

Opinion/Feedback The mechanisms that govern the application of noninvasive functional electrical stimulation (FES) have been delineated and clearly described in numerous evidenced-based research publications. The aim of this review is to summarize the primary, multi-system effects of noninvasive FES on the musculoskeletal system, the peripheral vascular system, and the central nervous systems. The presentation will relate these effects to multiple efficacious clinical studies in neuro-rehabilitation. The presentation will include discussion of the latest technological advancement in wearable FES systems and their critical role in achieving functional recovery following damage to the brain. The presentation will also offer an advanced practice model guided by the latest trend in the medical field focusing on patient-centered, personalized intervention.

Keywords Functional electrical stimulation (FES); Mechanism of action; Wearable

Disclosure of interest The author declares that he has no competing interest.

<http://dx.doi.org/10.1016/j.rehab.2016.07.061>

CO0258

Evaluation of seating intervention effect for patient at Toulouse University Hospital's wheelchair seating clinic (WSC)



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Objective The seating intervention for wheelchair users intends to achieve a comfortable and functional position and to limit the risk of complications due to long sitting period (pain and discomfort, skin disorders, orthopedic, respiratory, digestive diseases). Few scientific papers about seating intervention in adults are published.

The objective of the present study is to assess the objective and subjective effects of wheelchair seating intervention for patients at Toulouse University Hospital's WSC.

Patients and methods A cohort study of patients cared at the Toulouse University Hospital's WSC between April 2014 and April 2016.

The main criterion is the evaluation of patient's seating goal at 3 months of delivery of the equipment by the Goal Attainment Score (GAS). Other criteria are the evaluation of pain by visual analog scale (VAS), the comfort of the Assessment Tool Wheelchair Comfort (TAWC), the seating time (hours per day) and the sitting posture [Seated Postural Control Measure for Adults (SPCMA)].

Results Preliminary results show with 40 patients (mean 51 years \pm 17): among them, 11 have spinal cord injury, 7 stroke. The most common deficiency is tetraplegia (20). Seventeen patients have cognitive impairment. Thirty-six patients have at least one complication of postural control disorder with 19 painful patients. Twenty-six patients completed the positioning care. GAS at 3 month improves: median +2 (min: 0/max: 3). The SPCMA improves: median +8/56 points (min: 0/max: 26). This improvement is statistically significant (Wilcoxon: $P < 0.001$). The pain and discomfort decreased significantly (EVA Wilcoxon: $P = 0.005$; TAWC Wilcoxon: $P = 0.03$). The sitting time is not modified.

Discussion/Conclusion These preliminary results show the effectiveness of seating intervention on posture, pain and discomfort. Patient's goals are the most often reached. These preliminary results show the efficiency of WSC for patients, not only to improve posture.

Keywords Seating intervention; Wheelchair; Seated postural control; Comfort; Goal

Disclosure of interest The authors declare that they have no competing interest.

<http://dx.doi.org/10.1016/j.rehab.2016.07.062>

CO0259

A randomised clinical trial comparing a new bed rails and lifting pole in lying-sit transfer in elderly patients



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Objective A total of 27.6% of elderly people can not transfer from supine to sitting position. This driving plan consists on an anterior flexion and rotation of trunk to bring center of mass near the edge of bed.

With ageing, we observe modifications like more requests of upper limbs and less turn side.

The aim of this study is to compare influence of two assistive devices in the supine to sitting transfer: SAM, a new bed rails and the lifting pole.

Patients and methods Patients more than 65 years, after consent signature, were lying in a medical bed with lifting pole or SAM after randomisation.

Each patient is asked to sit up in the edge of bed in two consecutive attempts. During the second transfer they were filmed. At the same time, a pressure sensor sheet, arranged between buttock and mattress, was recording the evolution of center of mass.

The main criterion is the success of the transfer. Secondary criterion is the time to do the transfer and the evolution of the center of mass. Videos were looked by two persons to assess success or failure and time.

Results Thirty-eight patients were included among which 19 used SAM. Seventeen patients made a successfully transfer with SAM against 13 with lifting pole. Time to do transfer was not significantly different with the two devices (12.5 s with SAM versus 12 s with lifting pole).

The center of mass evolved in previous for 90% of patients with SAM in particular during the first five seconds. While with the lifting pole, the center of mass evolved in posterior, in particular in patients who have failed.

Discussion/Conclusion The ergonomic of the used device seems to influence the driving plan. The clinical evaluation thus has to accompany the research and development to help to find the best clinical and indicator criteria of assistive devices evaluations.

Keywords Supine to sitting transfer; Elderly people; Driving plan; Assistive device

Disclosure of interest The authors declare that they have no competing interest.

<http://dx.doi.org/10.1016/j.rehab.2016.07.063>

CO0260

Improvement of walking abilities in femoral amputees with a distal weight bearing implant



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Objective Following a transfemoral (TF) amputation, the ability to walk with a prosthesis is the main objective of rehabilitation. The achieved speed of walking is considered a determining factor in the amputee's perception of quality of life.

This experimental before-after study evaluates the walking abilities and improvement of important parameters such as gait, walking speed, pain and hours of prosthesis use in transfemoral amputees