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ICF Case Studies

Translating Interventions into Real-life Gains – a Rehab-Cycle Approach

# SCI And Chronic Pain Management

Case Study 19



2nd Edition 2017 | [www.icf-casestudies.org](http://www.icf-casestudies.org)

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# Preface

Functioning is a central dimension in persons experiencing or likely to experience disability. Accordingly, concepts, classifications and measurements of functioning and health are key to clinical practice, research and teaching. Within this context, the approval of the **International Classification of Functioning, Disability and Health (ICF)** by the World Health Assembly in May 2001 is considered a landmark event.

To illustrate the use of the ICF in rehabilitation practice **Swiss Paraplegic Research (SPF)** together with **Swiss Paraplegic Centre (SPZ)**, one of Europe's leading (acute and rehabilitation) centres for paraplegia and spinal cord injury (SCI), performed a series of case studies. Conducting ICF-based case studies was one approach to address SPF's aim to contribute to optimal functioning, social integration, health and quality of life for persons with SCI through clinical and community-oriented research. The ICF-based case studies project began in October 2006.

In this project, persons of different age groups and gender and who are living with SCI of varying etiology and levels of severity, were accompanied during their rehabilitation at SPZ. The rehabilitation process is then described using the Rehab-Cycle® and the corresponding ICF-based documentation tools. Since persons with SCI are faced with a number of physical, psychological and social challenges, the case studies aimed to cover a broad spectrum of these challenges. With this in mind, each case study highlighted a specific theme of SCI rehabilitation.

A booklet is published for each case study conducted. To better understand the case studies described in these booklets, find below some basic information about SCI, the ICF, ICF Core Sets, the Rehab-Cycle® and the ICF-based documentation tools.

## Spinal Cord Injury (SCI)

Spinal cord injury (SCI) is an injury of the spinal cord that results in a temporary or permanent change in motor, sensory, or autonomic functions of the injured person's body. The spinal cord is divided into four sections which can be further subdivided into individual segments:

- 8 cervical segments (C1 to C8)
- 12 thoracic segments (T1 to T12)
- 5 lumbar segments (L1 to L5)
- 5 sacral segments (S1 to S5)

The damage of the spinal cord is called lesion. Important functions such as mobility (motor functions) or sensation (sensory functions) fail below the lesion. To help determine future rehabilitation and recovery needs, the extent of a SCI in terms of sensory and motor functions is described using the American Spinal Injury Association (ASIA) impairment scale.

## International Classification of Functioning, Disability and Health (ICF)

The ICF is a classification of the **World Health Organization (WHO)** based on the integrative bio-psycho-social model of functioning, disability and health. Functioning and disability reflect the human experience related to the body functions, body structures, and activities and participation. It is viewed in terms of its dynamic interaction with a health condition, personal and environmental factors.

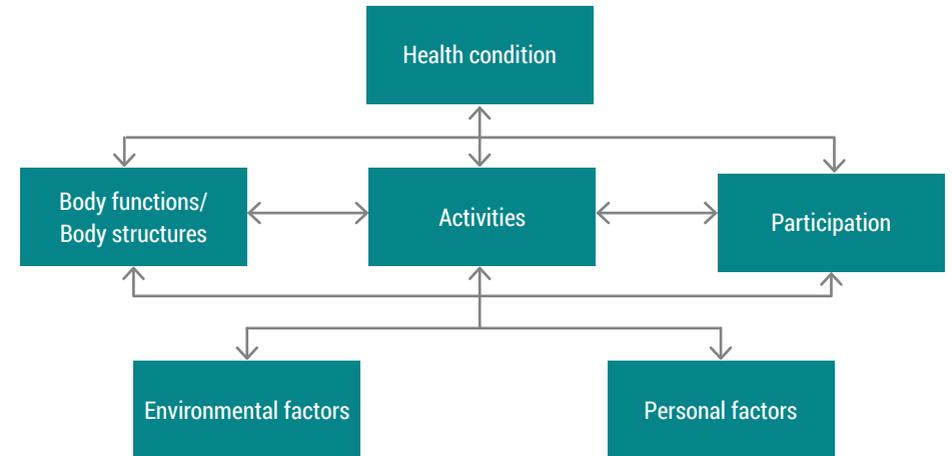


Figure 1: Bio-psycho-social model of functioning, disability and health

The ICF classification corresponds to the components of the model. Within each component, there is an exhaustive list of categories that serve as the units of the classification. ICF categories are denoted by unique alphanumeric codes and are hierarchically organised in chapter, second, third and fourth levels. When going from the chapter level to the fourth level, the category's definition becomes more detailed.

The classification also comprises so-called ICF qualifiers, which quantify the extent of a problem experienced by a person in a specific ICF category. Since environmental factors can also be facilitators, the ICF qualifier for facilitators are indicated with a plus sign.

Generic Scale of ICF Qualifiers	
0	NO problem (none, absent, negligible,...) 0-4%
1	MILD problem (slight, low,...) 5-24%
2	MODERATE problem (medium, fair,...) 25-49%
3	SEVERE problem (high, extreme,...) 50-95%
4	COMPLETE problem (total,...) 96-100%
8	not specified (used when there is insufficient information to quantify the extent of the problem)
9	not applicable (used to indicate when a category does not apply to a particular person)

## ICF Core Sets

To facilitate the use of the ICF in clinical practice, it is essential to have ICF-based tools that could be integrated into the existing processes. The first step toward providing ICF-based tools for clinical practice was the development of ICF Core Sets. ICF Core Sets are shortlists of ICF categories that are considered to be most relevant for describing persons with a specific health condition or in a particular setting. In a rehabilitation setting an ICF Core Set can help guide the rehabilitation management process. ICF Core Sets have been developed for several health conditions e.g. for spinal cord injury, health condition groups e.g. for neurological conditions and for various settings. ICF Core Sets can serve as a basis when using the **ICF-based documentation tools** that follow the **Rehab-Cycle®**.

## Rehab-Cycle® and Corresponding ICF-based Documentation Tools

The Rehab-Cycle® is one approach that reflects the structured processes inherent in multidisciplinary rehabilitation management. The Rehab-Cycle® consists of an assessment phase, assignment phase, intervention phase and evaluation phase. An ICF-based documentation tool has been developed to guide each of the Rehab-Cycle® phases: the ICF Assessment Sheet, the ICF Categorical Profile, ICF Intervention Table and ICF Evaluation Display. These tools can help a multidisciplinary rehabilitation team to better understand the role of functioning within the rehabilitation process and to more comprehensively describe a person's functioning - hence support ICF-based rehabilitation management.

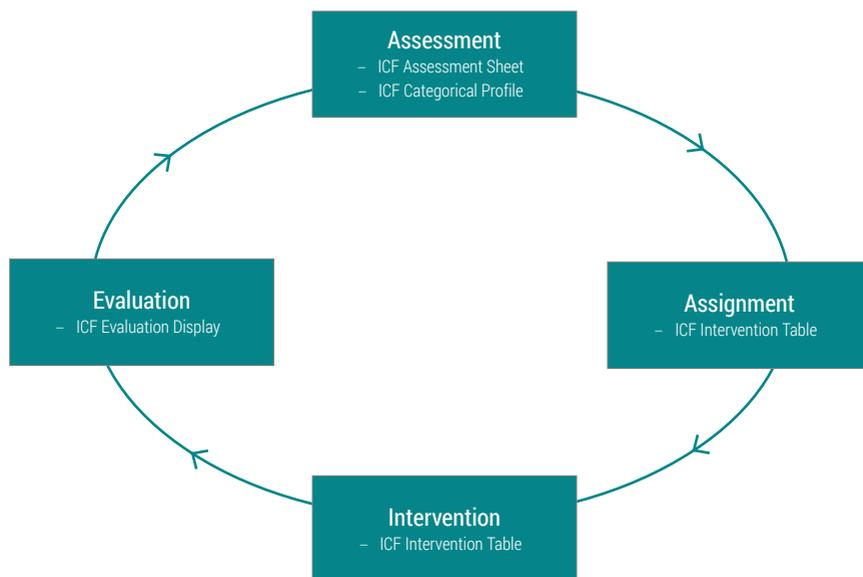


Figure 2: Rehab-Cycle®

You can find more detailed information about SCI, the ICF, ICF Core Sets, the Rehab-Cycle® and the ICF-based documentation tools on the website [www.icf-casestudies.org](http://www.icf-casestudies.org).

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## General Introduction



For many persons with spinal cord injury (SCI), living with and managing pain are major challenges that can have a tremendous impact on quality of life and the ability to carry out daily activities.

Living with pain after SCI is very common, albeit incidence and prevalence rates for SCI-related pain vary greatly.<sup>1-8</sup> According to a Spinal Cord Injury Rehabilitation Evidence (SCIRE) review, the incidence of post-SCI pain ranges from 11-96%.<sup>1</sup> In terms of prevalence, estimates also show a wide range.<sup>2,3,4</sup> However, some large-scale studies have found similar prevalence rates, ranging from 66-79%.<sup>3</sup> For example, in a study conducted from 1993-1996 in four SCI centres in Germany, 66% of the 591 persons with SCI included in the

study reported experiencing pain.<sup>7</sup> In another large-scale SCI study, this time in Switzerland, the investigators found that 73.5% of the 1549 study participants – persons with SCI living in the community – experienced chronic pain.<sup>8</sup> And in a recent systematic literature review and meta-analysis of 17 studies involving 2529 persons with SCI, Burke and colleagues found a prevalence rate of 53% (neuropathic pain) – a rate they considered high.<sup>5</sup>

*“Living with pain after SCI is very common”*

**Incidence and prevalence rates differ depending on the study methodology, criteria used for assessing pain as well as the time point when data was collected.**<sup>1-6</sup> To address this issue and to ensure comparability of results, studies

should employ a standardised definition and classification of pain.<sup>5,6,9</sup> Box 1 provides a summary of current definitions and classifications of pain.<sup>1,2,3,9,10,11</sup>

### Box 1 | SCI and Definitions and Classifications of Pain

While over the years there have been many attempts to define and classify pain, it has been categorised into two forms: nociceptive pain and neuropathic pain.

Several proposals for a classification of pain for SCI exist. Among the most frequently mentioned in the literature include the following:

**Nociceptive pain** can be musculoskeletal or visceral (deep in the body, usually felt in the abdomen), generally at or above the level of the lesion. It is pain that is caused by damage to the area surrounding nociceptors, that is, a sensory nerve cell specialised for pain. Such pain can involve bone, joints, muscles (both trauma and spasms), kidney function, bowels, sphincter dysfunction, etc.

– **International Association for the Study of Pain (IASP) classification related to SCI:** This is a three-tiered classification. The first tier differentiates between nociceptive and neuropathic pain, while the second tier differentiates between musculoskeletal and visceral pain under the rubric of nociceptive pain and whether the neuropathic pain is experienced above, at, or below the injury level. The third tier identifies the specific body structures and pathology underlying the nociceptive and neuropathic pain experienced.

**Neuropathic pain** associated with an impairment of the spinal cord is often described as shooting, burning, cutting, crushing or tingling. This class of pain is often caused by a lesion or dysfunction within the nervous system. It may occur above, below or at the level of injury. Neuropathic pain can be further classified as radicular (radiating to the lower extremities along the spinal nerve root) or central (diffuse pain below the level of the injury originating in the central nervous system). Causes may include non-traumatic and traumatic spinal cord injuries.

– **Bryce-Ragnarsson SCI Pain Taxonomy:** This classification also employs a three-tiered system. The first tier indicates the location of the lesion, i.e. above, at or below the lesion level. The second tier differentiates between nociceptive and neuropathic pain, and the third tier identifies 15 subtypes of pain related to body region and aetiology.

Information for laypersons on pain following SCI can be found in the library of [www.paraforum.ch](http://www.paraforum.ch).

– **Pain classification in the International SCI Pain Basic Data Set (ISCIPDS):** This instrument contains a section that asks the type of pain experienced. Similar to the IASP and the Bryce-Ragnarsson classifications, the ISCI PDS divides pain into nociceptive and neuropathic pain, and differentiates nociceptive pain into musculoskeletal and visceral pain. However, for pain that cannot be classified as nociceptive or neuropathic, a category called “unknown” is available, and under nociceptive pain,

a category “other” is added. Furthermore, unlike the IASP classification, neuropathic pain is differentiated between pain at the lesion level, below the lesion level, and at and below the lesion level. The latter category indicates that the person has pain at and below the lesion level, but is unable to distinguish between the two separate pain experiences.

– **Cardenas SCI Pain Taxonomy:** This classification divides pain into neurologic and musculoskeletal pain. Neurologic pain is

further differentiated into SCI pain (below the lesion where no normal sensation is present), transition zone pain (at the lesion level and unrelated to activity or position), radicular pain (see definition above; related to activity and position), and visceral pain (see definition above; unrelated to activity or position). Musculoskeletal pain is further differentiated into mechanical spine pain (pain in the back or neck that is influenced by activity and position) and overuse pain.

In terms of the characteristics of those who report experiencing pain, studies have also shown that **older persons with SCI were more likely to experience pain than younger counterparts.** Moreover, **a link between pain severity and psychosocial issues**, such as financial problems, and the presence of SCI-related complications, such as spasticity, has been found. Interestingly, **very few**

**studies have shown any significant correlation between pain and the level and completeness of SCI.**<sup>1,5,6,7,8,12,13</sup>

Recognising the factors that are associated with post-SCI is important for pain management. Equally important is knowing how pain impacts on the lives of persons with SCI.

### Pain – A Challenge to Daily Living

There seems to be consensus in the literature that **pain is a major contributor to decreased quality of life of persons with SCI.** Pain can significantly interfere with a person's ability to perform daily activities and limit participation in major life areas, such as work and social life.<sup>1,3,5,7,12,13,14</sup> For example, in a study by Störmer and colleagues approximately 45% of the 591 study participants

reported limitations in daily living due to pain, and approximately 23% indicated that the pain limited their daily routine severely or completely.<sup>7</sup> In a more recent study, Widerström-Noga and colleagues found high agreement among the 483 study participants, who indicated that pain often limits their participation in physical and social activities.<sup>13</sup>

*“Pain can significantly interfere with a person's ability to perform daily activities and limit participation in major life areas...”*

Moreover, constant or worsening pain has been found to be associated with psychological conditions such as depression, depressive mood or

anxiety. However, it is unclear whether pain results in increased psychological conditions or vice-versa.<sup>1,3,5,6,7,13</sup>

Irrespective of the area of daily life that is impacted by pain, **the person's strategy for coping with pain influences his or her pain experience and the extent the pain limits daily living, and ultimately impacts his or her quality of life.** Adaptive coping has shown to be associated with

less pain (or lower probability of experiencing pain).<sup>1,3,7,13,14</sup> Coping with pain on a daily basis is not only a challenge for persons with SCI but also for health professionals who are involved in the healthcare of persons living with SCI.

### Management of Pain

Given that the pain experienced by persons living with SCI is a multi-faceted, bio-psycho-social phenomenon, **many SCI experts recommend a comprehensive, multi-modal approach to managing pain following SCI.** This can involve both pharmacological interventions and non-pharmacological approaches.<sup>1,3,15,16,17,18</sup>

**The most widely employed pharmacological pain management strategies involve antidepressants and anticonvulsants, specifically in treating neuropathic pain experienced by persons with SCI.**<sup>1,3,13,15</sup> While there is evidence that specific anticonvulsants, such as gabapentin

and pregabalin, improve neuropathic pain post-SCI, antidepressants have shown to be effective in reducing pain only in persons with SCI who are also depressed.<sup>1,3,15,18</sup> It has been suggested that the reduction in pain is more the indirect result of the treatment for depression rather than a direct treatment of the pain itself. Unfortunately, antidepressants are also often associated with side-effects, such as drowsiness or constipation.<sup>1</sup> There are other pharmacological substances, such as opioids, that are employed to treat post-SCI pain.<sup>1,3,15,16,18</sup> However, describing them would go beyond the scope of this case study.

*“...relieving post-SCI pain solely with pharmacological solutions seems inadequate...”*

Although the first line of pain management interventions tends to be pharmacological in nature,<sup>1</sup> relieving post-SCI pain solely with pharmacological solutions seems inadequate.<sup>3,13,15,16,17</sup> Given this, non-pharmacological solutions may be an alternative or rather complementary to pharmacological approaches.

**To date there is inconclusive evidence for the effectiveness of non-pharmacological pain management approaches in reducing post-SCI pain.**<sup>1,3,5,13,17,18</sup> These approaches can be broken into two broad groups: physical interventions and psychological interventions. Physical

interventions include but are not limited to heat therapy and massage, physical therapy, acupuncture, transcranial magnetic stimulation, transcranial electrical stimulation (TENS), and exercise. Regular physical exercise and TENS, for example, have shown to be effective in reducing pain, while acupuncture has reached mixed results depending on the type of acupuncture used. Psychological/behavioural interventions include, among other things, hypnosis, visual imagery, and cognitive behavioural therapy (CBT).<sup>1,3,15,16,17,18</sup> CBT, a commonly used psychological/behavioural intervention within a comprehensive pain management programme, aims to help programme participants

to develop adaptive coping skills in order to manage pain. CBT together with medication have shown to be an effective short-term treatment of chronic pain in persons with SCI.<sup>1</sup> CBT has also been recommended as a complementary therapy within a combination therapy scheme in the Canadian clinical practice guidelines for the

management of neuropathic pain.<sup>18</sup> **In contrast to pharmacological approaches or other non-pharmacological approaches, psychological/behavioural interventions address the impact of psychosocial factors on the pain experience of persons with SCI.**<sup>3,14,15</sup>

*“...educating persons with SCI about post-SCI pain and possible treatments seems to be a valuable element in comprehensive pain management...”*

Complementary to the aforementioned approaches, educating persons with SCI about post-SCI pain and possible treatments seems to be a valuable element in comprehensive pain management, even if the educational interventions are not primarily intended to reduce pain intensity.<sup>1,3,13,18,19</sup> For example, in a study conducted by Norrbrink Budh and colleagues, the study participants (persons with post-SCI neuropathic pain) experienced a decrease in anxiety and depression, improved sleep quality and improved sense of coherence after participating in a 10-week comprehensive pain management programme that included educational sessions on pain mechanisms and pain treatment.<sup>19</sup> Furthermore, in another study conducted by Widerström-Noga and colleagues, the majority of study participants viewed education

about pain and pain management as a priority and inadequate communication of information as a barrier.<sup>13</sup> In recognition of the merits of education as an essential element in pain management, the working group that developed the Canadian clinical practice guidelines recommends that education is provided to increase a person's knowledge about post-SCI neuropathic pain, to strengthen self-management skills, and to reduce the fear of pain.<sup>18</sup>

**The management of pain following SCI is the focus of this case study.** This case study of Ida describes the challenges she faced and the efforts undertaken in managing neuropathic pain within a comprehensive, multidisciplinary inpatient rehabilitation programme for persons living with SCI.

## Ida's Story



Ida had been an avid skier and hiker, and passionate swimmer for most of her life. At the age of 54 she was involved in a major ski accident that changed her whole life.

The accident resulted in a severe polytrauma that comprised of a list of complex injuries including various fractures (ribs, breastbone, skull, bone spurs), internal bleeding, traumatic injury to the skull and brain, and complete paraplegia.<sup>20</sup> The paraplegia was graded with an **American Spinal Injury Association (ASIA) Impairment Scale grade A with a lesion in the spinal cord segment below the fourth thoracic vertebrae (T4), meaning that Ida had no sensory or motor functioning below the trunk and abdomen area. She also had impairments of the bladder, bowel and sexual functions.**

Three days following the accident, Ida was admitted for her first period of inpatient rehabilitation. Rehabilitation ran its normal course. However after three months of rehabilitation, Ida suddenly experienced neuropathic pain that was characterised as a constant burning and shooting. Ida's legs

felt as if they had been moulded into concrete. Over the subsequent months, Ida was treated for pain with medication and acupuncture. However, the pain management interventions offered little to no improvement, and Ida's pain significantly lowered her quality of life. Nine months after admission, she was discharged from rehabilitation. At this time, the neuropathic pain had become chronic.

*“I don't think I'll ever live without pain, but I need to find ways to live a happy life.”*

*Ida*

Seven months after discharge from her first rehabilitation (and 16 months after the accident), Ida was again admitted to a rehabilitation centre, this time to address her chronic pain. During her one-month stay in the rehabilitation centre, she was prescribed new medication. Although non-pharmacological interventions, like sports, were also

included in her pain management programme, the main focus of the interventions was to find the optimal drug treatment to fight the pain. At discharge from this second period of rehabilitation, Ida felt better and was optimistic that the changes in medication would help her deal with the pain better. However, nine months later, Ida was admitted again for pain management. Unfortunately, pain relief was short-lived. The pain returned regularly, and it not only prevented her from participating socially, it negatively impacted her ability to complete her daily routine. She also experienced major difficulties with sleeping and eating.

Approximately two years after her first rehabilitation (and 32 months after the accident), Ida was re-admitted to the rehabilitation centre for her fourth pain management programme. This time, however, a comprehensive and interdisciplinary approach to pain management was implemented. Moreover, this period of rehabilitation was structured and documented according to the Rehab-Cycle® model, a rehabilitation management model that consists of an assessment phase, assignment phase, intervention phase, and evaluation phase. Ida's Rehab-Cycle® began with an initial assessment of her overall functioning and goal-setting.

## Assessment



During the assessment phase of Ida's Rehab-Cycle® the rehabilitation team conducted a comprehensive assessment. It involved an interview with Ida to gain an understanding of her needs and functioning status, including pain experience, from Ida's perspective (patient perspective). It also involved diverse discipline-specific clinical examinations and tests (health professional perspective). The assessment results served as the basis for setting Ida's Rehab-Cycle® goals.

The results of the comprehensive assessment, including selected statements made by Ida about her pain experience and other aspects of functioning, were documented using the **ICF Assessment Sheet** and according to the World Health Organization's International Classification of Functioning, Disability and Health (ICF).<sup>21</sup> Not only is the ICF a recognised international standard for describing functioning, the utility of using the ICF to capture the biopsychosocial aspects of post-SCI pain is supported in scientific literature.<sup>13,14</sup> The ICF Assessment Sheet provides a quick

overview of the assessment results structured according to the ICF components of body functions and structures, activities and participation, environmental factors, and personal factors. The items place under body functions and structures, and activities and participation were further differentiated by Ida's perspective and the health professional perspective.

See "Table 1: ICF Assessment Sheet" on page 30 at the end of this booklet.

## Body Functions and Structures

Since the impetus for Ida's rehabilitation was pain management, sensation of pain was logically the focus of the items documented under the ICF component of body functions and structures. Ida has

been experiencing constant and severe pain, specifically in her lower back and extending down to her feet. To assess the intensity of pain, the rehabilitation team applied the Visual Analog Scale (VAS).<sup>22</sup>

### Box 2 | Measuring Post-SCI Pain

Reliable and valid measures are essential for determining the impact of interventions in the management of post-SCI pain. Post-SCI pain can be assessed according to various domains:<sup>22,23</sup>

- **Pain intensity:** how much a person hurts, e.g. extremely painful
- **Pain affect:** the emotional reaction(s) associated with the pain experience, e.g. fear of worsening pain
- **Pain quality:** description of how the pain is felt, e.g. burning pain
- **Pain location:** perceived location of the pain sensation on or in the body, e.g. pain at the lesion area
- **Pain interference:** extent pain interferes with daily functioning, e.g. cannot sleep due to pain
- **Temporal characteristics of pain:** variability, frequency, and duration of the pain experience, e.g. constant and unchanging pain

**Although all of these domains are important to consider when assessing pain, pain intensity is considered the primary domain to assess.** The most commonly employed measures to assess pain intensity are the Visual Analogue Scale, Numeric Rating Scale, and the Verbal Rating Scale.<sup>22,23,24</sup>

- **Visual Analogue Scale (VAS):** This measure consists of a line, usually 10 cm (or 100 mm) long, that is labelled with “no pain” on one end and the other extreme, e.g. “pain as bad as it could be”, on the other end. The person is asked to indicate any point on the line that best corresponds to the intensity of pain he or she is experiencing. The distance in cm or mm from the “no pain” mark to the point on the line indicated by the person represents the pain intensity.
- **Numeric Rating Scale (NRS):** The NRS is similar to the VAS. However, the line is numbered along a continuum from 0 to 10 (or 0-100), with “0” corresponding to “no pain” on one end and “10” (or “100”) corresponding to label on the other end. The person is asked to circle or verbally indicate which number best corresponds to the intensity of pain he or she is experiencing. The person is not allowed to indicate a point on the line between the numbers.
- **Verbal Rating Scale (VRS):** The person is asked to select from a list of adjectives the word or phrase that best describes the intensity of pain he or she is experiencing. The adjectives on the list are generally assigned a score that corresponds with a rank based on pain severity.

Of these three scales, the NRS is the most widely used measure in assessing pain experienced by persons with SCI. It also seems to be the preferred measure of choice – it is easy to understand and use, demonstrates strong scientific validity, and is sensitive to the impact of treatment on the pain experience. Moreover, the 0-10 NRS has been recommended by the IMMPACT initiative as a core outcome measure for clinical trials of chronic pain.<sup>22,23,24</sup>

The other domains of pain can be assessed using various measures, e.g. Short-Form McGill Pain Questionnaire to assess pain affect and Leeds Assessment of Neuropathic Signs and Symptoms to assess pain quality.<sup>22,23,24</sup> However, detailing these measures would go beyond the scope of this case study.

The rehabilitation team employed a VAS scale that, like the NRS, contained numbers along the continuum from 0 to 10. On this specific VAS scale, Ida rated the **intensity of her pain as 8**. The rehabilitation team classified the pain as neuropathic.

**In terms of pain interference, Ida experienced poor sleep quality, i.e. she would sometimes wake up, due to pain. In terms of pain affect, Ida presented with low motivation, emotional instability, and was afraid that the pain would get worse.**

### Activities and Participation

Regarding the ICF component of activities and participation, Ida experienced **major limitations in carrying out her daily routine. This, in turn, stressed Ida out, resulting in an exacerbation of**

The results of the clinical assessment conducted by the rehabilitation team were consistent with the statements made by Ida about her pain and her functioning. The consistency between Ida's statements about feeling depressed and the psychological evaluation results led to a **diagnosis of minor clinical depression, possibly related to a pre-existing bipolar disorder.**

**her pain. The rehabilitation team also found that Ida had severe difficulty in undertaking complex tasks and in handling stress.**

*“Furthermore, although Ida was capable of driving a car, the constant pain and the pain medication she was taking prevented her from driving.”*

In terms of mobility, Ida reported that the use of a Swiss-Trac™ increased her mobility, enabling her to run errands. Nevertheless, the rehabilitation team saw the potential for problems in running errands due to Ida's difficulties in handling stressful situations. Other mobility-related issues included problems in transferring and driving. Ida reported that transferring to and from the wheelchair was painful; this was supported by the rehabilitation team's assessment. Furthermore,

### Environmental and Personal Factors

There were several environmental factors that served as supports for her. This included the pain medication and antidepressants, a house that was well-adapted to her needs, and a supportive husband. **However, there were also**

*“...Ida had problems coping with her pain and overall situation. Moreover, she developed a fear of falling...”*

In terms of personal factors, Ida had problems coping with her pain and overall situation. Moreover, she developed a fear of falling following her accident.

although Ida was capable of driving a car, the constant pain and the pain medication she was taking prevented her from driving.

**These mobility problems severely limited her ability to meet friends and hindered her from working. As a result Ida felt isolated.** With regard to self-care, the rehabilitation team found that Ida was independent in completing self-care activities.

**environmental factors that served as barriers.** For example, the pain medication she was taking had many side effects, and these side effects negatively impacted on her ability to drive a car.

Addressing this fear of falling and developing more adaptive coping strategies were among the many intervention targets defined by Ida and the rehabilitation team for this Rehab-Cycle®, and for which specific goals were set.

## Goal-setting/Determination of Intervention Targets



Having a comprehensive overview of Ida's functioning based on the rehabilitation team's assessment and Ida's statements about her pain experience and other aspects of functioning helped them to identify mutual goals to reach during rehabilitation as well as specific targets to address with interventions.

In consideration of the assessment results and Ida's expressed views about her needs and functioning problems, Ida and the rehabilitation team identified four goals. They identified 'pain management' as a **service-program goal**, i.e. the goal to achieve at the end of the Rehab-Cycle®. As small steps toward achieving the service-program goal, they identified 'improvement in handling stress and other psychological demands' and 'improvement in mobility' as **two cycle goals**. Since Ida's overarching goal was to improve her quality of life, in particular to increase her participation in social life and other major life areas, 'participation in social life' as a **long-term global goal** was also set.

These goals were documented on Ida's **ICF Categorical Profile**. Her ICF Categorical Profile also showed a visual depiction of the assessment results as a bar graph. The bar graph reflects the ratings given to categories of the International Classification of Functioning, Disability and Health (ICF)<sup>21</sup> and personal factors that were identified during the comprehensive assessment. ICF qualifiers were used to indicate the ratings. To compare Ida's functioning at the initial assessment with her functioning at the end of the Rehab-Cycle®, ICF qualifiers were also used to indicate a goal value, i.e. the rating that was intended to be reached for relevant ICF categories at the end of the Rehab-Cycle®.

The ICF categories (and personal factors) that corresponded to any of the goals set and were associated with a goal value were considered intervention targets. **Intervention targets** were those categories that Ida's rehabilitation team intended to address with specific interventions. For example, for cycle goal 1 'improvement in handling stress and other psychological demands', the following intervention targets were defined:

- b130 Energy and drive functions
- b134 Sleep functions
- b152 Emotional functions
- d240 Handling stress and psychological demands
- d4554 Swimming

- d920 Recreation and leisure
- e310 Immediate family
- e410 Individual attitudes of immediate family
- e5800 Health services
- pf Fear of falling when tilting the wheelchair
- pf Coping strategies

All of Ida's goals and intervention targets can be seen on table 2. See "Table 2: ICF Categorical Profile" on page 32 at the end of this booklet.

During the intervention phase of the Rehab-Cycle®, one or more members of Ida's multidisciplinary rehabilitation team was assigned to perform interventions that addressed each intervention target.

## Assignment and Intervention



Ida's rehabilitation team, who was charged with implementing the comprehensive, interdisciplinary rehabilitation and pain management programme, comprised of a physician, nursing staff, a physical therapist, a sports therapist, an occupational therapist, a psychologist, and a social worker.

### A Multi-modal Approach

Since previous rehabilitation efforts to manage Ida's chronic pain that focused on pharmacological interventions proved unsuccessful, a more comprehensive approach was taken. In addition to pharmacological interventions, for which the physician was responsible, Ida's rehabilitation and pain management programme also included non-pharmacological interventions. While the physical,

sports, and occupational therapists were responsible for the non-pharmacological interventions involving sports, relaxation exercises, and art and music therapy, the psychologist provided psychological counselling that also included conducting therapy sessions using singing bowls.

*"In addition to pharmacological interventions... Ida's rehabilitation and pain management programme also included non-pharmacological interventions."*

These non-pharmacological interventions intended to address the intervention targets associated with the service-program goal 'pain management' and cycle goal 1 'handling stress and other psychological demands'. Based on the comprehensive assessment at the beginning of the Rehab-Cycle®, it was clear that Ida's pain experience was closely linked with her difficulties in coping with her situation and in handling stress.

### An Interdisciplinary Approach

**The members of the rehabilitation team worked interdisciplinary.** For example, the physician and the psychologist worked collaboratively to treat the minor clinical depression that was diagnosed during the assessment phase. The physician prescribed an antidepressant, and the psychologist provided psychological counselling. Moreover, all of the members of Ida's rehabilitation team contributed to monitoring Ida's emotional functioning.

### A Comprehensive Approach – Going Beyond Pain Itself

In Ida's case, **the comprehensive approach to pain management was multi-modal and interdisciplinary. It also encompassed interventions that addressed Ida's problems in other aspects of functioning**, such as mobility, that impacted on her pain experience.

The intervention targets corresponding to Ida's cycle goal 2 'improvement in mobility' were addressed primarily by the physical therapist and occupational therapist. For example, the physical therapist conducted body balance training (including hippotherapy) to improve Ida's problems in getting in and out of a seated position, in shifting her body's centre of gravity, and

Thus, **the psychologist worked extensively with Ida to develop more adaptive coping and stress management strategies.** Furthermore, since Ida's immediate family was considered an important facilitator for the attainment of her pain and stress management goals and a contributor to Ida's quality of life, **psychological counselling was also provided to Ida's husband and son to enhance their supportive role.**

The interdisciplinary approach was applied not only in the interventions targeting the goals of pain management and handling stress and other psychological demands, it also extended to the interventions targeting Ida's cycle goal of improving mobility and the long-term goal of increasing Ida's participation in social life.

in maintaining a sitting position. Together with the physical therapist, the occupational therapist shared the responsibility for strengthening Ida's abilities to manoeuvre her wheelchair by providing wheelchair training indoors and outdoors. Furthermore, the occupational therapist was responsible for ensuring that Ida's wheelchair was suitable for her needs.

With regard to interventions to address Ida's long-term goal of increased participation in social life, non-pharmacological interventions comprising of sports activities, relaxation exercises, art and music therapy, and psychological counselling were provided.

*“This extended stay gave Ida the opportunity to evaluate whether doing arts and crafts, music therapy, and hippotherapy were suitable tools for effectively managing her pain long-term.”*

The interventions and the corresponding intervention targets, as well as the rehabilitation team members who were assigned the responsibility for implementing the interventions, were documented on the **ICF Intervention Table**. See *“Table 3: ICF Intervention Table” on page 34 at the end of this booklet.*

Ida's rehabilitation and pain management programme had initially been planned to last four weeks. However, due to difficulties in finding the

optimal choice and dosage of medication at the beginning of the Rehab-Cycle®, the rehabilitation programme was extended, ultimately lasting eight weeks. This extended stay gave Ida the opportunity to evaluate whether doing arts and crafts, music therapy, and hippotherapy were suitable tools for effectively managing her pain long-term.

At the end of the 8-week Rehab-Cycle®, an evaluation took place to determine Ida's progress and goal achievement.

## Evaluation



Ida's pain experience and functioning status were assessed again at the end of Ida's Rehab-Cycle® to see which of the goals set at the beginning of the Rehab-Cycle® were achieved and to inform further healthcare decisions.

The results of this re-assessment (or re-evaluation) indicated that Ida made significant progress in all of the goals she and the rehabilitation team

set. Although not all of the specific goals defined for each of the intervention targets were achieved, she showed improvements in most of them.

*"...Ida made significant progress in all of the goals she and the rehabilitation team set..."*

Goal achievement and the results of the final assessment of this particular Rehab-Cycle® were documented using the **ICF Evaluation Display**. The ICF Evaluation Display is an extended version of Ida's ICF Categorical Profile that visually shows (as a bar graph) the ICF qualifier rating given to each of her intervention targets during the final assessment along with the ratings from

the initial assessment. It is a sort of "before and after" picture. Note that the comparison of the initial and final ratings only show that there was a change and whether the goals were achieved, but not whether the change or goal achievement was directly due to specific interventions. See "Table 4: ICF Evaluation Display" on page 36 at the end of this booklet.

**In terms of the primary reason for initiating this Rehab-Cycle® – effective pain management – the final assessment revealed mixed results.** Ida's goal of pain reduction from severe to mild pain was not achieved. Nevertheless Ida's pain in her head, neck, lower limbs, and joints did improve from severe to moderate pain. This improvement was reflected in the lower score of perceived pain on the Visual Analogue Scale. Ida's score changed from 8 to 3 on a scale from 0 (no pain) to 10 (pain as bad as it could be).<sup>22</sup> Furthermore, the physician seemed to have optimised Ida's pain medication.

Highly relevant for facilitating pain management, the intervention targets under cycle goal 1 'improvement in handling stress and other psychological demands', i.e. b130 Energy and drive, b134 Sleep functions, b152 Emotional functions, e310 Immediate family, e410 Individual attitudes of immediate family, e5800 Health services, and pf Coping strategies, were achieved. However, the goal defined for the intervention target with the same name as the cycle goal itself, i.e. d240 Handling stress and other psychological demands, was not achieved.

*"Ida is much less nervous, overall more positive and self-assured, and can sleep through the whole night."*

*Ida's psychologist at the end of the Rehab-Cycle®*

In retrospect, selected goals set for pain management and cycle goal 1 may have been too ambitious, thus leading to the low goal achievement mentioned above.

**In spite of not achieving selected goals related to pain management and handling stress, Ida perceived a clear reduction in pain and an improvement in her ability to relax.** She attributed this progress to art therapy, painting, and playing the singing bowls.

*"For the first time since my accident, I feel like I can deal with my pain...I think I'll be able to enjoy life and friends again."*

*Ida at the end of the Rehab-Cycle®*

**With regard to the achievement of the goals set for improving mobility, i.e. cycle goal 2, and for Ida's global goal of increased participation in social life, the majority of the goals were achieved.** For example, at the final assessment Ida was able to transfer independently and stably without the use of a rubbing plate, only requiring help when transferring vertically. Furthermore, Ida was able to manoeuvre her manual wheelchair on flat surfaces and slightly ascending slopes. Ida's family was especially supportive in facilitating her participation in social activities.

At the end of the Rehab-Cycle® Ida was discharged home. To further strengthen Ida's pain management strategies and promote her social integration into the community, the rehabilitation team recommended that she seeks admission to a day programme at a clinic near her home.

## Discussion



Living with and managing chronic pain is a common experience of persons living with spinal cord injury (SCI). Irrespective of type or severity of pain, post-SCI pain can impact all aspects of a person's life.

**Post-SCI pain can appear at any time following a SCI and can develop into a chronic condition.** In one study, approximately 34% of the study participants experienced pain immediately following the injury, and an additional 24% reported that the pain appeared within the first year post-injury. Among those suffering from pain, only 7% experienced a decrease of pain intensity and frequency over time, while 47% experienced an increase in pain over time.<sup>7</sup> In another study that included persons living with SCI and chronic pain, more than half of the study participants reported having pain for more than 5 years.<sup>19</sup>

*"Ida's experience of decreased quality of life due to post-SCI pain is not isolated to her case."*

Ida's experience of decreased quality of life due to post-SCI pain is not isolated to her case. Pain has shown to severely or completely interfere with the

In Ida's case, she developed neuropathic pain three months after the SCI. It evolved into chronic pain that led to four inpatient rehabilitation stays over a course of 2 years. Ida's experience of pain limited her mobility (transferring and driving a car) and ability to carry out her daily routine. It also prevented Ida from returning to work, and negatively affected her emotional stability. In other words, chronic post-SCI pain impacted her quality of life tremendously.

daily routine of persons with SCI and/or restrict a person's participation in major life areas, such as work and social life.<sup>1,3,5,7,12,13,14</sup>

*"...it would be essential that the person develops strategies, including coping strategies, to effectively manage pain on a long-term basis."*

To counter the negative impact of post-SCI Pain on a person's life, it would be essential that the person develops strategies, including coping strategies, to effectively manage pain on a

long-term basis.<sup>1,3,7,13,14</sup> In Ida's case, her lack of adaptive coping strategies coupled with depression and difficulty in handling stress, led to emotional instability and an exacerbation of pain.

*"This multi-faceted approach to pain management is in line with the recommendations of many SCI experts, who support a comprehensive, multi-modal approach to managing pain following SCI."*

Luckily, Ida was able to develop adaptive coping skills, improve her ability to handle stress, and stabilise her emotional status within a comprehensive, interdisciplinary inpatient rehabilitation programme for persons with SCI. Ida's rehabilitation plan was individualised to meet her pain management needs. Ida's rehabilitation and pain management programme applied a multi-modal approach that incorporated both pharmacological (e.g. optimisation of medication) and non-pharmacological interventions (e.g. psychological counselling, relaxation exercises, art and music therapy). Ida's rehabilitation team, specifically the psychologist on the team, **also recognised the importance of involving the family in the rehabilitation and pain management process.** For this reason, the psychologist also provided psychological counselling to Ida's husband and son, focusing on strengthening the communication between Ida, her husband, and son. This multi-faceted approach to pain management is in line with the recommendations of many SCI experts, who support a comprehensive, multi-modal approach to managing pain following SCI.<sup>1,3,16,17,18</sup> **Such a comprehensive pain management approach should also include education about post-SCI pain and possible treatments.**<sup>1,3,13,18,19</sup>

**A novel non-pharmacological approach to pain management that has been gaining attention in recent years is positive psychology.** In one study of 77 persons with physical disability and chronic pain, including persons with SCI, Müller and colleagues found significant improvement in pain intensity and pain control after applying a computer-based positive psychology intervention.<sup>25</sup> A follow-up study investigating the feasibility, acceptability and efficacy of positive psychology interventions specifically for the SCI population is in progress.<sup>26</sup>

At the end of Ida's Rehab-Cycle<sup>®</sup>, she seemed more confident about being able to deal with her pain more effectively and was more hopeful about her life as a whole.

In conclusion, it is important to note that this comprehensive, interdisciplinary pain management approach worked well for Ida. However, since this case study concluded at Ida's discharge from the inpatient rehabilitation centre, it is unclear whether or how long her improvements were maintained in the community. **There is a great need for further evidenced-based research on the effectiveness of such comprehensive, multi-modal, interdisciplinary approaches to managing post-SCI pain.**

## Annex

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- *Table 1: ICF Assessment Sheet*
- *Table 2: ICF Categorical Profile*
- *Table 3: ICF Intervention Table*
- *Table 4: ICF Evaluation Display*
- *Literature*
- *Questions*

Table 1: ICF Assessment Sheet

ICF Assessment Sheet	
<p><b>Health Professional Perspective</b></p>	<p><b>Body Functions &amp; Structures</b></p> <ul style="list-style-type: none"> <li>- I have sleep problems</li> <li>- I am emotionally unstable</li> <li>- I suffer from constant pain</li> <li>- My/lower back and feet hurt</li> <li>- I am afraid that the pain will get worse</li> </ul>
<p><b>Activities &amp; Participation</b></p>	<ul style="list-style-type: none"> <li>- Severe problem in motivation (driving force to act)</li> <li>- Extremely poor quality of sleep</li> <li>- Severe impairment in emotional functions</li> <li>- Has severe pain</li> <li>- No impairment in mobility of joint functions</li> <li>- Mild impairment in muscle endurance functions</li> <li>- Experiences some spasms</li> </ul>
<p><b>Personal Factors</b></p>	<ul style="list-style-type: none"> <li>- I need support in carrying out daily routine</li> <li>- Organising my daily routine is stressful for me, and this, in turn, increases the pain</li> <li>- The pain causes problems in transferring myself</li> <li>- I can use the Swiss-Trac™ to run errands</li> <li>- I can't drive a car with the medication I am taking</li> <li>- Catheterisation is not a problem</li> <li>- I feel isolated, because I can't see my friends nor go out when the pain is strong</li> <li>- The pain prevents me from returning to my old job</li> <li>- In the clinic, it is easier to forget about the pain; this helps me to meet people and do pleasant things</li> <li>- Painting, listening to music, and playing the singing bowls relax me and are good for fighting the pain</li> </ul>
<p><b>Environmental Factors</b></p>	<ul style="list-style-type: none"> <li>- Medication for pain and depression helps substantially</li> <li>- Products and technology for personal use in daily life moderately helpful</li> <li>- Ida stated that she needs a height-adjustable toilet seat to use in public WCs</li> <li>- Products and technology for personal indoor/outdoor mobility and transportation is somewhat helpful</li> <li>- House is adapted</li> <li>- In general, steps and obstacles serve as moderate barriers to moving around using the wheelchair</li> <li>- Receives some support from friends and family</li> <li>- Health services are moderately supportive</li> </ul>
<p><b>Personal Factors</b></p>	<ul style="list-style-type: none"> <li>- 57 years old, female</li> <li>- Living with husband</li> <li>- Professionally trained as a tailor; used to work at an outdoor swimming centre before the injury</li> <li>- Engaged in outdoor activities (hiking, skiing, swimming) before the injury</li> <li>- Has a history of bipolar depression</li> <li>- Sadness about her disability developed recently</li> <li>- Needs to develop more adaptive coping strategies</li> <li>- Has fear of falling when tilting the wheelchair</li> </ul>
<p><b>Health Professional Perspective</b></p>	<p><b>Activities &amp; Participation</b></p> <ul style="list-style-type: none"> <li>- Severe difficulty in undertaking complex tasks</li> <li>- Severe difficulty in carrying out her daily routine</li> <li>- Severe difficulty in handling stress</li> <li>- Mild difficulty in changing basic body position</li> <li>- Moderate difficulty in transferring herself</li> <li>- Mild difficulty in lifting and carrying objects</li> <li>- Moderate difficulty in moving around when swimming</li> <li>- Mild to severe difficulty moving around using the wheelchair depending on location</li> <li>- Mild difficulty in using transportation</li> <li>- Mild difficulty in looking after her health</li> <li>- Severe difficulty in acquiring goods and services</li> <li>- Moderate difficulty in doing housework</li> <li>- Complete limitations in remunerative employment</li> <li>- Severe difficulty in participating in community life</li> <li>- Severe difficulty in participating in sports activities</li> <li>- Severe difficulty in participating in arts and cultural activities</li> </ul>

Table 2: ICF Categorical Profile

ICF Categorical Profile											
Assessment											
Global Goal: Participation in social life											
Service-Program Goal: Pain management											
Cycle Goal 1: Improvement in handling stress and other psychological demands											
Cycle Goal 2: Improvement in mobility											
ICF categories		ICF Qualifier							Goal Relation	Goal value	
								problem			
								0 1 2 3 4			
b130	Energy and drive functions								1	2	
b134	Sleep functions								1	2	
b152	Emotional functions								1	1	
b280	Sensation of pain								SP	1	
b28010	Pain in head and neck								SP	1	
b28013	Pain in back								SP	1	
b28014	Pain in upper limb								SP	1	
b28015	Pain in lower limb								SP	1	
b28016	Pain in joints								SP	1	
b740	Muscle endurance functions								2	1	
d240	Handling stress and other psychological demands								1	1	
d4100	Lying down								2	1	
d4103	Sitting								2	1	
d4106	Shifting the body's centre of gravity								2	1	
d4153	Maintaining a sitting position								2	1	
d420	Transferring oneself								2	1	
d4564	Swimming								1,2	1	
d4600	Moving around within the home (using the wheelchair)								2	1	
d4601	Moving around within buildings other than home (using the wheelchair)								2	2	
d4602	Moving around outside the home and other buildings (using the wheelchair)								2	2	
d465	Moving around using equipment								2	0	
d470	Using transportation								2	0	
d920	Recreation and leisure								G,1	1	
ICF categories		ICF Qualifier							Goal Relation	Goal value	
									facilitator		
									barrier		
									4+ 3+ 2+ 1+ 0 1 2 3 4		
e110	Products or substances for personal consumption									SP	3+
e1201	Assistive products...for personal...mobility ...									2	2+
e310	Immediate family									G,1	3+
e410	Individual attitudes of immediate family									G,1	3+
e5800	Health services									G,1	3+
pf	Fear of falling when tilting the wheelchair									1,2	2+
pf	Coping strategies									1	2+

Table 2: ICF Categorical Profile; ICF Qualifier: rate the extent of problems (0 = no problem to 4 = complete problem) in the components of body functions (b), body structures (s), activities and participation (d) and the extent of positive (+) or negative impact of environmental (e) and personal factors (pf); Goal Relation: 1 and 2 refer to Cycle Goals 1 and 2; SP refers to the Service-Program Goal; G refers to the Global Goal. Goal value refers to the ICF qualifier to achieve after an intervention. Note: This table only displays an excerpt of the ICF Categorical Profile; only the categories that are associated with a goal and for which a goal value has been identified (i.e. intervention targets) are shown.

Table 3: ICF Intervention Table

ICF Intervention Table												
	Intervention target	Intervention	Doc	Nurse	PT	Spo	OT	Psych	MS	First value	Goal value	Final value
Body Functions/structures	b130	Energy and drive functions		X	X	X	X	X		3	2	2
	b134	Sleep functions		X						3	2	2
	b152	Emotional functions		X	X	X	X	X		3	1	1
	b280	Sensation of pain (in head and neck, back, lower limb, joints)		X	X		X			3	1	2
Body Functions/structures	b28014	Pain in upper limb		X	X		X	X		2	1	2
	b740	Muscle endurance functions			X					1	1	0
	d240	Handling stress and other psychological demands			X	X	X	X		3	1	2
	d4100	Lying down			X					2	1	1
Activities / Participation	d4103	Sitting			X					2	1	1
	d4106	Shifting the body's centre of gravity			X					2	1	1
	d4153	Maintaining a sitting position			X					2	1	1
	d420	Transferring oneself			X					2	1	1
	d4554	Swimming			X					2	1	2
	d4600	Moving around within the home (using the wheelchair)			X		X			2	1	1
	d4601	Moving around within buildings other than home (using the wheelchair)			X		X			3	2	2
	d4602	Moving around outside the home and other buildings (using the wheelchair)			X		X			3	2	2
	d465	Moving around using equipment			X		X			1	0	1
	d470	Using transportation					X			1	0	1
Environmental Factors	d920	Recreation and leisure			X	X	X			3	1	2
	e110	Products or substances for personal consumption		X	X					2+	3+	2+
	e1201	Assistive products... for personal... mobility...					X			1+	2+	2+
	e310	Immediate family						X		2+	3+	3+
	e410	Individual attitudes of immediate family						X		2+	3+	3+
	e5800	Health services						X	X	2+	3+	3+
	pf	Fear of falling when tilting the wheelchair			X		X			2	2+	0
	pf	Coping strategies						X		2	2+	2+

**Table 3:** ICF Intervention Table; Doc = Physician; PT = Physical Therapist; Spo = Sports Therapist; OT = Occupational Therapist; Psych = Psychologist; SW = Social Worker. The first value refers to the rating at the initial assessment, the goal value refers to the rating that should be achieved after the intervention, and the final value refers to the rating at the second assessment or evaluation. ICF qualifiers were used to determine these ratings (0 = no problem to 4 = complete problem) in the intervention targets. For the intervention targets representing the environmental and personal factors, the plus sign next to the value indicates a facilitator.

Table 4: ICF Evaluation Display

ICF Evaluation Display																			
Assessment																			
ICF categories	ICF Qualifier	problem				Goal relation	Goal value	ICF Qualifier	problem				Goal achievement						
		0	1	2	3				4	0	1	2		3	4				
Global Goal: Participation in social life												Not evaluated yet							
Service-Program Goal: Pain management																			
Cycle Goal 1: Improvement in handling stress and other psychological demands																			
Cycle Goal 2: Improvement in mobility																			
b130	Energy and drive functions					1	2						+						
b134	Sleep functions					1	2						+						
b152	Emotional functions					1	1						+						
b280	Sensation of pain					SP	1						-						
b28010	Pain in head and neck					SP	1						-						
b28013	Pain in back					SP	1						-						
b28014	Pain in upper limb					SP	1						-						
b28015	Pain in lower limb					SP	1						-						
b28016	Pain in joints					SP	1						-						
b740	Muscle endurance functions					2	1						+						
d240	Handling stress and other psychological demands					1	1						-						
d4100	Lying down					2	1						+						
d4103	Sitting					2	1						+						
d4106	Shifting the body's centre of gravity					2	1						+						
d4153	Maintaining a sitting position					2	1						+						
d420	Transferring oneself					2	1						+						
d4554	Swimming					1,2	1						-						
d4600	Moving around within the home (using the wheelchair)					2	1						+						
d4601	Moving around within buildings other than home (using the wheelchair)					2	2						+						
d4602	Moving around outside the home and other buildings (using the wheelchair)					2	2						+						
d465	Moving around using equipment					2	0						-						
d470	Using transportation					2	0						-						
d920	Recreation and leisure					G,1	1						-						
e110	Products or substances for personal consumption	4+	3+	2+	1+	0					4+	3+	2+	1+	0	1	2	3	4
e1201	Assistive products...for personal... mobility ...																		
e310	Immediate family																		
e410	Individual attitudes of immediate family																		
e5800	Health services																		
pf	Fear of falling when tilting the wheelchair																		
pf	Coping strategies																		

**Table 4:** ICF Evaluation Display; ICF Qualifier: rate of the extent of problems (0=no problem to 4=complete problem) in the components of body functions (b), body structures (s), activities and participation (d) and the extent of positive (+) or negative impact of environmental (e) and personal factors (pf); Goal relation: 1 and 2 refer to Cycle Goals 1 and 2; SP refers to the Service-Program Goal; G refers to the Global Goal. Goal value refers to the ICF qualifiers to achieve after an intervention. Goal achievement: + means achieved, - means not achieved.

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### Questions

- Q1. What is the difference between nociceptive pain and neuropathic pain? *(Refer to page 9 for the answer.)*
- Q2. Name the classifications of pain that are most frequently mentioned in the literature. *(Refer to page 9 for the answer.)*
- Q3. Give an example of each – a pharmacological intervention, a non-pharmacological intervention, and a combination of both types of interventions. *(Refer to page 11 for the answer.)*
- Q4. Describe the combination of interventions incorporated in Ida's rehabilitation and pain management programme. *(Refer to page 21 for the answer.)*
- Q5. Identify the intervention targets and the corresponding interventions that were defined for Ida's service-program goal 'pain management'. *(Refer to page 32 for the answer.)*



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