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ICF Case Studies

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

Community Reintegration

Case Study 08



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Content

Community Reintegration

Preface	4
Spinal Cord Injury (SCI).....	4
International Classification of Functioning, Disability and Health (ICF)	5
ICF Core Sets.....	6
Rehab-Cycle® and Corresponding ICF-based Documentation Tools.....	6
Literature	7
General Introduction	8
Factors that Impact Community Reintegration.....	10
Issues to Address in Community Reintegration	10
Martin's Story	12
Vocational Reintegration – An Essential Part of Community Reintegration	12
Martin's First Rehab-Cycle®.....	13
Assessment	14
Goal-setting/Determination of Intervention Targets	16
Setting Goals Oriented Toward Independent Living.....	16
Assignment and Intervention	19
Traditional Interventions.....	19
"Non-medical" Interventions.....	20
Evaluation	22
Goal Achievement in Cycle Goal 1 – Vocational Reintegration.....	22
Goal Achievement in Cycle Goal 2 – Independent Housing and Mobility	23
Goal Achievement in Cycle Goal 3 – Recreation and Leisure	23
Goal Achievement in Cycle Goal 4 – Optimized Motor Functioning	23
Discussion	25
Annex	27
Table 1: ICF Assessment Sheet	28
Table 2: ICF Categorical Profile.....	30
Table 3: ICF Intervention Table	32
Table 4: ICF Evaluation Display.....	34
Literature	36
Questions	37

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.

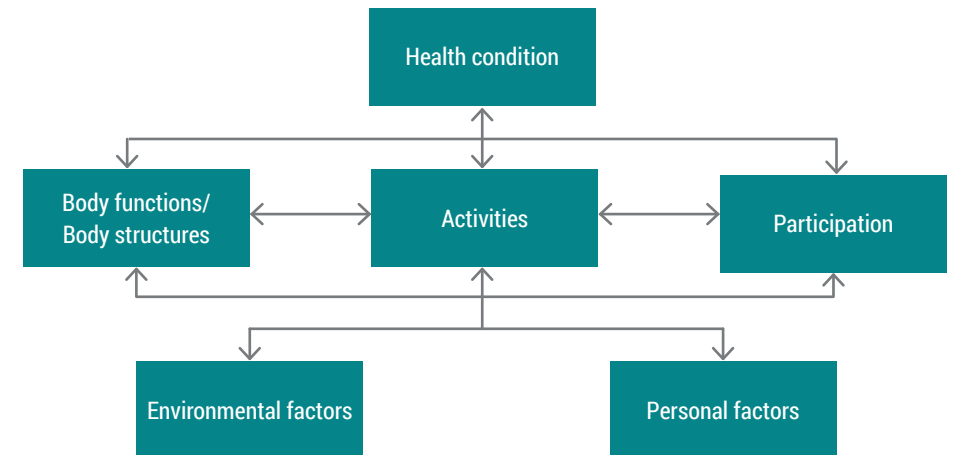


Figure 1: Bio-psycho-social model of functioning, disability and health

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 organized 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.

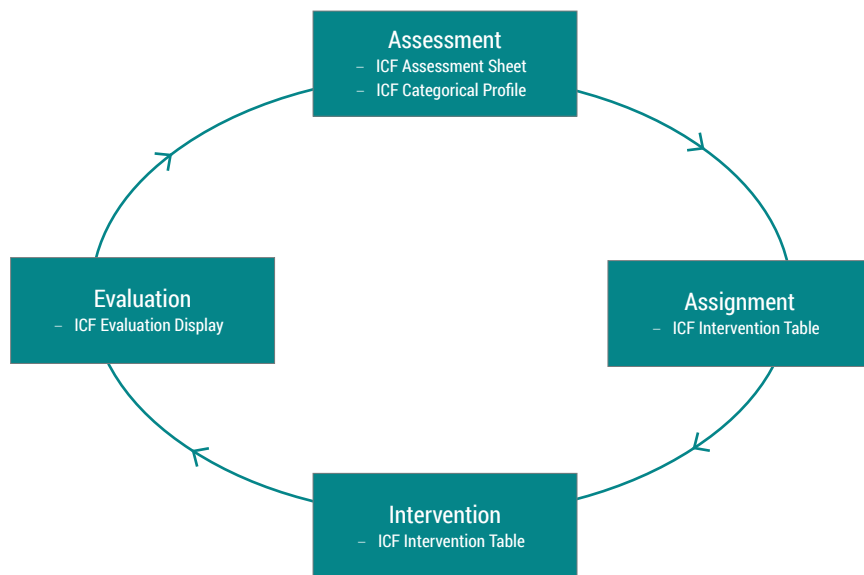


Figure 2: Rehab-Cycle®

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.

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General Introduction

Persons with spinal cord injury (SCI) face extraordinary challenges beyond adapting to the physical aspects of their injury. They may also be confronted with functional limitations, and most importantly restrictions in participation within his or her physical and psychosocial environment. Considering this, a key goal of rehabilitation of persons with SCI is the reintegration into the community.^{1,2,3}

Viewed in the context of the World Health Organization's International Classification of Functioning, Disability and Health (ICF),⁴ a conceptual framework that reflects the dynamic interaction between body functions, body structures, and activities and participation of an individual within a social and environmental context, rehabilitation employs interventions that aim to optimize functioning starting in the acute phase and seen as continuing into community life.^{5,6}

SCI causes tremendous social and participatory disruptions in the daily lives of those living

with SCI. Community reintegration (sometimes referred to as "community integration" or "community participation")³ is a process that enhances a person's return home from a hospital or rehabilitation centre by minimizing such disruptions and facilitating access to community-based programs and existing resources.¹ This process of preparing a person for community reintegration can begin early in rehabilitation and involve different stakeholders including professionals of various disciplines.

Box 1 | Defining Community Reintegration in Persons with Spinal Cord Injury

Community reintegration is a complex concept that has been described as "the **assumption or resumption of [a] culturally and developmentally appropriate social role**" and "**full inclusion and participation...** in the physical and psychosocial environment"² or **returning to "pre-injury roles and activities"**.⁷ While the ICF does not specifically define community reintegration, many ICF categories are useful in framing what the process involves. For example, the ICF includes a chapter on major life areas, in which education, work/employment and economic life are addressed. Other relevant chapters address mobility,

domestic life, interpersonal relationships, community life, recreation and leisure, religion and spirituality, human rights, and political life and citizenship. The ICF section on environmental factors highlight factors such as (but not limited to) support from family and other persons, accessibility of buildings and other physical environments, or health and other services.⁴

Success of community reintegration is not easy to describe or measure. Norms in current multicultural societies are often elusive and unclear, covering a range of social behaviours at multiple levels.

Nevertheless, it is clear that for persons with severe disability, such as resulting from SCI, community reintegration poses a challenge, involving a multi-faceted interaction between internal (personal)

and external (environmental) factors, barriers and opportunities. Figure 1 is a simplified model that breaks down some of the interrelated elements that can promote or hinder community reintegration.⁷

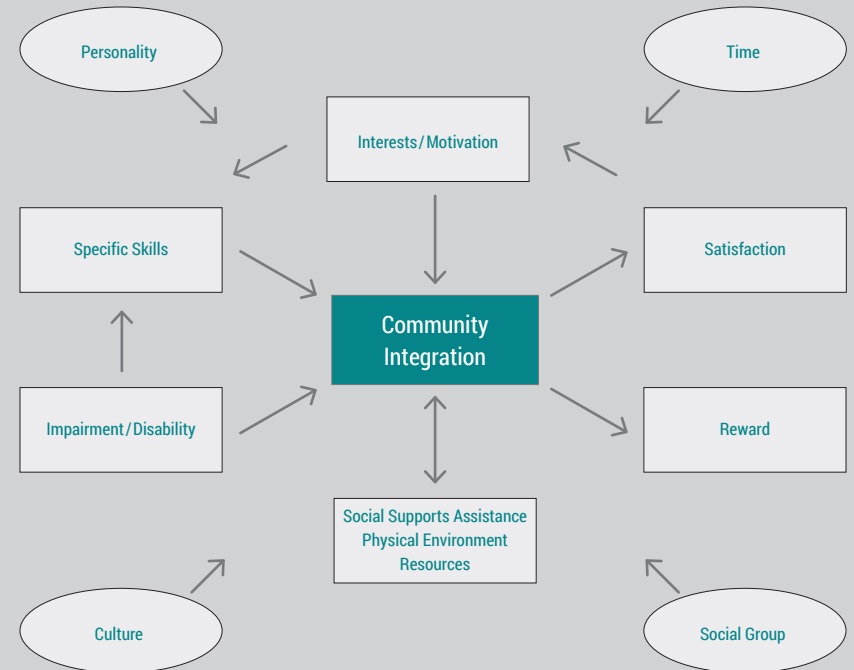


Figure 1: Interrelated elements that can promote or hinder community reintegration

Given the complexity of community reintegration, the challenge for a rehabilitation team is not only to help minimize the person's experience of disability, but also to decide on the appropriate time point to start

community reintegration efforts for a specific person with SCI and to provide individualised guidance and support so that the person is empowered to gain the independence necessary to live in the community.⁸

Factors that Impact Community Reintegration

Although increasing severity of a person's injury seems to negatively impact on the execution of many activities of daily living⁹, neither the type nor the severity of an SCI is a good predictor of long-term outcome.² The initial stage of medical rehabilitation generally aims to improve injury-related physical functioning. Nevertheless, interventions that focus only on physical functioning may not adequately prepare persons with SCI for community reintegration.¹⁰ Success in community reintegration depends not only on a person's physical functioning but also on social participation and interrelated contextual factors.^{8,9}

There is a range of factors that can facilitate or hinder the transition to the community.^{2,8,11}

Examples of facilitating factors include:

- Support of family and friends
- Peer mentoring
- Returning to a familiar community or neighbourhood

Issues to Address in Community Reintegration

Issues that should be addressed in community reintegration of a person with SCI include (but not limited to):^{8,9}

- **Housing and household duties:** Is there accessible and desirable housing available? Is personal assistance or assistive devices required to complete housework and outdoor maintenance?
- **Mobility:** Is there accessible public transportation available? How can driving be facilitated?
- **Recreation:** What cultural, sports and other recreational activities are accessible i.e. accessible location as well as transportation? Is personal

- Availability of accessible and desirable housing
- Access to personal means of transportation
- Information on available services and resources in the community
- Availability of affordable community services and resources (including medical and social services)
- Personal factors such as self-esteem, coping style, assertiveness, self-assurance and self-sufficiency
- Self-determination

Examples of hindering factors (or barriers) include:

- Lack of general physical accessibility of services, living arrangements, etc.
- Low income level
- High cost of services, supplies and equipment
- Chronic pain and other health-related complications
- Negative and limiting societal attitudes including those from rehabilitation professionals

assistance or assistive devices required to participate?

- **Health maintenance:** How can persons with SCI stay physically fit in the community? What resources are available for maintaining fitness?
- **Pain management:** What resources and strategies are available in the community for pain management?
- **Sexuality:** What resources and services e.g. psychosocial counselling are available in the community to address sexuality issues?
- **Social supports:** To what extent is support provided by family and friends? Is peer counsel-

ling and mentoring available? Are psychological services available?

- **Employment:** What can be done to optimize work participation?

For example, a vocational rehabilitation (VR) strategy to help return a person with SCI back to work should take into consideration the person's specific skills, workplace accessibility, availability of accessible transportation, possible needs e.g. continuing education, and possible work accommodations e.g. working from home. In addition, the VR strategy may include the reassessment of the person's vocational goals (which may change or develop over time) and planning for a new career.⁸

Mobility and accessibility issues (physical barriers and lack of accessible personal and public trans-

portation) can also have a significant impact on a person's participation in social activities.⁸

Ideally the interventions that are implemented to deal with the multi-faceted issues faced in community reintegration are tailored to the individual person and empowers the person to become more independent.^{8,10,11}

The implementation of person-centred and empowering rehabilitative interventions is illustrated in the case study of Martin, a 26-year old man with SCI who had been engaged in a VR program at an inpatient rehabilitation centre. Martin's case shows how rehabilitation can help facilitate the transition from the hospital back to the community as well as long-term reintegration.

Martin's Story



Martin is not only an accident survivor, but also a career-seeker. Martin and his rehabilitation team already took steps toward community reintegration at the beginning of his rehabilitation, and these initial steps centred around returning to work.

As already described in case study 7 a motorcycle accident left Martin with a spinal cord injury (SCI), classified as ASIA A at T7 meaning that he is **paralyzed with a complete lack of motor and sensory function below the 7th thoracic vertebrae**. Originally trained as a home electronics salesman but

employed as a mover prior to the accident, Martin needed to begin considering job options and his future as he and his rehabilitation team began planning his return home from the rehabilitation centre.

Vocational Reintegration – An Essential Part of Community Reintegration

It was clear from the start that Martin's long-term rehabilitation goals were **community reintegration and living independently; this included returning to work**. For Martin employment meant more than just financial security. Having a job that he enjoyed was an essential element of both his overall human functioning and reintegration into the community. Stable employment would ultimately contribute not only to his financial security and independence, but also to his self-esteem and overall life satisfaction. For this reason, Martin

started participating in a three-phase vocational rehabilitation (VR) program one month post-injury.

The first phase of this VR program promoted trust between Martin and the VR counsellor, strengthened Martin's decision-making skills and helped to clarify his vocational potential. During this phase, Martin successfully completed a typing course and a computer class, doing extremely well in both. While his participation in the computer course reconfirmed his expressed disinterest in

finding work that required him to work in front of the computer the whole day, it motivated him to move forward in his exploration of other career paths. One of the first steps he took toward other

career paths is his initiative to enrol in an English course. Martin also considered inquiring about employment possibilities at his former employer.

Martin's First Rehab-Cycle®

VR started before Martin's first Rehab-Cycle® started; the completion of the first phase of VR coincided with the completion of this first Rehab-Cycle®. VR was one of the interventions that addressed the goal of vocational reintegration, one of three specific or so-called "cycle goals" that were defined during Martin's first Rehab-Cycle®. See the section on goal-setting and determination of intervention targets in case study 7. The other cycle goals that were defined were 'mobility' and 'self-care'. **Martin achieved all of the targets he and his rehabilitation team set for these cycle goals.**

"At the end of rehabilitation I really made some big gains – independence in using the wheelchair, better self-care and being able to position my body...I also hope to get a car and be able to drive. The most important thing for me is to be able to work once I'm discharged."

Martin, reflecting on his progress and his future

After two months of inpatient rehabilitation, Martin had also progressed in physical functioning and gained independence in activities of daily

living. Consequently, he was given a discharge date of two months following the completion of his first Rehab-Cycle®. With the confirmation of the discharge date, Martin's worries about his future beyond the rehabilitation centre intensified. Although Martin **made great strides in achieving independence, there remained some open issues** that he and his rehabilitation team needed to address to ensure that community reintegration is successful.

"Insecurity about my future is my biggest problem right now; it also defines my most important goals. When I think about leaving the rehab centre, there is so much that is unclear – my work and my living situation. It really stresses me out."

Martin, two months prior to his discharge

Over the course of his first Rehab-Cycle®, vocational reintegration played an important role. In the two months before his discharge, Martin and his rehabilitation team broadened their attention to other areas of preparation for community reintegration, and **a new Rehab-Cycle® started**.

Assessment

The assessment of Martin's functioning in his new Rehab-Cycle® highlighted a number of outstanding problems as well as strengths acquired during the first months of his rehabilitation that could impact his community reintegration.

These problems and strengths are documented in the **ICF Assessment Sheet**, a listing of verbal statements made by Martin (in the section entitled "patient perspective") and a summary of the results of the assessment completed by the rehabilitation team (in the section entitled "health professional perspective"). It also lists contextual factors that are relevant for the rehabilitation activities in Martin's new Rehab-Cycle®.

See "Table 1: ICF Assessment Sheet" on page 28 at the end of this booklet.

The ICF Assessment Sheet shows the problems and strengths in all of the components of the International Classification of Functioning, Disability and Health (ICF)⁴ – body functions and structures, activities and participation, environmental and personal factors.

It shows that some body functions and structures related to movement i.e. **spasticity and pain** continued to be present. These made it difficult for Martin to move parts of his body.

While he was **independent in transferring himself, wheelchair navigation, washing and dressing,**

etc. – all aspects of activities and participation that would ease his return home, Martin remained concerned about his future housing situation. Before the accident Martin had been living with a roommate in a fifth-floor apartment for a long time. Since this apartment was not wheelchair accessible, **he had to move**. Where and what kind of housing would be suitable for Martin was unclear.

Moreover, while Martin was **able to manoeuvre his wheelchair independently within an urban environment, wheelchair mobility continued to pose a problem in hilly and forested environments** such as where his family lived. This consequently made family visits a challenge. However, the purchase of his own Swiss-Trac™, a motorized device for facilitating wheelchair mobility, was intended to address this problem.

With regard to social participation, Martin returned home every weekend and went out with friends. He also indicated that he **would like to participate in sports** activities again, as this remained to be Martin's main recreational interest. The rehabilitation team assessment showed that Martin's participation in sporting activities was restricted.

“..it was essential that vocational rehabilitation activities continued in order to concretize Martin's return to work options.”

Although Martin was successful in meeting his vocational reintegration goal in the first Rehab-

Cycle®, the target set for this goal was modest. It was also clear at the end of the first Rehab-Cycle®

that it was essential that vocational rehabilitation (VR) activities continued in order to concretize Martin's return to work options. This was reflected in Martin's statement and in the rehabilitation team's observation that **“remunerative employment [was] not yet clarified”**.

Martin's personal factors offered some insight on the personal resources that may have factored in

his reintegration efforts. On one hand, he was very accepting of his disability and showed a high level of patience that he had developed over several months of rehabilitation. On the other hand, Martin still needed to strengthen his decision-making skills, despite improvements made in the first Rehab-Cycle®. In addition, he experienced stress when thinking about the future, specifically about finding a new place to live and a new profession.

“..he experienced stress when thinking about the future, specifically about finding a new place to live and a new profession.”

The ICF Assessment Sheet additionally shows the **environmental factors that presented both opportunities and obstacles**. Opportunities or facilitating environmental factors included an adapted car that was ordered, a wheelchair sports club that was identified in his hometown, and an encouraging statement of support from Martin's former employer who offered Martin a possible vocational opportunity. Additional supports came from his family and friends.

Unfortunately, there were also other environmental factors that presented Martin with obstacles to his community reintegration – the insurance payments for both his adapted car and the Swiss-Trac™ were delayed and had to be clarified.

The items documented on the ICF Assessment Sheet served as the basis for creating a functioning profile, that in turn served as the basis for setting goals and for identifying targets to be addressed by interventions during Martin's new Rehab-Cycle®.

Goal-setting/Determination of Intervention Targets



At the end of Martin's first Rehab-Cycle® it was clear that the next phase of rehabilitation would need to intensify its focus on community reintegration. While his previous long-term global goal of independent living remained unchanged in Martin's new Rehab-Cycle®, his service-program goal was redefined as 'transition to community'.

Setting Goals Oriented Toward Independent Living

To achieve this new **service-program goal** Martin and his rehabilitation team set short-term **cycle goals** i.e. 'vocational reintegration', 'independent mobility and housing', 'recreation and leisure', and 'optimized motor functioning' corresponding to cycle goal 1, 2, 3 and 4 respectively. Achieving this service-program goal served as another step toward meeting Martin's **global goal** of independent living. All of these goals were documented in the **ICF Categorical Profile**, a visual depiction of a person's functioning status at the time of assessment showing the qualifier values for selected ICF categories considered relevant to the person's case.

See "Table 2: ICF Categorical Profile" on page 30 at the end of this booklet.

The cycle goals reflected the issues that Martin and his rehabilitation team felt were essential to address in order to ensure success in independent living and community reintegration. These issues were:

- **Employment:** To build upon the gains from the vocational rehabilitation (VR) efforts in Martin's first Rehab-Cycle®, and to clarify Martin's potential avenues for employment
- **Housing:** To clarify the availability of accessible and desirable housing
- **Mobility:** To be independent in manoeuvring the wheelchair in any location, as well as in driving and using various means of public transportation

- **Recreation:** To identify Martin's interests in recreation and leisure activities in addition to sports, and to clarify the availability of accessible sporting and other recreational activities in his home community

To advance vocational reintegration (cycle goal 1), Martin's decision-making competencies still needed improvement, suitable career options had to be identified, and ensuring employer support was vital for concrete planning of Martin's vocational future.

Achieving cycle goal 2 'independence in mobility and housing' was multi-fold. Becoming independent in mobility required further wheelchair training on a variety of terrain, training on driving an adapted car, and securing the required license for driving an adapted car. Assistive devices such as a Swiss-Trac™ and an adapted car had already been ordered, but cost coverage had still not been confirmed by the insurance company. With regard to housing, it was essential that Martin funnel his decision-making competencies and the energies harboured in stress toward finding a suitable place to live.

In order to facilitate Martin's participation in sporting and other recreational and leisure activi-

ties (cycle goal 3), Martin's exercise tolerance, muscle and movement functions, and the ability to maintain a sitting position had to be improved. In addition, contact with a local sports club for the disabled had to be initiated.

Fundamental to achieving success in cycle goal 4 'optimized motor functioning' was strengthening Martin's immune response to various irritants and pain management. For example, Martin often experienced increased spasticity and muscle stiffness as a response to recurring urinary tract infections. Managing pain would help increase Martin's range of motion, and would enable him to intensify physical training. Moreover, helping Martin to perceive his body in a more positive light was expected to contribute to the optimization of his motor functioning.

For each of the cycle goals **intervention targets** were established. Intervention targets are ICF categories outlined in the ICF Categorical Profile that correspond to goals set and are intended to be addressed with specific interventions. The intervention targets and the corresponding goals identified for Martin, as well as the interventions provided in the last weeks before his discharge follow the spirit of the transitional rehabilitation approach. See box 2 on page 18.

Box 2 | The Transitional Rehabilitation Approach¹²

The transition of a person with spinal cord injury (SCI) from a hospital or rehabilitation centre back to his or her community marks a major milestone in the rehabilitative process and in the life of the individual. In addition to the sudden discontinuity of service upon discharge, and the often lengthy stay in a traditional inpatient rehabilitation setting – sometimes characterized by the isolation from family and friends, an artificially regulated environment, periods of non-productive time alone, and the adoption of a dependency role – can contribute to psychosocial difficulties a person faces after discharge, including decreased community participation. Moreover, the services available in the community tend to be fragmented, thus further impeding the successful transition to the community.

To counter the negative impact of often ineffective community integration planning in traditional rehabilitation settings, transitional rehabilitation programs (TRP) have been developed. The TRP approach is intended to bridge primary inpatient rehabilitation and tertiary community rehabilitation. TRP begins before discharge and takes place primarily in the person's home or in a home-like environment away from the hospital setting. It aims to reduce the time spent in the hospital, ensure continuity of care from the inpatient setting to community setting, reduce fragmentation of service provision, increase a person's control over his or her own rehabilitation, and ultimately enhance community reintegration.

Once a transitional rehabilitation approach is decided on, the person and the multi-disciplinary rehabilitation team develop a mutually agreed individualised TRP plan that includes concrete goals and the interventions and strategies to achieve these goals. The TRP plan is flexible and can be modified according to the person's evolving situation. Issues that are generally addressed through TRP interventions include, but not limited to housing, mobility, transportation, acquisition of assistive devices and equipment, interpersonal relationships and sexuality, and employment.

The complex and multidisciplinary nature of TRP interventions necessitates that each stakeholder in the process is invested and actively involved. Not only do the rehabilitation professionals provide the respective services and establish supporting links to community resources, the person must also take an active role in finding community resources and establishing community links, and take the lead in re-establishing his or her role in the family and society. In addition, the person's family needs to be adequately prepared and included in the transition process.

From a systems perspective, the transitional rehabilitation approach is seen as process- and outcomes-oriented and as a possibility for reducing health care costs, shortening hospital stays, decreasing re-admission rates, and improving long-term outcomes of those undergoing transition to the community.

Assignment and Intervention



The intervention targets identified for Martin's second Rehab-Cycle[®] was assigned to specific members of the rehabilitation team – physician, physical therapist, occupational therapist, psychologist, social worker, and vocational rehabilitation (VR) counsellor to provide appropriate interventions to address the targets.

Traditional Interventions

The physical therapist focused on the interventions related to the body functions and the movement-oriented intervention targets corresponding to Martin's cycle goals of independent mobility and optimized motor functioning. For example, the physical therapist provided regular **manual therapy** to help alleviate the back and upper extremity pain Martin experienced. **Daily endurance and circuit resistance training** was implemented to build up Martin's exercise tolerance and strengthen his muscle power in the body region above the level of his injury.

In the previous Rehab-Cycle[®] hippotherapy alone showed minimal success in reducing Martin's spasticity. In the new Rehab-Cycle[®], the physical therapist implemented **aquatic therapy** and

another trial with hippotherapy together with acupuncture provided by Martin's physician.

With regard to movement-related intervention targets and mobility, the occupational therapist provided, for example, **wheelchair training outdoors**, including the use of Swiss-Trac[™] to help Martin reinforce his ability to manoeuvre his wheelchair around obstacles and over various terrain. This was especially important, since his family lived in a hilly and forested environment.

Also essential for community reintegration and Martin's independence in mobility was the ability to drive an adapted car. Therefore, the occupational therapist also implemented a program of driver's training that culminated in a driving test.

“Also essential for community reintegration and Martin's independence in mobility was the ability to drive an adapted car.”

"Non-medical" Interventions

While the medical and traditional therapies were fundamental to regaining Martin's independence, other “non-medical” interventions were equally vital to successful transition to the community

and independent living. These interventions addressed Martin's cycle goals that focused on employment, recreation and leisure, transportation and housing.

“..non-medical” interventions were equally vital to successful transition to the community and independent living.”

For instance, Martin work with a **psychologist** on further improving his decision-making skills and dealing with the stress related to not knowing how his life would be beyond rehabilitation, especially with regard to employment and housing. In weekly counselling sessions Martin and the psychologist also worked on a number of relevant personal factors, including Martin's negative-leaning perception of his body.

possibly arrangements for wheelchair-accessible housing.

Finally, **VR counselling** continued to play a major role in facilitating Martin's return to work, one of the most important aspects of his community reintegration. Following up on Martin's completion of the first phase of VR (as described in case 7), the VR counsellor guided Martin through the last two phases of VR i.e. phase 2 'clarification and decision phase' and phase 3 'integration phase'. Phase 2 built upon the successes of phase 1 – greater trust, increased motivation and improved decision-making skills – aimed at developing new skills that can compensate for lost resources, deciding on the career path to pursue, and establishing a plan for phase 3, the integration phase. Phase 3 involved searching for employment or an apprenticeship.

Environmental factors played an important role in achieving Martin's targets for independent transportation and housing. To facilitate Martin's mobility, the **occupational therapist together with the social worker** took the lead to find and order assistive devices, such as the Swiss-Trac™, and acquire an adapted car, as well as to clarify the cost coverage for the devices and adaptations of the car. They also worked closely on clarifying

“VR counselling continued to play a major role in facilitating Martin's return to work, one of the most important aspects of his community reintegration.”

The VR interventions included the following:

- Participation in an English course as initiated in the previous Rehab-Cycle®
- Weekly VR counselling sessions, during which the VR counsellor provided Martin with encouragement and support in the exploration of his vocational options, and Martin was asked to write an essay on what he considered an ideal work day
- A cognitive evaluation in order to determine the professions that might be suitable for him

he should take and the possibilities he should explore. He was insistent, and the cognitive test was conducted.

The aforementioned interventions and the rehabilitation professionals responsible for providing the interventions was documented on Martin's **ICF Intervention Table**.

See “Table 3: ICF Intervention Table” on page 32 at the end of this booklet.

The VR counsellor was initially reluctant to conduct the cognitive evaluation due to concerns that such a test could produce negative results and consequently hinder Martin's progress. However, Martin felt that such a test would offer him a clearer picture of the vocational direction

At the end of Martin's second Rehab-Cycle® and first rehabilitation, an evaluation of his functioning status revealed which intervention targets were met and which still required improvement.

Evaluation

Shortly before discharge to the community, Martin's functioning status was re-evaluated, a final rating of the intervention targets based on the evaluation was given and compared to the rating given in the first assessment to determine Martin's goal achievement.

The evaluation at the end of Martin's Rehab-Cycle® showed that Martin and his rehabilitation team were successful in achieving the majority of his goals.

Goal Achievement in Cycle Goal 1 – Vocational Reintegration

In the course of phase 2 (the clarification phase) of vocational rehabilitation (VR), Martin made significant advances, often due to his own initiatives. For example, he pushed for conducting a cognitive evaluation with the hope that it would reveal new vocational avenues. His hopes were later justified as the results revealed cognitive resources of which he had not been previously aware. Based on the results of the cognitive evaluation, the VR counsellor encouraged Martin to return to school in order to meet the prerequisites for attending university – an option Martin had never before considered. The encouraging results gave Martin's self-esteem a great boost.

In contrast to the first Rehab-Cycle®, Martin had become pro-active in his rehabilitation. He took the initiative and reached out to his network of friends and colleagues. Discussions with a friend sparked an idea for a new career – becoming a vocational coach for others who are dealing with similar issues. Martin also contacted his former employer to explore possible employment options. This resulted in a chance of returning to this employer on the condition that Martin clearly defines the position he would like to enter and makes a proposal for reintegration. Both of these

prospects – vocational coach and returning to the previous employer – were very promising.

During the course of VR phase 3 (the integration phase) Martin and his VR counsellor discussed and acted on these new vocational options. Despite the positive results of the cognitive evaluation, Martin made clear that he had no interest in returning to school. Regarding the offer from his former employer, a plan was developed in which Martin committed to start working at a 30% full-time equivalent six weeks after discharge from the rehabilitation centre. At the same time, Martin also applied to take a basic course on vocational coaching. This 6-month training would enable him to provide peer coaching to those, like himself, who are facing obstacles to employment either due to disability or social circumstances.

Martin had come a long way since his first Rehab-Cycle®. His decision-making capacity had increased tremendously, as evident in his pro-active approach and the choices he made in the current Rehab-Cycle®. Sparked by new vocational opportunities, Martin was in a very good position to begin a new life in his old community.

Goal Achievement in Cycle Goal 2 – Independent Housing and Mobility

Prior to his accident, Martin had lived in a shared 5th floor apartment with a friend. Without an elevator, this apartment was not wheelchair-accessible, and it was clear that he would need to move. He thought of two possibilities – finding a new wheelchair-accessible apartment with his friend or looking for a place for himself alone. While Martin took responsibility for his apartment search, he had difficulties making a decision on which path to follow. After much discussion with the social worker and psychologist, Martin decided on the option of living alone. His search, though time consuming, was successful, and he found a wheelchair-adapted three-room apartment that needed very few modifications.

Regarding his goal of independent mobility, Martin required both a driver's license and an adapted car. Martin successfully completed his driver's training and passed the driver's examination shortly

before his discharge. At the beginning of the Rehab-Cycle® Martin's car had been ordered, but insurance coverage for the adaptations had not been confirmed. By the end of the Rehab-Cycle® the insurance payment had been confirmed and his car was adapted to his needs.

Issues of insurance coverage for the purchase of a Swiss-Trac™, the device that Martin needed to increase his wheelchair mobility in the hilly and forested area where he and his parents resided, remained unresolved at the end Rehab-Cycle®. While an order had been placed, the insurance company denied payment, presenting Martin with a financial burden that also limited his community participation. Without the Swiss-Trac™, the choice of community activities that he would be able to participate in was reduced. Fortunately, the Swiss Paraplegic Foundation agreed to subsidize the purchase of the device.

Goal Achievement in Cycle Goal 3 – Recreation and Leisure

During the course of Martin's rehabilitation, he was exposed to a variety of sporting activities that included swimming, team sports and hand-biking. Given that his swimming skills had already been underdeveloped prior to the accident and a fear of the water developed after his injury, Martin showed little interest in swimming. Hand-biking, on the other hand, thrilled him. Martin's interest

in hand-biking was so fervent that he began training on his own to improve specific muscle and movement functions necessary for the sport. He considered purchasing a hand-bike, and upon his return home, he planned to contact a local wheelchair club to further pursue the sport of hand-biking.

Goal Achievement in Cycle Goal 4 – Optimized Motor Functioning

Despite tremendous improvements in Martin's physical functioning, he continued to suffer from pain and spasticity at the end of his Rehab-Cycle®. Although the location of pain shifted from his shoulder to a location closer to his spine, the

manual therapy intended to alleviate the pain proved to be ineffective. Likewise, neither aquatic physical therapy, hippotherapy nor acupuncture was able to significantly reduce Martin's spasticity. Cycle goal 4 was therefore not achieved.

The results of the evaluation can be seen at a glance on the **ICF Evaluation Display** prepared at the end of Martin's Rehab-Cycle®. The ICF Evaluation Display is a visual depiction of the change between Martin's functioning status before and after intervention, showing whether the goal

values set for each intervention target were reached.

See *"Table 4: ICF Evaluation Display" on page 34 at the end of this booklet.*

Discussion



"I live with the things that I have and those that I can do, not with the things that I have lost."

Martin, after his discharge

The road from an accident and spinal cord injury (SCI) to a person's reintegration into his pre-accident community represents a dramatic transformational process. SCI not only changes the body and what the body can do, it also changes the whole life of the injured person. These changes,

that are different for different people, have to be considered in rehabilitation as well as in the transition to the community. Interventions need to be individually tailored, allowing for enough flexibility to be able to adapt to the process and changes that occur along the way. Furthermore, rehabilitation professionals planning reintegration interventions need to consider a wide variety of factors that could promote or hinder progress in the transition to the community.^{2,7,8,9,11}

"Interventions need to be individually tailored, allowing for enough flexibility to be able to adapt to the process and changes that occur along the way."

The rehabilitation of persons with SCI and community reintegration presents numerous challenges that extend beyond the recovery of physical functions.¹⁰ Rehabilitation ultimately aims to optimize the person's community integration.^{1,2,3} Considering this, the continuity of care from inpatient rehabilitation to service provision in the person's chosen community is vital,¹² and often requires additional, non-medical interventions in order to achieve the best outcomes.

Although this case of Martin does not detail the services provided after discharge, Martin and his rehabilitation team worked closely the last few months of rehabilitation to prepare him for his transition to the community. Martin and his rehabilitation team were successful in securing Martin's independence in activities of daily living and self-care (as described in case 7), mobility, housing, and employment – all key elements of successful long-term reintegration to the community.^{8,9} Not only did Martin find a wheelchair-

accessible place to live, he acquired a driver's license, purchased an adapted car, and made concrete arrangements for returning to work part-time at his previous employer as well as training for a new career as a peer vocational coach.

While Martin's community reintegration-focused rehabilitation centred on employment, mobility, housing, recreation and motor functioning, for others with SCI, a set of different issues may be relevant e.g. interpersonal relationships and sexuality, education, substance abuse, and emotional problems, subsequently necessitating different interventions.²

Martin's accomplishments were possible through the **goal-oriented, person-tailored, multidisciplinary**

nary approach taken in his rehabilitation. Most importantly, Martin and his rehabilitation team explicitly focused his goals and corresponding interventions toward life after inpatient rehabilitation. The interventions included medical and traditional therapeutic interventions as well as non-medical interventions, such as vocational rehabilitation counselling, driver's training and social work consultations. Moreover, Martin was encouraged by the rehabilitation team to make conscious decisions and take an active role in directing his rehabilitation. Research has shown that **a person's feeling of control over his or her life is contributory to successful community reintegration.**^{1,8,10,11,12}

Annex

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

“...focused his goals and corresponding interventions toward life after inpatient rehabilitation.”

Despite major achievements toward community reintegration, there remained issues that Martin had to deal with after discharge from the rehabilitation centre. Martin still experienced pain and unrelenting spasticity. This would require him to access medical and therapeutic services in the community. For persons like Martin with SCI and other disabilities, knowing what services are available in their community would facilitate independent living. Characteristic of independent living programs are referrals to services in the community and peer mentoring. Peers are a great source of knowledge about available services and resources, as well as how to best access them.^{1,2,8,10,11,12}

Martin's case exemplifies the potential for persons with SCI to live independently in the community. In the face of a life-altering event such as a SCI, Martin was well on his way to re-establishing his role in the community and renewing his life. In Martin's own words three weeks after his discharge:

“Everything is working out well. I've got so much to do, appointments about my insurance and with others who are supporting me... the rest of the time I meet my friends and family. It's so much better than being bored with nothing to do... The new flat is great, and I really enjoy living by myself, although some things still have to be adapted to make life easier, like making the kitchen and bathroom cabinets more accessible so that I can reach them... Thinking about my fear of returning home, I now realise that things generally work out all right. And if not, I can accept it as well. I've found a calmness and patience in me that I never had before.... I want to start the training as a vocational coach as soon as possible. I can't describe how excited I am about this – to be helping others who are in a similar situation as I was... I'm really looking forward to the future...”

Table 1: ICF Assessment Sheet

ICF Assessment Sheet	
<p>Patient Perspective</p> <ul style="list-style-type: none"> - I can't sleep through the night - I have muscular pain in the upper body when moving - Motor activity and sensitivity in my legs are problematic - Emptying my bladder and bowel does not work as I would like - I have more spasticity when I am stressed out and when I have a urinary tract infection - Sometimes the skin on my buttocks get red, otherwise I have no skin problems 	<p>Body Functions & Structures</p> <ul style="list-style-type: none"> - Immune response is insufficient - Power of isolated muscles and muscle groups of the upper extremity is not a problem - Muscle tone functions – spasticity is increasing - Involuntary movement reaction functions are impaired - Skin sometimes reddened
<p>Health Professional Perspective</p>	<p>Activities & Participation</p> <ul style="list-style-type: none"> - I am able to wash, dress and care for my body by myself - I am independent in transferring myself - Manoeuvring the wheelchair through the city is no problem, but is almost impossible in hilly areas or in the forest - I go home every weekend - I go out with my friends when I am at home - Doing sports is important for me - I have to find a place to live - Remunerative employment is not yet clarified - I want to become independent in the community
	<p>Environmental Factors</p> <ul style="list-style-type: none"> - Medication - Housing in the community is not yet clarified - Adapted car and Swiss-Trac™ have been ordered - Insurance payment for the adapted car and the Swiss-Trac™ is delayed and requires clarification - Strong support from family and friends - Support from former employer - Wheelchair sports club exists in the hometown
	<p>Personal Factors</p> <ul style="list-style-type: none"> - 26 year old single man - Insecurity about his future after discharge is stressful - Currently has no ideas for a new profession - Very accepting of his disability - Has grown to be very patient - Perception of his own body tends to be negative - Decision-making skills require further improvement

Table 3: ICF Intervention Table

ICF Intervention Table													
	Intervention target	Intervention	Doc	PT	OT	Psych	SW	VR	Other	First value	Goal value	Final value	
Body function/structure	b28013	Pain in back		X						2	1	2	
			Manual therapy										
			Medication	X									
	b28014	Pain in upper extremity		X						2	0	0	
			Manual therapy										
			Medication	X									
	b455	Exercise tolerance functions	Endurance training		X						0	0	0
	b7300	Power of isolated muscles and muscle groups	Muscle power training with equipment		X						0	0	0
	b7305	Power of muscles of the trunk	Muscle power training with equipment		X						1	1	1
	b7353	Tone of muscles of lower half of body	Hippotherapy		X								
		Acupuncture	X							2	1	2	
		Aquatic therapy		X									
b755	Involuntary movement reaction functions	Movement reaction training		X						1	1	1	
d177	Making decisions	Psychological counselling				X				1	0	0	
d240	Handling stress and other psychological demands	Psychological counselling				X				1	0	0	
d4153	Maintaining a sitting position	Movement reaction training		X	X					1	1	1	
d460	Moving around in different locations	Wheelchair training outdoors			X					2	0	0	
d465	Moving around using equipment	Wheelchair training outdoors			X								
		Training with Swiss-Trac™			X				X	1	0	0	
d4751	Driving motorised vehicles (adapted vehicle)	Driver's training including examination			X				X	1	0	0	
d770	Intimate relationships	Psychological counselling				X				4	3	3	
Environmental factors	d850	Remunerative employment	Vocational rehabilitation counselling and training (English course)					X	X	3	1	1	
	d920	Sports	Sport activities		X					3	2	2	
	e1101	Medication/Drugs	(intervention itself)	X						2+	2+	2+	
	e1201	Assistive products...for personal...mobility	Swiss-Trac™ and adaptation of car				X			2+	4+	4+	
	e155	Design, construction... of buildings for private use	Analysis, counselling and arrangements for adaptations			X							
		Coordination of payment for adaptations				X				2	4+	3+	
e580	Health services, systems and policies	Clarification of payment for Swiss-Trac™ and adaptation of car					X			2+	4+	3+	
pf	Perception of and dealing with own body	Psychological therapy				X				2	0	0	

Table 3. ICF Intervention Table; Doc = Physician; PT = Physical Therapist; OT = Occupational Therapist; Psych = Psychologist; SW = Social Worker; VR = Vocational Rehabilitation Counsellor. 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 actual 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 factors, the plus sign next to value indicates a facilitator.

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Questions

- Q1. **How has the concept of community reintegration been described?** (Refer to page 8 for the answer.)
- Q2. **The International Classification of Functioning, Disability and Health (ICF) contains chapters and domains that are relevant to community reintegration. Name a few of them.** (Refer to page 8 for the answer.)
- Q3. **Give 2-3 examples each of factors that can facilitate and hinder the transition to the community.** (Refer to page 10 for the answer.)
- Q4. **Considering Martin's case, describe the issues that should be addressed in the community reintegration of a person with SCI.** (Refer to page 16 for the answer.)
- Q5. **What role did “non-medical rehabilitative interventions” play in Martin's case?** (Refer to page 20 for the answer.)

ICF Case Studies Website
www.icf-casestudies.org



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