

8

Case Studies

Interventions in Community Reintegration:
Vocation Through Recreation



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Case Study 8: Interventions in Community Reintegration: Vocation through Recreation

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Individuals with spinal cord injuries face extraordinary challenges beyond adapting to the physical aspects of their injuries. The overarching goal of rehabilitation has been described as reintegration into the community.¹ From this perspective, disability can be understood in the context of a biopsychosocial model, which includes biological, individual and social elements.² With such a comprehensive rehabilitation objective there are not only challenges to be met regarding physical and functional limitations, but also importantly, problems to be faced in a person's participation within his or her physical and psychosocial environment.

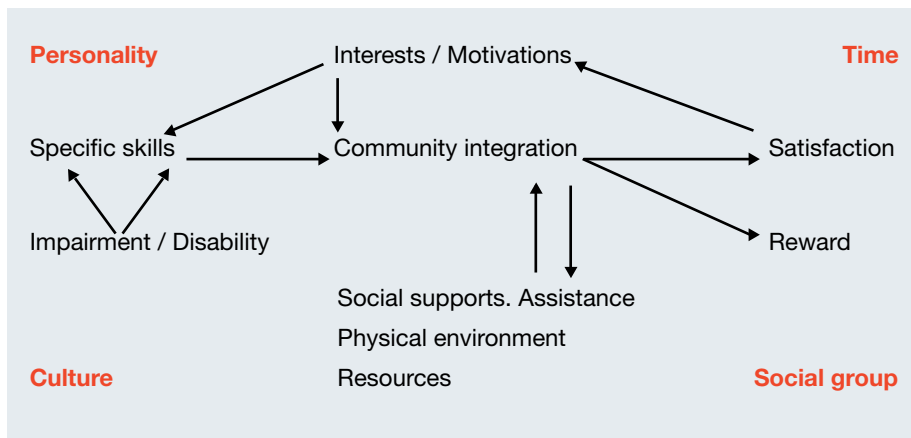
SCI causes tremendous social and participatory disruptions in the daily lives of those it afflicts. Community reintegration (also sometimes called community integration) is the process by which such disruptions are minimized, allowing and enhancing a patient's return from a hospital or rehabilitation

center to his or her community. This process of preparing for community integration can begin early in rehabilitation process and necessarily involves many issues, disciplines and stakeholders. Box 1 offers some discussion on how community reintegration has been described and defined.

Box 1: Defining community reintegration in persons with spinal cord injuries and other disabilities

Community reintegration is a complex concept that has been defined as “the assumption/resumption of [a] culturally and developmentally social role.” While the WHO's ICF doesn't specifically define community reintegration, many categories within it are relevant and useful in framing what the process involves. Of the major life areas, education, work/employment and economic life are addressed. Other important areas are community life, recreation and leisure, religion and spirituality, human rights, political life and citizenship. Five distinct domains have been described that frame the concept of community reintegration around physical independence, mobility, occupation, social integration and economic self-sufficiency.

Deficits surrounding reintegration are also not entirely easy to describe or quantify. Norms in post-industrial, multicultural societies are often elusive and unclear, covering a range of social behavior at multiple levels. Nevertheless, for those with severe disabilities such as SCI, it is obvious that community integration is a challenge. Reintegration thus involves a multifaceted relationship of internal and external 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:



Given the complexity of community reintegration, the challenge for rehabilitation teams is to offer the optimal guidance, support and training to an SCI patient that provides him or her with the best opportunity to return to and live in his or her community while minimizing the experience of disability.

The degree of disability in most activities of daily living is significantly associated with the severity of an injury. However, neither the type nor the severity of an SCI is a good predictor of long-term outcome. The early stages of medical rehabilitation frequently focus on the improvement of injury related physical functions. Nevertheless, interventions focusing only on physical functioning would not prepare SCI patients adequately for community reintegration after they are discharged from the hospital.

Following an extended period of hospitalization, community reintegration will present a range of obstacles for SCI patients to overcome; rehabilitation teams are needed to help them navigate these obstacles (see Box 2 on page 17). Successful strategies that address community reintegration issues depend not only on a patient's physical functioning, but also on many interrelated contextual facilitators and barriers.

Issue areas that frequently need to be considered include:

- **House and home** — How will housework, outdoor maintenance and home upkeep be undertaken?
- **Fitness** — Will the patient be able to maintain and/or improve his or her physical fitness?
- **Nutrition** — How will meals be prepared? How will the shopping be done?
- **Mobility** — What means of transportation are available? Facilitation for driving (independent mobility)
- **Recreation** — What activities are accessible? (Art and theater, games and other cultural events; athletic activities also prove particularly valuable.)

These can improve both physical fitness and self-esteem while raising society's expectations of people with disabilities.

- **Employment** — Carrying out family and domestic tasks as main occupation, selecting a trade or profession, job-hunting.
- **Interpersonal relations and sexual relationships**
- **Community** — Life in public space

- Improving independence in selfcare and community access
- Facilitating equipment provision
- Consolidation of knowledge relating to living with SCI
- Liaison and advocacy with community services
- Psychological support

For example, to achieve employment vocational strategies need to take into consideration existing resources, needs (including additional education and/or developing possibilities for new careers), and a patient's own goals (which may change or develop over time). Mobility and adequate transportation can also have a significant impact on participation and recreation by increasing access to them. Limited community resources, on the other hand, can result in less access to medical and/or social services, potentially undermining other aspects of reintegration due to unmet needs.

Most often, a group of specific interventions will be required to deal with the range of facets and issues that comprise community reintegration. A tailored, client-oriented approach to each patient that develops an appropriate set of inter-

ventions based on his or her needs and resources will offer the best support. While individual living situations will vary, interventions for community reintegration will require specific multidisciplinary interventions targeting education; social support; health maintenance and pain management; and options for recreation. An approach that addresses all of these can all do much to ease the shift back to community life. Each patient will possess a variety of facilitating factors and barriers that can either help or hinder the transition.

Examples of facilitating factors may include:

- Support of family and friends
- Peer mentoring
- Returning to a familiar community or neighborhood
- Availability of accessible and desirable housing
- Access to personal means of transportation
- Community resources (including medical and social services)

While barriers that can hinder this transition include:

- Lack of general physical accessibility

of services, living arrangements, etc.

- Low income level and high costs of services, supplies and equipment
- Chronic pain and other health-related complications
- Negative and limiting societal attitudes
- Poor attitude of rehabilitation professionals

Case Study 7 introduced Martin, a 26-year old survivor of a serious motorcycle accident who was diagnosed with a spinal cord injury (ASIA A) at Th7. In the span of this study, Martin initiated his vocational integration, completing the activation phase where the first steps in defining a career and securing employment are made through enhancing motivation and trust.

This case study continues Martin's story and aims to illustrate how his rehabilitative interventions helped facilitate his transition from the hospital back into the community and prepared him for long-term reintegration. A number of intervention strategies that focus on independent mobility, housing, recreation and leisure will be described, in addition to concluding Martin's vocational training.

Martin's story revisited

In the beginning of Martin's rehabilitation the initial steps with respect to community reintegration were traced towards the longer-term goal of reestablishing a profession. 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 began planning his return home.

"...having a job that he enjoyed was a central element to both his overall human functioning and his reintegration into the community."

Case Study 7 described his experiences at the start of vocational counseling. At this point in the rehabilitative process the focus remained on promoting both trust and his decision-making capacity. This would later lead to a clarification of career perspectives and, finally, securing a job. This end was critical for a young person such as Martin. Employment meant more than simply financial security — having a job that he enjoyed was a central element to both his overall human functioning and his reintegration

into the community. Stable employment would ultimately contribute not only to Martin's financial security and independence, but to his self esteem and overall life satisfaction.

At the conclusion of Martin's first phase of rehabilitation (and of Case Study 7) with its focus on independence in daily living and the start of vocational counseling, Martin had made some significant steps towards his goals (increasing his trust, decision-making capacity and beginning vocational counseling). Fundamentally, he had established a relationship of trust with his vocational counselor that would do much for the phases of counseling to come. He had also successfully completed a typing course and a computer class — and done extremely well in both.

"...relationship of trust with his vocational counselor that would do much for the phases of counseling to come."

While the latter course had made clear his disinterest in working strictly with

computers, it nevertheless increased his motivation to move forward in exploring other possible career paths. This was well illustrated by his initiative in enrolling in an English as a Foreign Language course and beginning to think about possible career alternatives (e.g. inquiring at his former employer if employment possibilities existed).

Still, this remained only one aspect of community reintegration. There were challenges in other areas of his life that he and his healthcare team needed to address as well.

It had been four months since the accident. The past two months of rehabilitation had concluded without any complications and Martin had gained independence physically as well as in activities of daily living within the rehab center. He was given a discharge date of two months from this time-point, and his reintegration into his community needed to be addressed. This raised issues regarding participation that needed to be attended to and the future that lay beyond the rehabilitation center continued to worry Martin.

“The insecurity of my future situation is my biggest problem right now; it also defines my most important goals. When I think about my leaving the rehab center, there is so much that is unclear – my work, my living situation. It’s a real stress for me.”

–Martin, two months prior to his discharge

Over the course of his first Rehab Cycle, vocation played an important role. Now two months before his discharge, Martin and his healthcare team would turn their attention to additional preparations for his reintegration. A new Rehab Cycle would support his critical first steps in transitioning back to his community.



The Team's Assessment

The assessment of this actual Rehab Cycle highlighted a number of outstanding problems, as well as strengths gained up to this point in Martin's rehabilitation. Body functions and structures related to movement continued to present with spasticity, pain and irritated skin. Each of these contributed to making Martin's motions difficult.

While he was independent in many activity areas (transferring himself, wheelchair navigation, washing and dressing, etc.), Martin remained concerned about his future housing situation. He had until the accident lived with a long-term roommate in a fifth-floor apartment. This apartment was not wheelchair accessible and he would have to move, but to where and under what conditions were still not clear.

“...he would have to move, but to where and under what conditions were still not clear.”

While his mobility in a wheelchair was independent within a city, it continued to present a problem in hilly and forested areas — this included the area where his family resided, making visits a challenge. Within the area of participation, Martin was very engaged, returning home every weekend and going out with friends while there. Athletic activities continued to be a main interest and Martin was clear in his desire for independence in his community. However, as the vocational counseling undertaken in the previous Rehab Cycle had not yet been completed, remunerative employment remained unclear.

Martin's personal factors offered some perspective on both his strengths and weaknesses, and how they factored in his efforts at reintegration. On the positive side, he was very accepting of his disabled situation and had gained a great deal of patience through the months of rehabilitation. On the other hand, his ability to make decisions remained weak and thoughts of the future caused him stress, both with regard to housing and a profession — key aspects of community reintegration.

There were also environmental factors that presented both opportunities and obstacles. Regarding the former, an adapted automobile had been ordered, a wheelchair sports club had been identified in his hometown and there had been a statement of support from Martin's former employer offering him

a possible vocational opportunity. He also had much support from family and friends. But other factors presented obstacles — insurance payments for both his car and the needed Swiss Track™ had been delayed and were not yet clarified.



Health professionals' perspective			
Patient's perspective	I can't sleep continuously	I am able to wash, dress and care for my body myself	I go home each weekend
	I have movement related pain in the muscles of my upper body	I am independent in transferring myself	I go out with my friends when I am at home
	Motor activity and sensitivity in my legs do not work	Moving the wheelchair through the city is no problem, but in hilly or wooded areas it is impossible	Remunerative employment is not clarified
	Emptying bladder and bowel does not work	I have to search for a place to live	Sports are an absolute must for me
	I have more spasticity when I am stressed out and when I have a urinary tract infection		I want to become independent in the community
	Sometimes my skin is a little reddened at the bottom		
Health professional			
Body Functions/ Structures	Activity	Participation	
Immune response insufficient	Maintaining a sitting position is impaired	Intimate relationship restricted	
Power of isolated muscles and muscle groups	Independent in mobility	Remunerative employment is not clarified	
Muscle tone functions- spasticity increases	Moving the wheelchair over obstacles slightly impaired	Sporting activities restricted	
Involuntary movement reaction functions impaired	Driving a car is possible; a test necessary		
Skin sometimes reddened	Independent in self-care		
	Acquiring a place to live is organized by the patient		
Environmental factors		Personal Factors	
Drugs		26 years old, male, single	
Accommodation is not clarified		Used to have restrictions in close relationships	
Car is ordered, has to be adapted		Thinking of discharge and the near future is stressful	
"Swiss Track" is ordered		No idea about a future profession	
Large support of family and friends		Good acceptance of disease situation +	
Support of employer		Gained patience +	
Wheelchair sport club exists in hometown		Relation to own body –	
Payment for adaptation of car clarified by insurance		Competencies in decision making –	
Payment for "Swiss Track" not clarified			

Table 1: ICF Assessment Sheet

Goal Setting

From the previous cycle, it was clear that the next phase of rehabilitation would need to focus on community reintegration. Martin's Global Goal remained unchanged: independent living. A new Program Goal was determined as transition to community. Note that the previous Service Program Goal was defined as independence in daily living (in the rehabilitation facility). Martin had achieved this in the last Rehab Cycle. Both the healthcare team and Martin himself then identified four areas that they felt needed to be addressed:

- **Mobility** — To be independent when using the wheelchair in any location, as well as in the use of means of transportation (car, public).

- **Recreation** — What options existed and what were Martin's interests, especially to find opportunities for sporting activities?
- **Employment** — Building on the vocational counseling already begun, what were Martin's prospects and potential avenues for work?
- **Accommodation** — What type of housing was possible and desirable?

Based on these areas of concern, the following Cycle Goals were defined:

1. Vocational reintegration
2. Independence in transportation and housing
3. Development of recreation and leisure activities
4. Movement-related functions



Determination of intervention targets

For each of the Cycle Goals, intervention targets were established:

- To advance vocational reintegration, Martin's decision-making competencies needed to be improved, suitable careers needed to be identified and employer support needed to be ensured in order to develop a concept of Martin's future profession.
- Achieving independence in transportation and housing required further wheelchair training on a variety of terrain and the ability to drive an adapted car including securing an appropriate driver's license. Assistive devices needed to be ordered, including a car adapted for disabled-access and a Swiss Track™, a motorized device for increasing wheelchair mobility.

→

- Lastly, Martin's decision-making competencies and his stress regarding the future needed to be focused on finding a solution to his housing problem.
- The development of recreation and leisure activities, primarily sporting activities, were achieved through improving exercise tolerance, muscle and movement functions, the ability to maintain a sitting position, exploring specific athletic activities and initiating contact with a local sports club for disabled.
 - Intervention targets regarding movement related functions were focused on Martin's insufficient immune response (manifested for example, in Martin's recurring urinary tract infections which increased his muscle spasticity and stiffness). Pain management would increase Martin's range of motion and allow for more intensive training. Also emphasized was improving Martin's relationship with his body which, it was hoped, would contribute to increased movement functions.



Box 2: Organization of transition to community

A patient's transition from a hospital or rehabilitation center back to his or her community marks a major development in the rehabilitative process, and in the life of the individual. Extended hospital stays and service discontinuity contribute to difficulties for patients making this transition.¹⁴ In order to adequately address these issues in a context of continuing care, transitional rehabilitation programs have been developed. Such rehabilitation is intended to bridge hospital-based primary rehabilitation and secondary or tertiary community rehabilitation. It aims to reduce the time spent in the hospital, increase a patient's control over the rehabilitation environment and enhance community reintegration.¹⁵

Once a transitional rehabilitative approach is decided on, the patient and healthcare team will together negotiate the areas to be addressed and the corresponding objectives. This should be a flexible and individual process that will cover goals, a program plan and timing.¹⁶ Program flexibility will help to ensure that the goals remain relevant to the patient, that appropriate staff and resources can be made available and that supporting links to community resources can be established.¹⁷ Examples of issue areas that are often addressed through transitional rehabilitative interventions include housing, mobility, transportation, equipment, relationships and vocation.

The complex and multidisciplinary nature of interventions focusing on reintegration necessitates that each stakeholder in the process be invested and actively involved.¹⁸ The patient must formulate the process, engage in community links and, in the end, take the lead in reestablishing his or her familial and social roles. The patient's family needs to be adequately prepared and included in the rehabilitative process. A core team of healthcare professionals with corresponding expertise and role autonomy need to ensure care and service continuity and maintain an understanding of a patient's lifestyle and community issues. Finally, from a systems perspective, efforts must be made to focus on the process and both immediate and long-term outcomes, along with an emphasis on early discharge.

Table 2: ICF Categorical Profile:

Illustrates the aspects of the functioning status which are relevant for this patient.

* ICF Qualifier rates the extent of problems (0 = no problem to 4 = complete problem) in the components of body functions (b), body structures (s), activity and participation (d) and from -4 = complete barrier to +4 = complete facilitator in the environmental factors (e). In personal factors (pf), the sign + and - indicates to what extent a determined pf has a positive or negative influence on the individual's functioning. C1, 2, 3 mark the relation to Cycle Goals 1, 2, 3; SG is related to Service Program Goal, G related to Global Goal.

Assessment (4 months post-trauma)		ICF Qualifier					Goal Relation	Goal Value	
		Problem							
		0	1	2	3	4			
Global Goal: Community reintegration									
Service-Program Goal: Transition to community									
Cycle Goal 1: Vocational reintegration									
Cycle Goal 2: Independent mobility and housing									
Cycle Goal 3: Recreation and leisure									
Cycle Goal 4: Optimized movement functions									
ICF categories									
b134	Sleep functions		1					-	
b152	Emotional functions		1					-	
b265	Touch functions					4		-	
b28013	Pain in back					4	CG4	1	
b28014	Pain in upper limb					3	CG4	1	
b415	Blood vessel functions		1					-	
b420	Blood pressure functions		1					-	
b4350	Immune response			1				-	
b455	Exercise tolerance functions		1					-	
b525	Defecation functions					4		-	
b610	Urinary excretory functions					4		-	
b640	Sexual functions					4		-	
b710	Mobility of joint functions		1					-	
b7300	Power of isolated muscles and muscle groups		1				CG3	0	
b7305	Power of muscles of the trunk		1				CG3	1	
b7353	Tone of muscles of lower half of body		1				CG4	1	
b755	Involuntary movement reaction functions		1				CG3	1	
b7603	Supportive functions of arms		1					-	
b810	Protective functions of the skin		1					-	
s120	Spinal cord and related structures					4		-	
s430	Structure of respiratory system		1					-	
s610	Structure of urinary system		1					-	
s760	Structure of trunk			1				-	
s810	Structure of areas of skin		1					-	
d230	Carrying out daily routine		1					-	
d240	Handling stress and other psychological demands		1					-	
d410	Changing basic body positions		1					-	
d4153	Maintaining a sitting position		1				CG3	1	
d420	Transferring oneself		1					-	
d445	Hand and arm use		1					-	
d4554	Swimming					3		-	
d460	Moving around in different locations		1					-	
d465	Moving around using equipment		1				CG2	0	
d470	Using transportation		1					-	
d4751	Driving motorized vehicles		1				CG2	0	
d510	Washing oneself		1					-	
d520	Caring for body parts		1					-	
d530	Toileting		1					-	
d540	Dressing		1					-	
d570	Looking after one's health		1					-	
d770	Intimate relationship		1				GG	3	
d850	Remunerative employment		1				CG1	1	
d9201	Sports		1				CG3	2	
e1101	Drugs	3					CG4	2+	
e1151	Assistive products... for personal use in daily living	2						-	
e1201	Assistive products... for personal...mobility...	2					CG1,2,3	4+	
e150	Design, construction... of buildings for public use	1						-	
e155	Design, construction... of buildings for private use	1					CG2	4+	
e310	Immediate family	1					SPG	4+	
e320	Friends	1						-	
e330	People in position of authority	1						-	
e580	Health services, systems and policies	1						-	
pf	Ways of relating to oneself	1							
pf	Ways of relating to one's own history	1							
pf	Ways of relating to one's own body	1						0	
pf	Ways of relating to others	1						0	
pf	Competencies	1						+	
		Influence of personal factors							
		Positive					Neutral	Negative	

Assignment and Intervention

Each target's intervention was assigned to an appropriate member of the health-care team. In this Rehab Cycle, the intervention was assigned to Martin's physician, physical therapist, occupational therapist, psychologist, social worker and vocational counselor. Nursing staff would play a supportive role at this stage and would not be responsible for any specific interventions.

The physical therapist focused on most of the interventions related to body function/structure and the movement Cycle Goal. Regular manual therapy helped with back and upper extremity pain. Daily endurance and circuit resistance training built exercise tolerance and muscle power in the regions above the level of injury.

To influence spasticity, hippo therapy done in the previous Rehab Cycle did not show much success. Now, aquatic physical therapy and a course of acupuncture and pain management implemented by the physician were added to the regimen.

Additionally, the occupational therapist worked on activities relating to move-

ment and mobility. Movement reaction training both allowed Martin to maintain a sitting position and to optimize involuntary movement reactions. Wheelchair training and instruction on how to use a Swiss Track™ supported Martin in his mobility in varying locations. And lastly, a program of driver's training including the driving test was undertaken.

"...the occupational therapist worked on activities relating to movement and mobility."

While movement and mobility were fundamental to Martin's independence, other non-medical interventions were equally vital to achieving the longer-term goal of transitioning back to his community. This would cover aspects of the other three Cycle goals that focused on vocation, recreation and independent housing and transportation.

Martin would work with his psychologist on a number of relevant personal factors. Through weekly counseling, he hoped to improve how he related to others and how he perceived and dealt with his

Table 3 - Assignments for Martin's Second Rehab Cycle Phys = Physician, PT = Physiotherapist, OT = Occupational Therapist, SW = Social Worker

	Intervention target	Intervention	Phys	PT	OT	Spo	Psych	SW	Others	First value	Goal value	First value	
Body functions / -structure	b28013 Pain in back	Manual therapy	-	x	-	-	-	-	-	2	2	1	
	b28014 Pain in upper extremity	Manual therapy	-	x	-	-	-	-	-	2	0	0	
	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	
	b735 Muscle tone functions	Hippo therapy	-	x	-	-	-	-	-	-	2	1	2
		Acupuncture	x	-	-	-	-	-	-				
Water therapy		-	x	-	-	-	-	-					
b755 Involuntary movement reaction functions	Movement reaction training	-	x	-	-	-	-	-	1	1	1		
Activity / Participation	d4153 Maintaining a sitting position	Movement reaction training	-	x	x	x	-	-	-	1	1	1	
	d460 Moving around in different locations	Outdoor training with wheelchair	-	-	x	-	-	-	-	1	0	0	
		Training with 'Swiss track'	-	-	x	-	-	-	x				
	d475 Driving	Driving training	-	-	-	-	-	-	x	1	0	0	
		Driving examination	-	-	-	-	-	-	x				
	d770 Intimate relationship	Psychological counseling	-	-	-	-	-	-	-	4	3	3	
	d850 Remunerative employment	Vocational counseling	-	-	-	-	-	-	-	x	3	1	1
PC Course		-	-	-	-	-	-	x					
English course		-	-	-	-	-	-	x					
d920 Recreation and leisure	Sport activities	-	-	-	x	-	-	-	3	1	1		
Environ-mental	e1101 Drugs	Pain killer	x	-	-	-	-	-	-	2+	2+	2+	
	e1201 Assistive products for personal mobility		-	-	-	-	-	x	-	2+	4+	3+	
	e155 Design, construction of buildings for private use	Support in finding lodging	-	-	-	-	-	x	x	2	4+	3+	
Per-sonal	pf Ways of relating to one's own body	Psychological counseling	-	-	-	-	x	-	-	-	0	0	
	pf Ways of relating to others		-	-	-	-	x	-	-	0	0	0	
	pf Competencies in decision making		-	-	-	-	x	-	-	0	+	+	



own body. Additionally, Martin would work on building competencies in decision-making, a life skill that would have an impact on the Cycle Goals for vocation and housing, as well as in various other life areas.

“...non-medical interventions were equally vital to achieving the longer-term goal of transitioning back to his community.”

Environmental factors would be the focus of targets for independent housing and transportation. The occupational therapist together with the social worker took the lead here to find assistive devices (such as the Swiss Track™) to improve Martin’s mobility and to clarify the payment methods.

Finally, the vocational counselor continued to play a major role in preparing Martin for reintegrating into his community through the last two phases of vocational counseling. Phase 2 of vocational counseling aimed at clarifying Martin’s vocational perspectives and built on the successes of the activation

phase — greater trust, increased motivation and an improved capacity for decision-making (see Case Study 7).

This second phase was divided into three components:

- An analysis of lost and existing resources — here the development of new skills may compensate for lost resources. Following Martin’s courses from the previous cycle, he enrolled in an English as a Foreign Language course as he had planned.
- Vocational and career counseling — suggesting a number of suitable professions based on individual career experience. Here, Martin’s vocational counseling continued on a weekly basis, offering him encouragement and support in discovering job possibilities. This included essay writing on what Martin considered an ideal work day.

“...Martin’s vocational perspectives and built on the successes of the activation phase — greater trust, increased motivation and an improved capacity for decision-making.”

- Knowledge transfer — transfer of specific knowledge for specific jobs and the planning of next steps. Some-what controversially, a cognitive evaluation was given to Martin to determine what professions might suit him. This later intervention was at Martin’s own request; he felt such a test might offer him clearer directions and possibilities.

However, the vocational counselor was initially reluctant to offer the evaluation, having concerns that such a test could produce negative results, hindering Martin’s progress. Nevertheless, Martin was insistent and the test was made available to him.

The third and final phase was the Integration Phase. This included a search for employment or an apprenticeship training position.

However, the vocational intervention was certainly not the only one related to successful employment. Interventions relating to mobility and self-care would also be highly relevant to Martin’s chances at attaining and maintaining a rewarding occupation. For instance, mobility would affect his ability both to get to and from work (e.g. by driving) as well as his mobility within the workplace (e.g. through the training and use of devices such as a wheelchair and a Swiss Track TM). To improve his mobility, Martin participated among others in daily circuit training to improve his muscle-power functions. While daily physical therapy focused on the improvement of his ability to transfer himself in different situations, occupational therapy aimed to increase his outdoor mobility using different equipment.

The nurses assisted and instructed Martin in terms of self-care activities with the aim of enabling him to gain independence in these areas of functioning. Self-care interventions would also be essential to leading an independent life, which would be necessary to work. Instruction in dressing and counseling



for looking after his health are just two interventions that can easily be understood as essential to any future vocation. Also the psychologist met Martin weekly to support him in his coping strategies and self-competencies, both important aspects for his vocational situation.

During the implementation of this program the different rehabilitative interventions were adapted to the changes in Martin's functioning all the time. For example, to influence the increasing spasticity, Martin was assigned to hippotherapy — a special treatment utilizing a horse and its movements for physiological effects — and sauna, and he was also instructed to take specific body positions which should reduce the spasticity. The evaluation of effectiveness of the program was planned for two months later.

Two months later, Martin had made significant progress in multiple areas within this Rehab Cycle. The individual evaluations of each of his intervention targets are illustrated in the ICF Evaluation Table (Figure 3). First and fore-

most, his vocational training was proving successful at both building initiative and trust. Although Martin found himself unenthusiastic about working on a computer, he participated in all course sessions.

Despite a relative lack of enthusiasm with the computer course, he continued to attend, demonstrating his ability to work independently and effectively. In the end, he not only completed both sections of the course successfully, but was also able to make a decision of his own initiative to enroll in an English as a Foreign Language course.

The vocational counselor found this to be a very positive development given Martin's prior indecisiveness. It demonstrated that the process of Martin vocational clarification was under way.

Taking this development into account, the vocational trainer decided to start with the next step of vocational training in the following Rehab Cycle, the phase of clarification and decision making. From his experience, several careers are options for persons with SCI.

Box 3: The importance of non-medical rehabilitative interventions

Non-medical interventions are an essential component of the rehabilitation process aiming to reintegrate SCI patients. An individual's independence within a community has been described as having four distinct components:

- physical functioning
- perceived control of one's life
- psychological self-reliance
- environmental resources^{19, 20}

While acute rehabilitative interventions often focus on body structures, functions and a narrow range of activities (physical functioning), these are often insufficient for preparing a patient for the challenges of returning to life in his or her community.²¹

Non-medical rehabilitation often focuses on and strengthens aspects of patient participation (including self-control and self-reliance) and a patient's environmental resources. Such interventions may cover such psychosocial areas as vocation, recreation and leisure activities; opportunities for education; housing; legal rights and advocacy; adjustment issues (such as maintaining the household); interpersonal relationships (including sexuality); and psychological issues including substance abuse problems, depression and anxiety.

Non-medical interventions may begin at various times after the acute phase in a patient's rehabilitation and may last from a few weeks to a few months.²² Community reintegration programs can do much to successfully promote a patient's decreased levels of disability, decreased distress and increased personal control within a community.

Shortly before discharge to the community, an evaluation of Martin's functioning status was implemented. In a team meeting each health professional reported the results of those intervention targets for which he was responsible. A final rating of the problems in functioning was done by the team, the ICF Qualifiers were entered in the ICF Evaluation Display, and afterwards goal achievement was checked and discussed.

Cycle Goal 1: Vocational reintegration

In the course of Phase 2 (the Clarification Phase), Martin made significant advances, often on his own initiative. He pushed for a cognitive evaluation thinking that it would open new avenues of possibility for him. His hopes were later justified as the results revealed cognitive resources he hadn't been aware of. Based on the outcome of this exam, the vocational counselor encouraged Martin to return to school, believing he had a possibility of attending university — an option Martin had never before considered. This gave a great boost to his self-esteem.

In contrast to the former rehabilitation episode, Martin now became active by himself. He had been proactive in other areas, taking the initiative in reaching out to his network of friends and colleagues. This had opened even more possibilities. He contacted his former employer to explore possible employment options and discussed career issues with a friend. At his old workplace, he now had a chance of returning to a job that would need to be defined. The discussions with his friend sparked a new idea: Becoming a vocational coach for others who were having similar issues. Both of these prospects were very promising.

During the course of Phase 3 (the Integration Phase) Martin and his vocational counselor discussed and acted on these new possibilities. Despite the positive results of the cognitive evaluation, Martin made clear that he had no interest in returning to school. Regarding his former employer, a plan was worked out where he would commit to a one-third shift that would begin six weeks after his discharge from the program [or is it hospital?]. At the same time, Martin also applied to begin a

basic course on vocational coaching. This training would be undertaken over a period of six months and enable him to work with those facing obstacles to employment either through disability or social circumstances. From the last Rehab Cycle and Phase 1 of vocational counseling, Martin had come a long way in developing and realizing ideas for his vocation. His decision-making capacity had increased, evident in his proactive approach and the choices he was making. With his interest in the opportunities available to him sparked, Martin was in a very good position to begin a new life in his old community.

Cycle Goal 2: Independent housing and mobility

Prior to the accident, Martin had lived in a shared fifth-floor apartment with a friend. Without an elevator, this was not wheelchair-accessible and it was clear that he would need to move. He thought of two possibilities — finding a new apartment with his friend or looking for a place to live on his own. While Martin took responsibility for searching for an apartment, he had a difficult time mak-

ing a decision on which path to follow. After much discussion with his social worker and psychologist, he decided to live on his own. His search, though time consuming, was successful and he found a wheelchair-adapted three-room apartment that needed very little further modification.

Regarding the interventions for independent mobility, Martin required both a driver's license and a modified automobile. He successfully completed his driver's training and examination shortly before his discharge and his car was purchased and adapted to his needs. He also needed a Swiss Track™ to increase his mobility in a wheelchair in the hilly area where he and his parents resided. While an order had been placed, his insurance company denied payment, presenting him with another financial and participatory burden. Without it, the activities he could participate in would be limited. Fortunately the Swiss Paraplegic Foundation agreed to subsidize the purchase of the device.

Assessment 10.Oct.2007 (4 months post trauma)					Evaluation 21.Dec.2007 (6 months post trauma)															
Global Goal: Community reintegration										0	not evaluated yet									
Service-Program Goal: Transition to community										0						+				
Cycle Goal 1: Vocational reintegration										1						+				
Cycle Goal 2: Independent mobility and housing										1						+				
Cycle Goal 3: Recreation and leisure										3						+				
Cycle Goal 4: Optimized movement functions										1						+				
ICF categories																				
					ICF Qualifier					ICF Qualifier										
					Problem					Problem										
					0 1 2 3 4					0 1 2 3 4										
					Goal					Goal										
					Relation					Achievement										
					Value															
b28013 Pain in back										CG4					-					
b28014 Pain in upper limb										CG4					0	+				
b455 Exercise tolerance functions										CG3					0	+				
b7300 Power of isolated muscles and muscle groups										CG1					0	+				
b7305 Power of muscles of the trunk										CG					1	+				
b7353 Tone of muscles of lower half of body										CG4					1	-				
b755 Involuntary movement reaction functions										CG1					1	+				
d4153 Maintaining a sitting position										CG1					1	+				
d460 Moving around in different locations										CG2					0	+				
d4751 Driving motorized vehicles										CG2					0	+				
d770 Intimate relationship										GG					3	+				
d850 Remunerative employment										CG1					1	+				
d9201 Sport										CG3					2	+				
Influence of environmental factors on functioning																				
					Facilitator					Facilitator										
					4+ 3+ 2+ 1+ 0					4+ 3+ 2+ 1+ 0										
					Barrier					Barrier										
					1 2 3 4					1 2 3 4										
e1101 Drugs										CG4					3+					+
e1201 Assistive products... for personal... mobility										CG1,2,3					4+					-
e155 Design, construction... of buildings for private use										CG2					4+					-
Influence of personal factors										Influence of personal factors										
					Positive					Positive										
					Neutral					Neutral										
					Negative					Negative										
pf Ways of relating to the own body										SPG					0					+
pf Ways of relating to others										GG					0					+
pf Competencies in decision making										SPG					+					+

Table 4 - ICF Qualifiers range from 0 = no problem to 4 = complete problem in the components of body functions (b), body structures (s), activity and participation (d) and from -4 complete barrier to +4 complete facilitator in the environmental factors. In personal factors, the sign + and - indicates to what extent a determined pf has a positive or negative influence on the individual's functioning. 1, 2, 3 show the relations to Cycle Goals 1, 2, 3; SG is related to the Service Program Goal, G is related to the Global Goal.

Date	04.06.2007	19.09.2007	12.10.2007	14.12.2007
Feeding	0	3	5	5
Bathing	0	2	4	4
Dressing	0	2	4	4
Grooming	0	3	4	4
Subscore	0	10	17	17
Respiration	8	10	10	10
Sphincter management-bladder	0	10	10	10
Sphincter management-bowel	0	5	10	10
Use of toilet	0	4	4	4
Subscore	8	29	34	34
Motion in bed and sore prevention	0	6	6	6
Transfers: bed-wheelchair	0	1	2	2
Transfers: wheelchair-toilet-tub	0	1	2	2
Subscore	0	8	10	10
Mobility indoors	0	2	2	2
Mobility for moderate distances	0	2	2	2
Mobility outdoors	0	2	2	2
Stair management	0	1	1	1
Transfers: wheelchair-car	0	1	2	2
Subscore	0	8	9	9
Total	8	55	70	70

Table 5 - Spinal Cord Independence Measure (SCIM) Scores for Martin before, during and after the Rehab Cycles

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 were weak prior to the accident and a fear of the water developed after, he showed little interest (and likewise development) in this activity. Hand-biking, on the other hand, thrilled him the most. So much so, in fact, that he began training on his own to improve specific muscle and movement functions for the sport. He is now considering purchasing a hand-

bike and following his return home, and plans on contacting a local wheelchair club to pursue this activity.

Cycle Goal 4: Optimized movement functioning

Despite Martin's physical independence, he continued to suffer from pain and spasticity. Although the location of his pain shifted from his shoulder to closer to his spine, the manual therapy initiated was not effective at reducing it. Likewise, aquatic physical therapy, hippo therapy and acupuncture were clearly not successful at reducing Martin's spasticity.



Discussion

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

—Martin, after his discharge

The path from an accident and spinal injury to a patient's reintegration into his former community represents a dramatic transformative process. The rehabilitation involved presents SCI patients and healthcare providers with numerous challenges extending beyond those afflicting body structures and functions. Continuity of care in this process is critical and most often requires additional, non-medical interventions in order to achieve the best outcomes.

As each patient differs in their available resources, personality, barriers and injuries, these 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, healthcare workers planning reintegration interventions need to consider a wide variety of factors that could promote or hinder progress in the transition.

The application of ICF-based tools

allows for the consideration of multiple factors and perspectives in the patient's comprehensive assessment; intervention planning and implementation; and final evaluation. The Rehab Cycle offers one good framework for structuring such a transitional rehabilitative program.

For Martin and the healthcare team, their efforts while applying the multidisciplinary approach of the Rehab Cycle and its interventions offered many successes, each providing a degree of independence necessary for his long-term reintegration to his community. Martin's vocational counseling resulted in clear accomplishments and his prospects for the future looked promising. While his next steps were already established, the vocational counselor would make himself available for any career-related needs Martin might have in the future.

Martin's housing situation had been settled, with a bold, new phase beginning as he moved into an apartment on his own. In the face of this development, he found himself apprehensive and uncertain, but gathered strength from the fact that he would remain in his community. With an adapted car and driver's license, Mar-

tin's access to independent transportation was greatly increased.

Through his pro-activeness and self-discipline, he discovered new possibilities for recreation that will do much to improve and maintain not only his physical health, but also his self-esteem. In the few areas where he fell short of the set goals, more work will be needed. Lastly, regarding movement-related functions, pain management will rely on avoiding intensive stress on the spine over the next six months; it was determined that Martin will attempt to deal with the remaining spasticity on his own.

Upon completion of the final Rehab Cycle, the sum of the accomplishments can be seen as even greater than the achievement of the individual interventions. Despite Martin's normal apprehension regarding independence, the overall improvements to his physical functions, activities and participation gave him the strength, courage and capacity to leave the rehab facility. Martin's Global Goal of community reintegration was being realized. Three weeks after his discharge, Martin's own words best describe his situation:

"I just arrived from a holiday in Austria! 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.

About my fear of returning home, I now realize that things work out all right. And if not, I can accept it. I've found a calmness and patience in me that I never had before.

The new flat is great and I'm very much enjoying living on my own, although some things still have to be adapted to make life easier. For instance, the kitchen and bathroom need to be made a bit more accessible, like with cabinets I can reach and a washer and drier and other little things like that.

In a few weeks I'll start working at my old employer. He's arranged a new position for me... I don't know the details, but he says I need to have a clear idea of my future. If I have that, then he'll support me with a job. As soon as possible I want to start a vocational coach training. 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."

–Martin

Community reintegration is the final aim for the lengthy rehabilitative path that a person with a severe spinal cord injury must take. In the continuum of rehabilitation, this reintegration preparation is no less critical than other the other stages of the process and presents patients and healthcare teams with a set of multifaceted challenges.

Based on Martin's assessment and disease progression, the desired outcomes focused on vocation, mobility, housing, recreation and movement. For other patients (or even for Martin at a later stage), a set of different issues may be relevant. Relationships and sexuality, education, substance abuse and other psychological issues are all examples of other areas where interventions might be necessary for arriving at the final goal of community reintegration.

While many aspects of reintegration lie with the patient himself or herself (think of Martin's initiative), healthcare profession-

als play an equally important role in the outcome. Their efforts and the resources they bring are an integral part of the process. Flexible patient-centered and goal-focused approaches help healthcare professionals appropriately plan for and implement the difficult process of attaining community reintegration goals. Given the challenges that community reintegration presents to the patient, support and guidance from healthcare providers is essential for a smooth transition.

"While many aspects of reintegration lie with the patient himself or herself, healthcare professionals play an equally important role in the outcome."

Despite the life-altering accident, Martin was fortunate in the end to have had both the disposition and the professional assistance necessary to achieve a great deal over the course of his rehabilitation. At the conclusion of this case study, he is well on his way to rejoining his community, renewing his life and starting a new career in which he can find pleasure and take pride.

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- Q1.** Which relevant aspects related to community participation are classified in the ICF? Refer to page 4 for the answer.
- Q2.** Which contextual factors should be addressed in community reintegration in persons with SCI?
Refer to page 6 for the answer.
- Q3.** Discuss facilitators and barriers with respect to community reintegration in SCI.
Refer to page 7 for the answer.
- Q4.** What should be considered in organizing transition to community? Refer to page 17 for the answer.
- Q5.** What is the importance of non-medical rehabilitative interventions? Refer to page 27 for the answer.



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