

that did not receive robot-assisted mechanical therapy. Checkpoints: 21, 42, 180 days.

**Results.**— We saw the dynamics of the scale ASIA in different periods of the effects of spinal cord injury as a function of rehabilitation programs, the decrease in muscle tone of the lower limbs on Ashworth spasticity scale, and changes in mobility and the needs of patients in the auxiliary properties of medium-distance movement in the Index Hauser. Central motor conduction time at TMS (m. tibialis anterior) of patients and control group with spinal cord injury at various stage also changed. The dynamics of psycho-emotional performance was estimated too.

**Conclusion.**— Thus, we believe that the use of the above methods of clinical and neurophysiological monitoring provides a complete evaluation of the effectiveness of rehabilitation at all stages.

<http://dx.doi.org/10.1016/j.rehab.2014.03.857>

P170-e

### Rotator cuff surgery in persons with spinal cord injury: Relevance of a multidisciplinary approach

C. Fattal<sup>a,\*</sup>, B. Coulet<sup>b</sup>, H. Rouays-Mabit<sup>a</sup>, A. Gelis<sup>a</sup>,  
C. Verollet<sup>a</sup>, C. Mauri<sup>a</sup>, J.-L. Ducros<sup>a</sup>, J. Teissier<sup>c</sup>

<sup>a</sup> CMN Propara, Montpellier, France

<sup>b</sup> CHU de Montpellier/CMN Propara, France

<sup>c</sup> Clinique Beausoleil/CMN Propara, France

\*Corresponding author.

**Keywords:** Shoulder; Rotator cuff pathology; Surgery; SCI

**Background.**— Prospective review of 38 patients with SCI seen in our multidisciplinary consultation from January 2005 to September 2013 for pain in one or both shoulders.

**Methods.**— Clinical, functional and lesional check-up of patients presenting with rotator cuff pathologies.

**Results.**— Surgery was indicated and performed on 38 shoulders in 28 patients. The lesional assessment during surgery revealed injuries that were more severe than one could have thought based on imaging data. Main pain intensity in operated and non-operated groups was respectively 0 and 1.6 at rest and 2 and 4.9 during paroxysmal peaks. In average for patients who had surgery the functional independence measure (FIM) score decreased by 2.3. Mean satisfaction index of operated patients was 8.5/10.

**Discussion.**— When the surgical indication was based on a multidisciplinary decision, no negative results were reported that could have challenged the validity of this decision. Pain relief was the prime benefit reported post surgery. The functional status was modified due to the technical aids needed to prevent shoulder overuse. A multidisciplinary approach emerges as the solution to inform and educate patients in order to limit the risk of recurrence.

<http://dx.doi.org/10.1016/j.rehab.2014.03.858>

P171-e

### Post-rehabilitation participation restriction of spinal cord injured patient at Centre for the Rehabilitation of the Paralyzed (CRP)

I. Hossain<sup>\*</sup>, S. Hossain

Centre for the Rehabilitation of the Paralyzed, Dhaka

\*Corresponding author.

**Keywords:** Participation; Restriction; Spinal cord injury; Rehabilitation

**Introduction.**— This study is designed to establish factors influencing the participation of spinal cord injury patients living in the community.

**Methodology.**— Purposive sampling methods were chosen in this descriptive type of cross-sectional study.

**Results.**— A total of 92 participants were selected of whom 82 were male and 10 female. Among the respondents, 43% had severe restriction, 23.7% had extreme restriction, 16.1% had moderate restriction, 8.6% had mild restriction and remaining 7.5% had no major restrictions in different activities mentioned

sibility (77%), physical limitations (49%), poor family support (18%) and lack of self-confidence (11%). A majority of the respondents perceived their participation was sometimes sufficient in most activities such as opportunities for employment, domestic ADL, contributing financially to the family. A majority of the respondents also perceived one or more severe problems of participation in activities.

**Discussion.**— Although severity of injury and some social factors were found to be the main factors of restricting participation, some personal factors such as age at injury and education were also crucial factors. It is important to consider access to social support along with other factors in the person-environment interaction and their influence on clients' participation in rehabilitation.

<http://dx.doi.org/10.1016/j.rehab.2014.03.859>

P172-e

### Effects of electrical stimulation pattern on quadriceps isometric force and fatigue in individuals with spinal cord injury

G. Deley<sup>a,\*</sup>, J. Denuziller<sup>a</sup>, N. Babault<sup>a</sup>, J.A. Taylor<sup>b</sup>

<sup>a</sup> Faculté des Sciences du Sport, Dijon, France

<sup>b</sup> Cardiovascular Research Laboratory, Spaulding Rehabilitation Hospital, Harvard Medical School, USA

\*Corresponding author.

Functional electrical stimulation (FES) has often been used to facilitate exercise in individuals with spinal cord injury (SCI). However, rapid fatigue associated with electrical stimulation limits the effectiveness of FES. Stimulation patterns have traditionally consisted of constant-frequency trains (CFT) but it has been suggested that variable-frequency trains (VFT) may limit fatigue development and that switching stimulation patterns from CFT to VFT may offset the rapid fatigue [1–3]. The aim of the present study was to see whether a program composed of VFT followed by CFT would reach a targeted isometric force (50% of maximal force) more times than a program composed of CFT followed by VFT. Results showed a greater fatigue ( $-36.5 \pm 7.9\%$  vs.  $-29.5 \pm 2.6\%$ ,  $P < 0.05$ ) and a lower number of successful contractions ( $7.2 \pm 3.5$  vs.  $10.3 \pm 3.7$  contractions,  $P < 0.05$ ) when the CFT pattern was applied first. These findings confirm that a stimulation pattern beginning with VFT is more fatigue resistant than one beginning with CFT and might allow offsetting the rapid fatigue occurring during functional quadriceps contractions in people with SCI.

**References**

- [1] Binder-Macleod SA, et al. Muscle Nerve 1991;14:850–7.
- [2] Binder-Macleod SA, et al. Muscle Nerve 1998;21:1145–52.
- [3] Binder-Macleod SA, et al. Acta Physiol Scand 2001;172:195–203.

<http://dx.doi.org/10.1016/j.rehab.2014.03.860>

P173-e

### Charcot-Spine arthropathy in a paraplegic patient with traumatic cord injury: A case report

I. Daami<sup>\*</sup>, K. Dali, P. Tronchet

Hôpital Maritime, Berck

\*Corresponding author.

**Keywords:** Paraplegia; Charcot-spine; Arthrodesis

**Introduction.**— Charcot-Spine or neurogenic arthropathy of the spine is a rare complication of spinal cord injury. It is responsible for spinal instability may compromise the autonomy of the patient on a wheelchair.

**Observation.**— We report the case of a paraplegic patient with L1 cord injury treated by a simple laminectomy in 1999, with a shift towards a post-traumatic kyphosis. In 2004 kyphosis correction by osteotomy of L1, anterior graft and arthrodesis T8-L4. In 2012 degenerative changes of the lumbosacral area with bone destruction L4-L5 evoking a Charcot-Spine. The patient benefited from an extension of fusion to the sacrum anterior and posterior channels.

**Discussion.**— Charcot-Spine is responsible for progressive destruction of the spine below the injury. The hyper-constrained spine in paraplegics is an impor-

