Swiss Paraplegic Centre Nottwil
SCI organisation providing quality of SCI rehabilitation

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Swiss Paraplegic Centre Nottwil
ESCIF 18-20th May 2011
The SPF is committed to improve quality of life for disabled and spinal injured people all over the world.
Development of a closely interwoven network of services

Objective: Full rehabilitation and optimum reintegration of people with spinal paralysis

- **1975** Formation of the Swiss Paraplegic Foundation (SPF)
- **1978** Formation of the Benefactors’ Association
- **1980** Formation of the Swiss Paraplegics Association (SPA)
- **1990** Opening of the Swiss Paraplegic Centre (SPC)
- **2000** Formation of Swiss Paraplegic Research (SPR)
- **2005** Opening of the Guido Zäch Institute (GZI)
Swiss Paraplegic Centre - 2009 figures

• 6 patients' wards, 140 beds
• An outpatient care unit
• 3 operating theatres, 10 beds ICU
• 900 ~ 1000 employees (more than 35 nationalities)
• Care workload in hours (per patient per day) 5.1 h
• Care workload in days (all patients) 46'330 d/y
Paralysed?

Statistics

Causes of paralysis/Initial rehabilitation
- 43% illness
- 57% accident

Relationship between paraplegia and tetraplegia
- 46% paraplegia
- 54% tetraplegia

Causes of accidents
- 32% traffic
- 19% sport
- 16% falls
How has the SPZ organized its SCI rehabilitation?
as a unique centre, we offer to our patients services which are geared towards their specific needs, meeting high ethical standards, scientific and practical demands. The GZI's Research Team makes a central contribution towards achieving the desired targets.

on the one hand, we wish to deploy our special departments as an integrated part of the holistic care we bring to our patients; on the other hand, they are establishing themselves in the external market both regionally and nationally as important service providers in medical provision.
we run the SPC with **highly skilled, enthusiastic employees who put their patients first**, taking responsibility for the extraordinary satisfaction of our patients and their relatives. This creates a sense of purpose and personal fulfilment and **creates the energy** that it takes to contribute towards the development of the SPC in the service of the patient.

we **nurture a corporate culture which is characterised by common values and shared objectives**, namely commitment, leadership, a humane approach, cooperation and openness and fairness in our dealings with one another.
Medical cases which would benefit from treatment on a spinal injury unit

Silver JR, 2000

It has been shown that early referral of a patient with a traumatic spinal injury lessens the complications, shortens the length of time in hospital and is therefore cheaper.

Concept of no fragmentation of rehabilitation and lifelong care
What is Spinal Cord Medicine?

The Spinal Cord Injury (SCI) Medicine, addresses the:

• Prevention
• Diagnosis
• Treatment
• Management of traumatic spinal cord injury and nontraumatic aetiologies of spinal cord dysfunction by working in an interspecialty manner
Care is provided on a lifelong basis and covers related:

- Medical disabilities
- Physical disabilities
- Psychological disabilities
- Vocational disabilities
- Social aspects
- Complications

This care encompasses patients of all ages.
ICF
International Classification of Functioning, Disability and Health
Ethno- Bio- Psycho- Social Model

Health condition
(disorder or disease)

Body Functions and Structures  Activities  Participation

Environmental Factors  Personal Factors
The medical team leader is a Physical Medicine and Rehabilitation (PMR)

Why?

Physical Medicine and Rehabilitation (PM&R), also referred to as physiatry, is a medical specialty concerned with:

- Diagnosis
- Evaluation
- Management of people of all ages with physical and/or cognitive impairment and disability

Abpmr 2011
Esprm 2006
This specialty involves the diagnosis and treatment of patients with:

- Painful or functionally limited conditions
- The management of comorbidities and coimpairments

and:
emphasises on prevention of complications of disability from secondary conditions
Physiatrists are trained in:

- Rehabilitation of neurologic disorders
- Diagnosis and management of impairments of the musculoskeletal (including sports and occupational aspects) and other organ systems
- The long-term management of patients with disabling conditions
Physiatrists provide leadership to multidisciplinary teams concerned with:

maximal restoration or development of physical, psychological, social, occupational and vocational functions in persons whose abilities have been limited by disease, trauma, congenital disorders or pain to enable people to achieve their maximum functional abilities.
The leadership logogram of the SPC
„Rehab-Neuron“ (acute, post acute, long-term and palliative rehabilitation)

**Patient Centred Path**

- Assessment
- Assignment
- Intervention
- Evaluation

**Erstversorgung (Ablaufschema)**

Assessments Fragebogen

**Behandlung**

ICF-Rapport

**Kern**

- Innerer Kreis + Einladung Ortho, Pneumo (Beratung, Konsilium)
- Innerer Kreis + Einladung Plastiker (Beratung, Konsilium)
- Innerer Kreis + Einladung Urologe (Beratung, Konsilium)

**Legende**

```
"letzte" Entscheidungsinstanz
(unter Leitung Rehab Arzt)
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Patient/in

**Äußere Kreis**

- Case Manager (Versicherung)
- Konsiliarärzte
- Spezialisten

**Äußere Kreis**

Intern

Supportdienste (Psych. Dienst, Berufsberatung ..)

Extern

- Case Manager (Versicherung)
- Ärztliche Dienste

**Kern: Innerer Kreis**

- Ergo
- Pflege
- Physio
- Rehab Arzt
- Sozialberatung

**Kernkompetenzen**

- Atmung / Beatmung (Respi Care?)
- Schmerz
- Spastik
- Haut: (Decu care?)
- Darm / Blase
- Lagerung / Mobilisation

**Patientenpfad**
ICF-based participation goals
(Overview of 22 standardised goal categories)

- Assisted living
- Living at home
- Participation in socio-cultural activities
- Work-related daily structure
- Preparation for reintegration at work or school
- Vocational retraining
- Job-hunting
- Returning to work
- Increased work capacity for current job
- Medical workplace analysis and acceptability evaluation
- Expert opinion with therapy trial

Acute trauma rehabilitation
Vocational reintegration
Medical expert opinions
Process-based hospital organisation

Process Management System

- main criteria is working with processes to improve outcome and quality
- move away from a hierarchically structured organisation
- build up a control by processes which pull away from departments and directories
Process-based hospital organisation

Patient processes

Head physician
Senior physician
Rehabilitation manager
Team leader
Group manager
Occupational therapists
Physiotherapists
Nursing staff
Social services counselling
Speech therapists
Neuropsychologists
Residents

Patient process-orientated and specifically composed treatment teams are needed to realize this concept.
Precise Rehabilitation With Goals And Processes
Isler M. Gmünder HP
Centre for Upper Limb Functional Improvement & Preservation in SCI and Neuro-rehabilitation
Reasons:

The "goal category" system is a classification system that is easy to apply and which appropriately takes into account the various dimensions of the ICF.

The exact definition of clinical pathways (patient processes) in accordance with ICD and ICF is an important prerequisite for the development of a process-oriented organisational structure and continuous improvement.

The alignment of the organisational structure with the treatment processes leads to cost savings and, at the same time, to quality improvement in the rehabilitation of severely injured patients.
Why has the SPZ organised its rehabilitation in this way?
Efficacy of specialist versus non-specialist management of spinal cord injury within the UK.
Smith, Spinal Cord 2002

Length of stay and medical stability for spinal cord-injured patients on admission to an inpatient rehabilitation hospital: a comparison between a model SCI trauma centre and non-SCI trauma centre.
Ploumis, Spinal Cord 2011

Comparison of patients managed in specialised spinal rehabilitation units with those managed in non-specialised rehabilitation units.
New, Spinal Cord 2001
Medical conditions and outcomes at 1 year after acute traumatic spinal cord injury in a Greek and a Swedish region: a prospective, population-based study.

Divanoglou, 2010

CONCLUSIONS: The annual case mortality rate in Thessaloniki was dramatically higher than in Stockholm. The different approaches to care, one systematic and the other not, is postulated to be an important factor leading to such major discrepancies between the outcomes of these 2 EU countries.
Rehabilitation Goals

• Better outcome
• Better quality of life
• Patient focused care
• Lifelong care
• Case management
What research was/is used to make sure that the SPZ SCI rehabilitation programmes is (are) proven state-of-the-art?
SPZ together with SPF

• Comprehensive rehabilitation approach

• Comprehensive research approach
Clinical Trial Unit Team

Dr. rer. biol. hum. Angela Frotzler
Dr. Gabi Müller Verbiest
Requirements for Clinical Research Projects in Switzerland

Guidelines of Swiss National Science Foundation based on ICH (International Conference on Harmonisation) guidelines since 2008:

→ Adherence to Good Clinical Practice (GCP) Guidelines
  • external inspectors (Ethics Committees / Swissmedic)
  • monitoring / audits (e.g. by CTU or sponsors)

→ since 01.01.2010: requirement of GCP training for principal investigators

→ Implementation in SPZ by CTU
Role of CTU in SPZ

→ Implementation of good clinical practice guidelines
→ Quality control and optimisation of internal & external clinical research projects in the SPZ
→ Safeguard for patients (limiting study participations)
Mission of CTU

- Competent advisory services during the planning phase of clinical research projects regarding methodology and organizational or regulatory aspects

- Support for coordinating and conducting clinical studies and analysing study results according to good clinical practice guidelines

- Facilitating internal clinical research projects by facilitating cooperation between the relevant departments and specialists (e.g. Radiology)

- Quality control by providing standard working guidelines based on national and international guidelines
Contribution to Quality Control of Clinical Studies at the SPZ

- CTU maintains a research databank: summaries of all clinical studies (planned / running / completed) with patients at the SPZ
- Critical appraisal of ethics applications by CTU
- Critical appraisal of study proposals by the Clinical Research Committee SPZ (“Entscheidungsgremium klinische Forschung SPZ”) prior to submitting the study proposal to the Cantonal Ethics Committee of Lucerne
Main Research Domains

- Aging
- Neuro-Rehabilitation
- ICF
- Musculo skeletal health
- Preserving and improving function of upper limb
- Pain
- Pressure sores
- Respiration
- Urology
- Orthopedics
Swiss Spinal Cord Injury Cohort Study (SwiSCI)

Spinal cord injury (SCI) requires major physical, psychological and social adaptations from injured people and is also challenging for relatives of people concerned.

The ‘Swiss Spinal Cord Injury Cohort Study’ (SwiSCI) aims at understanding functioning, disability and health maintenance from a comprehensive and patient-oriented perspective.

Questions concerning optimal medical care, improved contextual factors and successful aging with SCI are of central importance.
A model for holistic rehabilitation research

Objective: Sustainable improvement in functionality, health, social integration and quality of life

- Research into holistic, clinical and social rehabilitation
- National and international research network
- Department of Health Sciences and Health Policy, University of Lucerne
- Non-university research institution recognised by the Swiss government and by the cantonal authorities
Does the SPZ evaluate its rehabilitation (programmes)?
Yes, of course!
Excellent – Good – Fair – Poor
Which criteria / perspective should we apply?
Comparing content of therapy for people with a spinal cord injury in postacute inpatient rehabilitation in Australia, Norway and the Netherlands.
Sacha A. van Langeveld, 2011

Inpatient and postdischarge rehabilitation services provided in the first year after spinal cord injury: findings from the SCIRehab Study.
Whiteneck GG, 2011

Medical conditions and outcomes at 1 year after acute traumatic spinal cord injury in a Greek and a Swedish region: a prospective, population-based study.
Divanoglou, 2010
Medical conditions and outcomes at 1 year after acute traumatic spinal cord injury in a Greek and a Swedish region: a prospective, population-based study.
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CONCLUSIONS: The annual case mortality rate in Thessaloniki was dramatically higher than in Stockholm. The different approaches to care, one systematic and the other not, is postulated to be an important factor leading to such major discrepancies between the outcomes of these 2 EU countries.
• Rehabilitation board (Entscheidungsgremium Paraplegiologie)

• Think Tank – Discussion forum of members of staff

• Network - national and international cooperation's

• Innovation panel to ensure state of art therapies

• Specialized and dedicated teaching teams to ensure state of art in treatment and rehabilitation

• Complaints management

• Goal achievement score

• *ICF based outcome measurements*
Awarded with the Sir Ludwig Guttmann Award DMGP 2011

Complications Prevention and Follow-up Guidelines
<table>
<thead>
<tr>
<th>Alter (Jahre)</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
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<tbody>
<tr>
<td><strong>Body Mass Index (BMI)</strong></td>
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<td><strong>Blutdruck/Hypertonie</strong></td>
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<td><strong>Hypercholesterinämie/Dyslipidämie</strong></td>
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<td><strong>Diabetes mellitus</strong></td>
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<td><strong>Körperliche Herabsetzung</strong></td>
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<td><strong>Schlafbezogene Atmungsstörungen</strong></td>
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<td><strong>Osteoporose</strong></td>
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<td><strong>Niere/Basen-Carcinom</strong></td>
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<td><strong>Colon-Carcinom</strong></td>
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<td><strong>Cervix-Carcinom</strong></td>
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<td><strong>Prostata-Carcinom</strong></td>
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<td><strong>Schilddrüse</strong></td>
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<td><strong>Augenmuskulatur</strong></td>
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<td><strong>Impfungen: Allgemein</strong></td>
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<td><strong>Impfungen: Infektionen</strong></td>
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<td><strong>Impfungen: Pneumokokken</strong></td>
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<td><strong>Impfungen: Herpes zoster</strong></td>
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**Empfohlene präventive Massnahmen bei Patientinnen und Patienten mit QS-Lähmung**

Getrennt nach Alter der Patienten und Jahre nach Eintritt der QS-Lähmung
Is there a system to evaluate /measure quality of SCI rehabilitation? If so: which system is employed and how are the results taken into account?
Patient and Consumer perspective

• Mecom

Professional perspective

• Health literacy
• Patient education
• SwissReha
• EuroPMR Board
• Swiss Board for PMR
• International organisation for standardisation
• Goal achievement measurement
• Assessments and Measurements
• CIRS
Health Literacy

**Health literacy** is an individual's ability to read, understand and use healthcare information to make decisions and follow instructions for treatment.

Individuals with limited literacy have less knowledge about their health problems, more hospitalizations, higher health care costs and poorer health status than those with adequate literacy.

Test of Functional Health Literacy in Adults (TOFHLA)

Barry D. 2005
Figure 1A. The newest vital sign — English.

**Nutrition Facts**

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>1/2 cup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servings per container</td>
<td>4</td>
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</table>

<table>
<thead>
<tr>
<th>Amount per serving</th>
<th>Calories 250</th>
<th>Fat 120</th>
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<tbody>
<tr>
<td>%DV</td>
<td>20%</td>
<td>40%</td>
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<tr>
<td>Total Fat 13g</td>
<td>12%</td>
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<tr>
<td>Sat Fat 9g</td>
<td>2%</td>
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<tr>
<td>Cholesterol 28mg</td>
<td>8%</td>
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</tr>
<tr>
<td>Sodium 55mg</td>
<td>12%</td>
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</tr>
<tr>
<td>Total Carbohydrate 30g</td>
<td>12%</td>
<td></td>
</tr>
<tr>
<td>Dietary Fiber 2g</td>
<td>8%</td>
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<tr>
<td>Sugars 23g</td>
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<tr>
<td>Protein 4g</td>
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</table>

* Percent Daily Values (DV) are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

**Ingredients:** Cream, Skim Milk, Liquid Sugar, Water, Egg Yolks, Brown Sugar, Milkfat, Peanut Oil, Sugar, Butter, Salt, Carrageenan, Vanilla Extract.

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Figure 1B. Questions and answers score sheet for the newest vital sign — English.

<table>
<thead>
<tr>
<th>QUESTIONS</th>
<th>ANSWER</th>
<th>CORRECT?</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If you eat the entire container, how many calories will you eat?</td>
<td>Q 1,000 is the only correct answer.</td>
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<tr>
<td>2. If you are allowed to eat 60 g of carbohydrates as a snack, how much ice cream could you have?</td>
<td>Any of the following is correct:</td>
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<tr>
<td>Q 1 cup (or any amount up to 1 cup)</td>
<td>Q Half the container</td>
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<tr>
<td>Note: If patient answers “2 servings,” ask “How much ice cream would that be if you were to measure it into a bowl?”</td>
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<tr>
<td>3. Your doctor advises you to reduce the amount of saturated fat in your diet. You usually have 42 g of saturated fat each day, which includes 1 serving of ice cream. If you stop eating ice cream, how many grams of saturated fat would you be consuming each day?</td>
<td>Q 33 is the only correct answer.</td>
<td></td>
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<tr>
<td>4. If you usually eat 2500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving?</td>
<td>Q 10% is the only correct answer.</td>
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<tr>
<td>Pretend that you are allergic to the following substances: Penicillin, peanuts, latex gloves, and bee stings.</td>
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<tr>
<td>5. Is it safe for you to eat this ice cream?</td>
<td>Q No</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. (Ask only if the patient responds “no” to question 5): Why not?</td>
<td>Q Because it has peanut oil.</td>
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</table>

**Total Correct** | | | | |
MECON measure & consult GmbH

Patients and health professionals’ satisfaction measurement

Benchmarking between different Swiss rehabilitation hospitals (external benchmarking)

Benchmarking between different hospital departments and specialities (internal benchmarking)

Long-term benchmarking
... over 100 acute and rehabilitation hospitals participate to assess patient satisfaction as an inpatient ... over 50 hospitals participate to assess patient satisfaction as an outpatient ... over 50 hospitals participate to assess the satisfaction of family practitioners and consultants who refer patients for treatment ... over 60 hospitals participate to evaluate the employees’ satisfaction ... over 20 emergency rescue service participate to assess satisfaction of patients ... over 60 old people’s homes and nursing homes participate to assess the satisfaction of pensioners ... over 30 homecare organisations participate to assess the patient satisfaction
How are (former) patients/experts with SCI involved regarding these topics?
• Multiproject management

• Development of clinical pathways

• Peer counselling

• Ethical issues

If possible former patients/experts with SCI are involved in all decisional pathways of the Swiss Paraplegic Centre
Thank you for your attention