmental factor can be perceived either as a barrier or a facilitator to employment based on its presence/absence in one's environment and its impact on returning to work. Environmental facilitators include: having access to assistive devices, using transportation independently, having social support (including being married), and having the possibilities of

job accommodation including reduced work hours. Environmental barriers to employment may be social or physical and include: financial disincentives, discrimination associated to negative attitudes toward people with disabilities, and difficulties with physical access to workplace.

Interventions to Improve Employment post-SCI

Two systematic reviews and a number of prospective controlled trials show the strongest evidence that Supported Employment programs can improve employment post-SCI [11, 12, 13, 14]. There is also one RCT showing that a service dog improves integration and participation in school and work after 1 year of SCI [15] .

There are also a number of lower level studies showing that receiving vocational rehabilitation counselling, even if during inpatient rehabilitation, can increase employment rates post-SCI [16, 17, 18, 19] and that receiving vocational training increases the likelihood of employment [20, 21] .

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