

EDITOR'S PAGE

Can early exercise attenuate muscle atrophy or bone loss after SCI?



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This second issue of *Spinal Cord* 2016 starts with a challenging question, as written in the title of this page. Panisset *et al.* reviewed literature evaluating exercise interventions initiated within 12 weeks after SCI on muscle and bone loss in paralysed limbs, and compared it to standard care or immobilization. Five randomized controlled trials (RCTs), 4 cohort studies and 2 within-subject control studies, provided all level II positive evidence with a moderate risk of bias. But the early exercise and the method to evaluate effect differed between studies: high load Functional Electrical Stimulation (FES) resisted stance on physiological measures of muscle, 3 months of FES on muscle size, 6 months body-weight supported treadmill training or FES on trabecular bone using peripheral quantitative computed tomography. This finding is encouraging and though more standardisation would benefit clinical practice, it incites thinking about applying exercise early after SCI. What also needs to be resolved is the best way to keep these good effects in the long run.

Locomotor function: Dose *et al.* showed that epidural stimulation recruits spinal networks that generate locomotor programs when pulses are delivered to multiple sites at low frequency. This finding may help devise new protocols to optimize the increasingly more common use of epidural implantable arrays to treat spinal dysfunctions. Koyama *et al.* categorized unexpected postural changes during gait training in paraplegic patients with wearable gait-assist robots. Posterior breakdowns might be the result of near collisions between the trunk of the user and the walker, requiring training focused upon well-timed forward movements of the walker. Learmonth *et al.* provide cut-points based on the linear association between energy expenditure and accelerometer counts for estimating time spent in moderate-to-vigorous physical activity during wheelchair propulsion using wrist-worn accelerometers. Butler Forslund *et al.* validated the Swedish version of the Spinal Cord Injury Falls Concern Scale.

Urology: Wöllner *et al.* found sacral neuromodulation to be a therapy option in carefully selected patients with neurogenic lower urinary tract dysfunction. But urodynamic evaluation is mandatory, as the procedure does not seem to significantly alleviate neurogenic detrusor overactivity. Celik *et al.* describe a case of testicular torsion in a SCI individual.

Outcome, integration, barriers, work: New and Akram found waiting times for rehabilitation admission and the length of stay in hospital to be longer for patients who were female, tetraplegia, motor complete, had a pelvic pressure ulcer and were referred from another health network. Age had a non-linear effect. Kennedy and Hasson noticed that < half of those employed at the time of SCI had made plans to return to work prior to discharge. Greater prominence during rehabilitation is needed. Hossain *et al.* found that approximately 1/5 of wheelchair-dependent SCI individuals die within two years of discharge from hospital, mostly due to sepsis from potentially preventable pressure ulcers. Yazdani *et al.* found bone marrow mesenchymal stem cells and Schwann cell co-injection through cerebral spinal fluid in individuals with chronic SCI to be safe but giving almost no improvement in neurologic functions. Pouplin *et al.* studied text input speed in participants with cervical SCI. Only the type of computer access device had an influence.

Pain: Barbetta *et al.* give as predictors of musculoskeletal pain in the upper extremities after SCI: female, tetraplegia, age over 40 years, and less than 1 year of injury.

Varia: Dias *et al.* describe neurological manifestations in individuals with HTLV-1-associated myelopathy/tropical spastic paraparesis in the Amazon. Cobeljic *et al.* explored how galvanic vestibular stimulation can modify the soleus H-reflex (Hoffman reflex) i.e., the excitability of the spinal cord circuits in healthy humans.

Enjoy reading.