This monthly Current Awareness Bulletin is produced by the Healthcare Library to provide staff working in the Spinal Unit with a range of resources to support practice. It includes recently published guidelines and research articles, news and policy items, and details of new library resources.

**Athens**
To access journal articles that are available in full text you will need to have a username and password for Athens. To register for an Athens account click [here](#).

For further information or support please contact the Healthcare Library, SDH Central, Salisbury District Hospital, Salisbury, Wiltshire SP2 8BJ.
01722 429054 or 01722 336262 ext 4430, library.office@salisbury.nhs.uk, or visit the library website at [www.library.salisbury.nhs.uk](http://www.library.salisbury.nhs.uk)

### New and Updated Cochrane Systematic Reviews

**Updated Reviews – December 2014**

Music interventions for mechanically ventilated patients

### Journal Articles

Please click on the blue links (where available) to access full text.
You may need an NHS Athens username and password. To register for an NHS Athens account click [here](#).
If you have any difficulty accessing the full text articles, or if you would like us to obtain any of the articles for you, please contact the Healthcare Library.

#### Table of Contents

2. A retrospective review of the ambulatory blood pressure patterns and diurnal urine production in subgroups of spinal cord injured patients.
4. Assessment of autonomic function after acute spinal cord injury using heart rate variability analyses.
5. Association between the bladder wall thickness and urodynamic findings in patients with spinal cord injury.
9. Does extracorporeal shock wave introduce alteration of microenvironment in cell therapy for chronic spinal cord injury?.
10. Does regular standing improve bowel function in people with spinal cord injury? A randomised crossover trial.
14. Efficacy of some non-conventional herbal medications (sulforaphane, tanshinone IIA, and tetramethylpyrazine) in inducing neuroprotection in comparison with interleukin-10 after spinal cord injury: A meta-analysis.
15. Emergence and prevention measures for multidrug resistant Pseudomonas aeruginosa in catheter-associated urinary tract infection in spinal cord injury patients.


17. Evoked EMG versus muscle torque during fatiguing functional electrical stimulation-evoked muscle contractions and short-term recovery in individuals with spinal cord injury.


19. Failures on obstacle crossing task in independent ambulatory patients with spinal cord injury and associated factors.

20. Functional changes in deep dorsal horn interneurons following spinal cord injury are enhanced with different durations of exercise training.


22. Intrathecal injection of a therapeutic gene-containing polyplex to treat spinal cord injury.

23. Knowledge, attitudes and practices of medical staff towards obesity management in patients with spinal cord injuries: an International survey of four western European countries.

24. Lean tissue mass and energy expenditure are retained in hypogonadal men with spinal cord injury after discontinuation of testosterone replacement therapy.

25. Low-energy extracorporeal shock wave therapy promotes vascular endothelial growth factor expression and improves locomotor recovery after spinal cord injury.

26. Medical complications and falls in patients with spinal cord injury during the immediate phase after completing a rehabilitation program.


28. Nerve transfers for elbow and finger extension reconstruction in midcervical spinal cord injuries.


31. Phenomenological study of neurogenic bowel from the perspective of individuals living with spinal cord injury.

32. Psychosocial outcomes among youth with spinal cord injury by neurological impairment.

33. Sequential changes of ascending myelopathy after spinal cord injury on magnetic resonance imaging: A case report of neurologic deterioration from paraplegia to tetraplegia.

34. The effects of electrical stimulation on body composition and metabolic profile after spinal cord injury - Part II.

35. Use, performance and features of mobile shower commodes: perspectives of adults with spinal cord injury and expert clinicians.
with spinal cord injury (SCI) and to describe the impact of these fractures on service needs and provision of pharmacological therapies for osteoporosis. Design Retrospective medical record review. Setting Four Veterans Affairs Medical Centers in the USA. Participants One hundred and forty patients with traumatic SCI who sustained an ILEF from 2002 to 2007. Outcome measures Fracture circumstances and use of assistive devices were described using percentages, means, and standard deviations. Fisher’s exact test was used to determine the relationship between fracture site, and patient age and duration of SCI. Differences in pharmacological provision of therapies for osteoporosis pre- and post-fracture were examined using exact McNemar’s test. Results One hundred and fifty-five ILEFs were identified in 140 patients. Tibia/fibula and femur fractures were the most common fractures. Fracture site was not related to patient’s age or duration of SCI. Almost one-third of all fractures occurred during transfers to and from wheelchairs. Post-fracture, the provision of new or modified assistive devices, primarily wheelchairs, was frequent, occurring in 83% of patients in the year post-fracture. Few patients transferred residence to a nursing home following the fracture. There was a significant difference in the use of pharmacological therapies for osteoporosis in the first year post-fracture compared with the year prior to the fracture (P < 0.01), with significant differences in the volume of prescriptions for calcium supplements (P < 0.01) and bisphosphonates (P = 0.02). Overall, the amount of prescriptions for osteoporosis increased the year post-fracture (56%) from the year pre-fracture (39%); this increase was secondary to increases in prescriptions for calcium supplements (pre = 13%; post = 30%) and bisphosphonates (pre = 2%; post = 7%). Conclusions We have identified that wheelchair and other transfer activities are a key area that could be a focus of fracture prevention in SCI. The need for new or modified assistive devices and/or wheelchair skills retraining post-fracture should be anticipated. Examination of whether treatments for osteoporosis following a fracture can prevent future osteoporotic fractures is warranted.

Publication type: Journal Article
Source: MEDLINE
Full text: Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The

2.Title: A retrospective review of the ambulatory blood pressure patterns and diurnal urine production in subgroups of spinal cord injured patients.

Citation: Spinal Cord, January 2015, vol./is. 53(1(49-53), 1362-4393;1476-5624 (2015 Jan)
Author(s): Goh MY, Wong EC, Millard MS, Brown DJ, O'Callaghan CJ
Language: English
Abstract: STUDY DESIGN: Retrospective study.OBJECTIVES: To quantify diurnal blood pressure (BP) patterns and nocturnal hypertension and to measure diurnal urine production in spinal cord injury (SCI) patients with clinically significant disorders of BP control.SETTING: A specialist state-based spinal cord service in Victoria, Australia.METHODS: Medical records of patients with traumatic SCI who were referred to a specialist service for management of a BP disorder were examined. Ambulatory BP and nocturnal urine production were compared between groups of patients classified according to level, completeness and chronicity of SCI. Patients with night:day systolic BP <90% were classified as dippers, 90-100% as non-dippers and >100% as reversed dippers.RESULTS: Patients (44 tetraplegic, 10 paraplegic) were predominantly males (92.6%) aged 41+/-2.5 years (mean+-/s.e.m.). Referral was for orthostatic intolerance (n=37), autonomic dysreflexia (n=6), nocturnal polyuria (n=4), elevated BP (n=1) and peripheral oedema (n=1). The average BP was 111.1+-/1.4/65.0+-/1.2mmHg. In 56% of patients (n=30), BP at night was higher than during the day and another 37% (n=20) were non-dippers. Nocturnal hypertension was present in 31% (n=17) of the patients. In the tetraplegic patients, urine flow rate was greater during the night than day (121+/-9.5mlh(-1) vs 89+-/8.2mlh(-1), P=0.025).CONCLUSION: Ambulatory BP monitoring in patients with SCI and clinically significant BP disorders detected a high incidence of reversed dipping and nocturnal hypertension. We postulate elevated nocturnal BP may contribute to nocturnal diuresis that might cause relative volume depletion and thereby contribute to daytime orthostatic hypotension.

Publication type: Journal Article
Source: MEDLINE
Full text: Available Nature Publishing Group at Spinal Cord

3.Title: A Review on Response of Immune System in Spinal Cord Injury and Therapeutic Agents useful in Treatment.

Citation: Current Pharmaceutical Biotechnology, 2015, vol./is. 16(1(26-34), 1389-2010;1873-4316 (2015)
Author(s): Kasinathan N, Vanathi MB, Subrahmanynam VM, Rao JV
Language: English
Abstract: Every year more than 12,000 people in US alone suffer from spinal cord injury. However, complete recovery of physical function is difficult due to multiple factors involved in disease progression. Currently available therapeutic regimens do not address all the factors concerned with the disease progression. The present review focuses mainly on the role of immune cells in progression of spinal cord injury and the drugs that target these immune cells. Literature search shows that inflammatory reactions and subsequent reactions that follow direct injury to spinal cord are sometimes responsible for the severity of the disease. Therefore, for design of proper treatment regimen a deep understanding in this area is required. Understanding the pathophysiology will help in creating delivery system that can target multiple factors involved in progression of spinal cord injury. A combination of various treatment strategies is required to reduce the disability in patients with spinal cord injury.
4.Title: Assessment of autonomic function after acute spinal cord injury using heart rate variability analyses.
Citation: Spinal Cord, January 2015, vol./is. 53(1)(54-8), 1362-4393;1476-5624 (2015 Jan)
Language: English
Abstract: OBJECTIVES: Spinal cord injury (SCI) often results in severe dysfunction of the autonomic nervous system. C1-C8 SCI affects the supraspinal control to the heart, T1-T5 SCI affects the spinal sympathetic outflow to the heart, and T6-T12 SCI leaves sympathetic control to the heart intact. Heart rate variability (HRV) analysis can serve as a surrogate measure of autonomic regulation. The aim of this study was to investigate changes in HRV patterns and alterations in patients with acute traumatic SCI.METHODS: As soon as possible after SCI patients who met the inclusion criteria had 24h Holter monitoring of their cardiac rhythm, additional Holter monitoring were performed 1, 2, 3 and 4 weeks after SCI.RESULTS: Fifty SCI patients were included. A significant increase in standard deviation of the average normal-to-normal (SDANN) sinus intervals was seen in the first month after injury (P=0.008). The increase was only significant in C1-T5 incomplete patients and in patients who did not experience one or more episodes of cardiac arrest. Significant lower values of Low Frequency Power, Total Power and the Low Frequency over High Frequency ratio were seen in the C1-T5 SCI patients compared with T6-T12 SCI patients.CONCLUSIONS: The rise in SDANN in the incomplete C1-T5 patients could be due to spontaneous functional recovery caused by synaptic plasticity or remodelling of damaged axons. That the autonomic nervous system function differs between C1-C8, T1-T5 and T6-T12 patients suggest that the sympathovagal balance in both the C1-C8 and T1-T5 SCI patients has yet to be reached.

Publication type: Journal Article
Source: MEDLINE
Full text: Available Nature Publishing Group at Spinal Cord

5.Title: Association between the bladder wall thickness and urodynamic findings in patients with spinal cord injury.
Citation: World Journal of Urology, January 2015, vol./is. 33(1)(131-5), 0724-4983;1433-8726 (2015 Jan)
Author(s): Silva JA, Gonsalves Mde C, de Melo RT, Carrerette FB, Damiao R
Language: English
Abstract: PURPOSE: To investigate whether ultrasonographic bladder wall thickness (BWT) correlates with urodynamic parameters in patients with spinal cord injury (SCI).METHODS: Two hundred and seventy-two patients with SCI were enrolled in the study. All of the patients underwent bladder ultrasonography and urodynamic study. The anterior bladder wall was measured and compared to urodynamic data.RESULTS: The mean age of the patients was 37.4 years. The mean BWT was 3.9 mm. BWT was significantly higher in the patients with neurogenic detrusor overactivity associated with detrusor sphincter dyssynergia (NDO/DSD) compared to those without sphincter dyssynergia (4.2 vs. 3.6 mm, respectively, p < 0.001) and in those with compliance <20 ml/cm H2O. Nevertheless, ROC curve analysis [ROC = 0.624, 95 % CI (0.530, 0.718), p = 0.011] showed that no meaningful BWT measurement cutoff could be made to predict an elevated detrusor pressure in the storage phase.CONCLUSIONS: Increased BWT was present in patients with low bladder compliance and NDO/DSD. No BWT cutoff value to predict an elevated detrusor pressure was found. Therefore, the measurement of BWT has no clinical role in patients with SCI and cannot replace urodynamic evaluation.

Publication type: Journal Article
Source: MEDLINE

6.Title: Baclofen dosage after traumatic spinal cord injury: A multi-decade retrospective analysis
Citation: Clinical Neurology and Neurosurgery, February 2015, vol./is. 129(5)(50-56), 0303-8467;1872-6968 (February 2015)
Language: English
Abstract: Objectives To perform an analysis of oral baclofen dosage in patients with traumatic spinal cord injuries over time and to ascertain the clinical determinants of long-term baclofen dosage trends.Study design Retrospective cohort study of patient records from the PM&R units at the Johns Hopkins Bayview Medical Center and the Johns Hopkins Hospital.Subjects A total of 115 PM&R patients suffering spinal cord injury due to trauma leading to either complete or incomplete paralysis. The modes of injury included were motor vehicle accidents (MVA) (n = 39), gunshot wounds (GSW) (n = 55), falls (n = 17), diving (n = 2), workplace (n = 1) and swimming (n = 1) accidents. The location of injury in the spinal cord was categorized into either cervical (n = 52), thoracic (n = 59), lumbar (n = 2), or unspecified (n = 2).Results From time of injury, an aggregate of all dosage assignments for each patient demonstrated a significant yearly increase in baclofen dosage (1.26 mg/year, p<0.01). Baclofen dosage for MVA cases were seen to rise at 4.99 mg/year (p<0.0001). Kaplan-Meier analysis revealed that GSW patients received their first baclofen dosage earlier than MVA patients (log-rank p<0.05, unadjusted).Conclusions We observed a marginal increase in baclofen dosage over nearly 25 years in a single provider’s patient database and observed different timings of first dose between two causes of traumatic SCI. These results provide
Colonoscopy after spinal cord injury: a case-control study.

Citation: Spinal Cord, January 2015, vol./is. 53/1(32-5), 1362-4393;1476-5624 (2015 Jan)

Author(s): Morris BP, Kucchal T, Burgess AN

Language: English

Abstract: DESIGN: An age- and gender-matched case-control study.OBJECTIVE: To compare colonoscopy after spinal cord injury (SCI) with the general population in terms of indications, bowel preparation, technical success and disease detection.SETTING: Victoria, Australia.METHODS: Consecutive SCI colonoscopies between January 1998 and February 2013 were compared with a randomly selected age- and gender-matched control group. Injury level, indication for procedure and demographics were collected. Outcome measures included quality of bowel preparation, completion rates, procedural duration and benign and malignant disease detection.RESULTS: A total of 440 colonoscopies were assessed, comprising 148 SCI patients and 292 age- and gender-matched controls. Both the groups were of similar age (54.7 years vs 54.5 years, P=0.906) and comprised predominantly males (87.1% vs 86.3%, P=0.919). SCI colonoscopies were more often performed to investigate abnormalities (85.1% vs 58.2%, P<0.001) than for screening or surveillance (18.2% vs 40.8%, P<0.001). Unsatisfactory bowel preparation was recorded more often in the SCI group (36.0% vs 13.0%, P<0.001) and completion rates were lower (75.7% vs 93.1%, P<0.001). Overall disease detection was lower in the SCI group (45.3% vs 59.6%, P<0.006). The polyp detection rate was lower for SCI (11.4% vs 25.3%, P=0.001). The rate of diagnosis of malignancy was equivalent (2.7% vs 3.0%, P=0.904).CONCLUSION: SCI patients have the same risk of malignancy as the general population and are less likely to undergo screening colonoscopy. Colonoscopy is then limited by poor bowel preparation and lower completion rates with a subsequent lower polyp detection rate.

Publication type: Journal Article
Source: MEDLINE

Full text: Available Nature Publishing Group at Spinal Cord
10. **Title:** Does regular standing improve bowel function in people with spinal cord injury? A randomised crossover trial.

**Citation:** Spinal Cord, January 2015, vol./is. 53/1(36-41), 1362-4393;1476-5624 (2015 Jan)

**Author(s):** Kwok S, Harvey L, Glinsky J, Bowden JL, Coggrave M, Tussler D

**Language:** English

**Abstract:** STUDY DESIGN: A randomised crossover trial. OBJECTIVES: To determine the effects of a 6-week standing programme on bowel function in people with spinal cord injury. SETTING: Community, Australia and the United Kingdom. METHODS: Twenty community-dwelling people with motor complete spinal cord injury above T8 participated in a 16-week trial. The trial consisted of a 6-week stand phase and a 6-week no-stand phase separated by a 4-week washout period. Participants were randomised to one of two treatment sequences. Participants allocated to the Treatment First group stood on a tilt table for 30 min per session, five times per week for 6 weeks and then did not stand for the next 10 weeks. Participants allocated to the Control First group did the opposite: they did not stand for 10 weeks and then stood for 6 weeks. Participants in both groups received routine bowel care throughout the 16-week trial. Assessments occurred at weeks 0, 7, 10 and 17 corresponding with pre and post stand and no-stand phases. The primary outcome was Time to First Stool. There were seven secondary outcomes reflecting other aspects of bowel function and spasticity. RESULTS: There were three dropouts leaving complete data sets on 17 participants. The mean (95% confidence interval) between-intervention difference for Time to First Stool was 0 min (-7 to 7) indicating no effect of regular standing on Time to First Stool. CONCLUSION: Regular standing does not reduce Time to First Stool. Further trials are required to test the veracity of some commonly held assumptions about the benefits of regular standing for bowel function.

**Publication type:** Journal Article

**Source:** MEDLINE

**Full text:** Available Ovid at Spine

11. **Title:** Effect of robotic-assisted gait training in patients with incomplete spinal cord injury.

**Citation:** Annals of Rehabilitation Medicine, December 2014, vol./is. 38/6(719-25), 2234-0645;2234-0645 (2014 Dec)

**Author(s):** Shin JC, Kim JY, Park HK, Kim NY

**Language:** English

**Abstract:** OBJECTIVE: To determine the effect of robotic-assisted gait training (RAGT) compared to conventional overground training. METHODS: Sixty patients with motor incomplete spinal cord injury (SCI) were included in a prospective, randomized clinical trial by comparing RAGT to conventional overground training. The RAGT group received RAGT three sessions per week at duration of 40 minutes with regular physiotherapy in 4 weeks. The conventional group underwent regular physiotherapy twice a day, 5 times a week. Main outcomes were lower extremity motor score of American Spinal Injury Association impairment scale (LEMS), ambulatory motor index (AMI), Spinal Cord Independence Measure III mobility section (SCIM3-M), and walking index for spinal cord injury version II (WISCI-II) scale. RESULTS: At the end of rehabilitation, both groups showed significant improvement in LEMS, AMI, SCIM3-M, and WISCI-II. Based on WISCI-II, statistically significant improvement was observed in the RAGT group. For the remaining variables, no difference was found. CONCLUSION: RAGT combined with conventional physiotherapy could yield more improvement in ambulatory function than conventional therapy alone. RAGT should be considered as one additional tool to provide neuromuscular...

**Publication type:** Journal Article

**Source:** MEDLINE

**Full text:** Available Ovid at Spine
12. Title: Effects of training on upper limb function after cervical spinal cord injury: a systematic review.

Citation: Clinical Rehabilitation, January 2015, vol./is. 29(13-13), 0269-2155;1477-0873 (2015 Jan)

Author(s): Lu X, Battistuzzo CR, Zoghi M, Galea MP

Language: English

Abstract: OBJECTIVE: To summarize the evidence for the effectiveness of exercise training in promoting recovery of upper extremity function after cervical spinal cord injury. DATA SOURCES: Medline, Cochrane, CINAHL, EMBASE and PEDro were used to search the literature. REVIEW METHODS: Two reviewers independently selected and summarized the included studies. Methodological quality of the selected articles was scored using the Downs and Black checklist. RESULTS: A total of 16 studies were included, representing a total of 426 participants. Overall, the internal validity and reporting of the studies was fair to good, while power and external validity were poor. Interventions included exercise therapy, electrical stimulation, functional electrical stimulation, robotic training and repetitive transcranial magnetic stimulation. Most of the studies reported improvements in muscle strength, arm and hand function, activity of daily living or quality of life after intervention. CONCLUSIONS: Training including exercise therapy, electrical stimulation, functional electrical stimulation of the upper limb following cervical spinal cord injury leads to improvements in muscle strength, upper limb function and activity of daily living or quality of life. Further research is needed into the effects of repetitive transcranial magnetic stimulation and robotic training on upper limb function. Copyright The Author(s) 2014.

Publication type: Journal Article
Source: MEDLINE
Full text: Available ProQuest at Clinical Rehabilitation

13. Title: Effects of underwater treadmill training on leg strength, balance, and walking performance in adults with incomplete spinal cord injury.

Citation: Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(91-101), 1079-0268;1079-0268 (2015 Jan)

Author(s): Stevens SL, Caputo JL, Fuller DK, Morgan DW

Language: English

Abstract: Objective To document the effects of underwater treadmill training (UTT) on leg strength, balance, and walking performance in adults with incomplete spinal cord injury (iSCI). Design Pre-test and post-test design. Setting Exercise physiology laboratory. Participants Adult volunteers with iSCI (n = 11). Intervention Participants completed 8 weeks (3 x /week) of UTT. Each training session consisted of three walks performed at a personalized speed, with adequate rest between walks. Body weight support remained constant for each participant and ranged from 29 to 47% of land body weight. Increases in walking speed and duration were staggered and imposed in a gradual and systematic fashion. Outcome measures Lower-extremity strength (LS), balance (BL), preferred and rapid walking speeds (PWS and RWS), 6-minute walk distance (6MWD), and daily step activity (DSA). Results Significant (P < 0.05) increases were observed in LS (13.1 +/- 3.1 to 20.6 +/- 5.1 Nkg(-1)), BL (23 +/- 11 to 32 +/- 13), PWS (0.41 +/- 0.27 to 0.55 +/- 0.28 ms(-1)), RWS (0.44 +/- 0.31 to 0.71 +/- 0.40 ms(-1)), 6MWD (97 +/- 80 to 177 +/- 122 m), and DSA (593 +/- 782 to 1310 +/- 1258 steps) following UTT. Conclusion Physical function and walking ability were improved in adults with iSCI following a structured program of UTT featuring individualized levels of body weight support and carefully staged increases in speed and duration. From a clinical perspective, these findings highlight the potential of UTT in persons with physical disabilities and diseases that would benefit from weight-supported exercise.

Publication type: Journal Article
Source: MEDLINE
Full text: Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The

14. Title: Efficacy of some non-conventional herbal medications (sulforaphane, tanshinone IIA, and tetramethylpyrazine) in inducing neuroprotection in comparison with interleukin-10 after spinal cord injury: A meta-analysis.

Citation: Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(13-22), 1079-0268;1079-0268 (2015 Jan)

Author(s): Koushki D, Latifi S, Norouzi Javidan A, Matin M

Language: English

Abstract: Context Inflammation after spinal cord injury (SCI) may be responsible for further neural damages and therefore inhibition of inflammatory processes may exert a neuroprotective effect. Objectives To assess the efficacy of some non-conventional herbal medications including sulforaphane, tanshinone IIA, and tetramethylpyrazine in reducing inflammation and compare them with a known effective anti-inflammatory agent (interleukin-10 (IL-10)). Methods We searched relevant articles in Ovid database, Medline (PubMed) EMBASE, Google Scholar, Cochrane, and Scopus up to June 2013. The efficacy of each treatment and study powers were compared using random effects model of meta-analysis. To our knowledge, no conflict of interest exists. Results Eighteen articles entered into the study. The meta-analysis revealed that exogenous IL-10 was more effective in comparison with the mentioned herbal extracts. The proposed pathways for
15. Title: Emergence and prevention measures for multidrug resistant Pseudomonas aeruginosa in catheter-associated urinary tract infection in spinal cord injury patients.

Citation: Spinal Cord, January 2015, vol./is. 53/1(70-4), 1362-4393;1476-5624 (2015 Jan)

Author(s): Shigemura K, Takase R, Osawa K, Takaba K, Noml M, Fujisawa M, Arakawa S

Language: English

Abstract: OBJECTIVE: To evaluate measures for preventing multidrug resistant Pseudomonas aeruginosa (MDRP) in catheter-associated urinary tract infection (CAUTI) in spinal cord injury patients. SETTING: Spinal Cord Injury Unit of Hyogo Prefectural Hyogo Prefectural Rehabilitation Center, Kobe, Japan. METHODS: We defined MDRP as resistance to amikacin, imipenem and levofloxacin. We had eight cases of MDRP-causing CAUTI in hospitalized neurogenic bladder patients caused by spinal cord injury in 2 months. Pulse-field gel electrophoresis (PFGE) was performed for epidemiological studies. We assessed prevention measures against MDRP emergence from the 2nd month, such as surveillance of CAUTI and infection control, and evaluated the outcomes of these measures over a total of 8 months. RESULTS: Our PFGE results showed that these eight MDRP isolates could be considered as closely related strains. We concluded that this was an MDRP outbreak that was causing CAUTI. The isolated ratio of MDRP began to decrease over 4 months of surveillance and significantly decreased in the 4th quarter (7th and 8th months) compared with the 1st quarter (1st and 2nd months) (P=0.021) even though urinary tract device usage significantly increased over the same period (P<0.001). CONCLUSION: We experienced an outbreak of emergent MDRP causing CAUTI in neurogenic bladder patients with spinal cord injury. Our preventive measures for isolating the outbreak, including surveillance, may have led to the decrease we observed in the ratio of MDRP isolated.

Publication type: Journal Article
Source: MEDLINE
Full text: Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The


Citation: Archives of Physical Medicine & Rehabilitation, January 2015, vol./is. 96/1(76-83), 0003-9993;1532-821X (2015 Jan)

Author(s): New PW, Baxter D, Farry A, Noonan VK

Language: English

Abstract: OBJECTIVES: To determine estimates of the incidence and prevalence of traumatic spinal cord injury (TSCI) in Australia as of June 30, 2011. DESIGN: Population modeling using cohort survival. SETTING: Australia. PARTICIPANTS: Hospital data regarding people with TSCI in Australia. INTERVENTIONS: Modeling using the following data: 2 population-based databases of hospital separations of patients with TSCI, giving upper and lower estimates of incidence; national population profiles and life tables; levels of TSCI based on Australian Spinal Cord Injury Registry; and life expectancy for persons with spinal cord injury under 3 scenarios-1 constant and 2 with a trend standardized mortality ratio (SMR). MAIN OUTCOME MEASURES: Age- and sex-specific incidence and prevalence estimates. RESULTS: The lower estimate of incidence was 21.0 per million population per year, and the upper estimate was 32.3 per million population per year. The derived prevalence rates ranged from 490 per million population (10,944 persons-lower incidence, trend SMR with survival from 1948) up to 886 per million population (19,784 persons-higher incidence, constant SMR). The prevalence was highest in males, persons aged 46 to 60 years, and those with tetraplegia. CONCLUSIONS: We have reported a method for calculating an estimate of the prevalence of TSCI which provides information that will be vital to optimize health care planning for this group of highly disabled members of society. Copyright 2015 American Congress of Rehabilitation Medicine. Published by Elsevier Inc. All rights reserved.

Publication type: Journal Article
Source: MEDLINE
Full text: Available ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION at Archives of Physical Medicine and Rehabilitation

Full text: Available ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION at Salisbury District Hospital Healthcare Library

17. Title: Evoked EMG versus muscle torque during fatiguimg functional electrical stimulation-evoked muscle contractions and short-term recovery in individuals with spinal cord injury.

Citation: Sensors, 2014, vol./is. 14/12(22907-20), 1424-8220;1424-8220 (2014)
Abstract: This study investigated whether the relationship between muscle torque and m-waves remained constant after short recovery periods, between repeated intervals of isometric muscle contractions induced by functional electrical stimulation (FES). Eight subjects with spinal cord injury (SCI) were recruited for the study. All subjects had their quadriceps muscles group stimulated during three sessions of isometric contractions separated by 5 min of recovery. The evoked-electromyographic (eEMG) signals, as well as the produced torque, were synchronously acquired during the contractions and during short FES bursts applied during the recovery intervals. All analysed m-wave variables changed progressively throughout the three contractions, even though the same muscle torque was generated. The peak to peak amplitude (PtPA), and the m-wave area (Area) were significantly increased, while the time between the stimulus artefact and the positive peak (PosT) were substantially reduced when the muscles became fatigued. In addition, all m-wave variables recovered faster and to a greater extent than did torque after the recovery intervals. We concluded that rapid recovery intervals between FES-evoked exercise sessions can radically interfere in the use of m-waves as a proxy for torque estimation in individuals with SCI. This needs to be further investigated, in addition to seeking a better understanding of the mechanisms of muscle fatigue and recovery.

Publication type: Journal Article, Research Support, Non-U.S. Gov't
Source: MEDLINE

Citation: Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(102-10), 1079-0268;1079-0268 (2015 Jan)
Author(s): Hausmann LR, Myaskovsky L, Niyonkuru C, Oyster ML, Switzer GE, Burkitt KH, Fine MJ, Gao S, Boninger ML
Language: English
Abstract: Context Despite evidence that healthcare providers have implicit biases that can impact clinical interactions and decisions, implicit bias among physicians caring for individuals with spinal cord injury (SCI) has not been examined. Objective Conduct a pilot study to examine implicit racial bias of SCI physicians and its association with functioning and wellbeing for individuals with SCI. Design Combined data from cross-sectional surveys of individuals with SCI and their SCI physicians. Setting Four national SCI Model Systems sites. Participants Individuals with SCI (N = 162) and their SCI physicians (N = 14). Outcome measures SCI physicians completed online surveys measuring implicit racial (pro-white/anti-black) bias. Individuals with SCI completed questionnaires assessing mobility, physical independence, occupational functioning, social integration, self-reported health, depression, and life satisfaction. We used multilevel regression analyses to examine the associations of physician bias and outcomes of individuals with SCI. Results Physicians had a mean bias score of 0.62 (SD = 0.35), indicating a strong pro-white/anti-black bias. Greater physician bias was associated with disability among individuals with SCI in the domain of social integration (odds ratio = 4.80, 95% confidence interval (CI) = 1.44, 16.04), as well as higher depression (B = 3.24, 95% CI = 1.06, 5.41) and lower life satisfaction (B = -4.54, 95% CI = -8.79, -0.28). Conclusion This pilot study indicates that SCI providers are susceptible to implicit racial bias and provides preliminary evidence that greater implicit racial bias of physicians is associated with poorer psychosocial health outcomes for individuals with SCI. It demonstrates the feasibility of studying implicit bias among SCI providers and provides guidance for future research on physician bias and patient outcomes.
Publication type: Journal Article
Source: MEDLINE
Full text: Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The

19. Title: Failures on obstacle crossing task in independent ambulatory patients with spinal cord injury and associated factors.
Citation: Archives of Physical Medicine & Rehabilitation, January 2015, vol./is. 96/1(43-8), 0003-9993;1532-821X (2015 Jan)
Author(s): Amatachaya S, Pramodhyakul W, Srisim K
Language: English
Abstract: OBJECTIVES: To primarily explore the proportion and factors relating to failure on an obstacle crossing task in ambulatory participants with incomplete spinal cord injury (iSCI); and to compare balance ability between participants who passed and failed on an obstacle crossing task. DESIGN: Cross-sectional design. SETTING: Tertiary rehabilitation center. PARTICIPANTS: Independent ambulatory participants with an iSCI (N=113). INTERVENTIONS: Not applicable. MAIN OUTCOME MEASURES: Primary outcomes were the ability to walk over small obstacles of sizes that are commonly found in homes and communities and factors relating to failure on an obstacle crossing task. The secondary outcome was the data from the timed Up and Go (TUG) test. RESULTS: Of the participants, 33 failed to walk over an obstacle. Using a walker significantly increased chance of failure, whereas having incomplete paraplegia and American Spinal Injury Association Impairment Scale grade D were the protective factors for the event (P<.01). The number of failures was also significantly increased because of leg contact with a wide or relative large obstacle (4 and 8cm, P<.001). Furthermore, participants who failed required significantly longer time to complete the TUG test than those who passed an obstacle crossing task.
20. Title: Functional changes in deep dorsal horn interneurons following spinal cord injury are enhanced with different durations of exercise training.

Citation: Journal of Physiology, January 2015, vol./is. 593/1(331-45), 0022-3751;1469-7793 (2015 Jan 1)

Author(s): Rank MM, Flynn JR, Battistuzzo CR, Galea MP, Callister R, Callister RJ

Language: English

Abstract: KEY POINTS: Exercise training after spinal cord injury (SCI) enhances collateral sprouting from axons near the injury and is thought to promote intraspinal circuit reorganisation that effectively bridges the SCI. The effects of exercise training, and its duration, on interneurons in these de novo intraspinal circuits are poorly understood. In an adult mouse hemisection model of SCI, we used whole-cell patch-clamp electrophysiology to examine changes in the intrinsic and synaptic properties of deep dorsal horn interneurons in the vicinity of a SCI in response to the injury, and after 3 and 6 weeks of treadmill exercise training. SCI alone exerted powerful effects on the intrinsic and synaptic properties of interneurons near the lesion. Importantly, synaptic activity, both local and descending, was preferentially enhanced by exercise training, suggesting that exercise promotes synaptic plasticity in spinal cord interneurons that are ideally placed to form new intraspinal circuits after SCI.

ABSTRACT: Following incomplete spinal cord injury (SCI), collaterals sprout from intact and injured axons in the vicinity of the lesion. These sprouts are thought to form new synaptic contacts that effectively bypass the lesion epicentre and contribute to improved functional recovery. Such anatomical changes are known to be enhanced by exercise training; however, the mechanisms underlying exercise-mediated plasticity are poorly understood. Specifically, we do not know how SCI alone or SCI combined with exercise alters the intrinsic and synaptic properties of interneurons in the vicinity of a SCI. Here we use a hemisection model of incomplete SCI in adult mice and whole-cell patch-clamp recording in a horizontal spinal cord slice preparation to examine the functional properties of deep dorsal horn (DDH) interneurons located in the vicinity of a SCI following 3 or 6 weeks of treadmill exercise training. We examined the functional properties of local and descending excitatory synaptic connections by recording spontaneous excitatory postsynaptic currents (sEPSCs) and responses to dorsal column stimulation, respectively. We find that SCI in untrained animals exerts powerful effects on intrinsic, and especially, synaptic properties of DDH interneurons. Plasticity in intrinsic properties was most prominent at 3 weeks post SCI, whereas synaptic plasticity was greatest at 6 weeks post injury. Exercise training did not markedly affect intrinsic membrane properties; however, local and descending excitatory synaptic drive were enhanced by 3 and 6 weeks of training. These results suggest exercise promotes synaptic plasticity in spinal cord interneurons that are ideally placed to form new intraspinal circuits after SCI.


Publication type: Journal Article

Source: MEDLINE

21. Title: Heart rate variability in individuals with thoracic spinal cord injury.

Citation: Spinal Cord, January 2015, vol./is. 53/1(59-63), 1362-4393;1476-5624 (2015 Jan)


Language: English

Abstract: STUDY DESIGN: Cross-sectional study. OBJECTIVES: The main goal of our study was to explore the differences in heart rate variability (HRV) while sitting between able-bodied (AB) participants and paraplegic (P) individuals. SETTING: The study was conducted in the Physical Therapy department and the Physical Education and Sports department of the University of Valencia and Vall d’Hebron Hospital. METHODS: To record the HRV, a 1000-Hz Suunto Oy t6 heart rate monitor was used. The data were analyzed in the temporal and frequency domains, and nonlinear analysis was performed as well. RESULTS: We found significant differences between P and AB participants in SDNN: t(76)=2.81, P<0.01; root mean squared of the difference of successive RR intervals: t(76)=2.35, P<0.05; very low frequency: t(76)=2.97, P<0.01; low frequency: t(41.06)=2.33, P<0.05; total power of the spectrum: t(45.74)=2.57, P<0.05; SD1: t(76)=2.35, P<0.05; SD2: t(76)=2.82, P<0.01. Furthermore, there is a reduced variability in the P participants who adopted a sedentary lifestyle as could be observed in detrended fluctuation1 t(40)=−2.10; P<0.05. CONCLUSION: Although individuals in the P group were more active in sports than the AB group, they had an altered HRV when compared with AB individuals. It could be important to develop more intense sports programs to improve cardiac vagal tone, which in turn produces a decrease in work and oxygen consumption of the heart.

Publication type: Journal Article
22. Title: Incidence and the risk factors of spinal deformity in adult patient after spinal cord injury: a single center cohort study.

Citation: European Spine Journal, January 2015, vol./is. 24/1(203-8), 0940-6719;1432-0932 (2015 Jan)

Author(s): Yagi M, Hasegawa A, Takemitsu M, Yato Y, Machida M, Asazuma T

Language: English

Abstract: STUDY DESIGN: A retrospective consecutive case series of adult spinal cord injuries (SCIs) patients.OBJECTIVE: To assess the incidence and risk factors of spinal deformity in a large sample of patients with SCIs. Post-traumatic spinal deformities are well-recognized sequelae of SCIs. Despite the devastating complications for SCI patients with trunk imbalance, the incidence, clinical outcomes, and independent risk factors of scoliosis after SCI remain controversial.MATERIALS AND METHODS: We assessed 214 consecutive adult compressive SCI patients who were hospitalized in our hospital. We compared patients who developed spinal deformities with those who did not. Univariate and multivariate analyses to determine the independent risk factors were performed. Age, gender, etiology, ASIA grade (American Spinal Injury Association) surgery, and other demographic data were analyzed to determine the risk factors for developing a spinal deformity.RESULTS: The average patient age was 58.3 years (20-86 years). The etiology was trauma (n = 158), ossification of ligament (n = 22), infectious (n = 17), and others. One hundred fifty-two patients had cervical spine involved, 62 had thoracic spine involved. 26 patients classified as ASIA A, 54 were ASIA B, 96 were ASIA C, and 42 were ASIA D 4. One hundred thirty-five patients had either decompression or decompression and fusion surgery. The incidence of spinal deformities was 21 % (44/214). The mean Cobb angle was 28.9 degrees (13-38degree). ASIA grade and surgery predicted the occurrence of spinal deformity in both the univariate model (ASIA grade, OR: 1.59 [95 % CI: 1.04-2.44; P = 0.032]; Surgery, OR: 4.47 [95 % CI: 1.89-10.06; P = 0.007]) and the multivariate model (ASIA grade, OR: 1.63 [95 % CI: 1.04-2.57; P = 0.033]; Surgery, OR: 4.59 [95 % CI: 1.91-11.04; P = 0.0006]), whereas surgery was the most important risk factor in the Cox model (HR: 3.50 [95 % CI: 1.56-7.88; P = 0.0025]).CONCLUSIONS: The SCI patients with high ASIA grades and those who had undergone surgery had a higher likelihood of developing a spinal deformity. Of these risk factors, surgery was the stronger risk factor.

Publication type: Journal Article

Source: MEDLINE

23. Title: Intrathecal injection of a therapeutic gene-containing polyplex to treat spinal cord injury.

Citation: Journal of Controlled Release, January 2015, vol./is. 197/(1-9), 0168-3659;1873-4995 (2015 Jan 10)

Author(s): Hayakawa K, Uchida S, Ogata T, Tanaka S, Kataoka K, Itaka K

Language: English

Abstract: Spinal cord injury (SCI) is a serious clinical problem that suddenly deprives patients of neurologic function and drastically diminishes their quality of life. Gene introduction has the potential to modify the expression of endogenous factors and provide a sustainable source of proteins. However, this approach has several limitations, including the lack of a stable gene delivery system to express BDNF in a safe and responsive manner for treatment of various pathological states in SCI. Copyright 2014 Elsevier B.V. All rights reserved.

Publication type: Journal Article

Source: MEDLINE

24. Title: Knowledge, attitudes and practices of medical staff towards obesity management in patients with spinal cord injuries: an International survey of four western European countries.

Citation: Spinal Cord, January 2015, vol./is. 53/1(24-31), 1362-4393;1476-5624 (2015 Jan)

Author(s): Wong S, van McDendorp J, Belci M, van Nes I, Roels E, Smith E, Hirani SP, Forbes A

Language: English

Abstract: OBJECTIVE: To (1) examine the opinions of medical staff working in spinal cord injury (SCI) centres (SCICs); (2) evaluate their knowledge, attitudes and practices towards obesity prevention and management; (3) report the number of beds and dietitians available at each SCIC.METHODS: A 37-item questionnaire was sent to 23 SCICs in the UK, the Netherlands, Belgium and the Republic of Ireland between September 2012 and January 2013.RESULTS: Eighteen SCICs...
25. Title: Lean tissue mass and energy expenditure are retained in hypogonadal men with spinal cord injury after discontinuation of testosterone replacement therapy.

Citation: Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(38-47), 1079-0268;1079-0268 (2015 Jan)

Author(s): Bauman WA, La Fountaine MF, Cirnigliaro CM, Kirshblum SC, Spungen AM

Language: English

Abstract: Objective To determine whether favorable changes to lean tissue mass (LTM), resting energy expenditure (REE), and testosterone (T) that occurred with 12 months of physiological testosterone replacement therapy (TRT) were retained 6 months after discontinuing treatment. Design Prospective, open-label, controlled drug intervention trial. Setting Metropolitan area hospitals. Subjects Eugonadal (n = 11) and hypogonadal (n = 13) men with chronic spinal cord injury (SCI). Interventions Hypogonadal subjects received a 5 or 10 mg transdermal T patch daily for 12 months, with adjustment of the dose to normalize the serum T concentration; TRT was discontinued after 12 months (TRT-12M) and subjects were followed for an additional 6 months and re-evaluated (Post-TRT). Total body dual energy X-ray absorptiometry and blood draws were performed at baseline (BL) prior to TRT, TRT-12M, and Post-TRT. Eugonadal subjects did not receive treatment and were evaluated at comparable time points. Results There were no significant differences between groups prior to TRT at BL for any of the study endpoints. In the hypogonadal group, a significant increase in LTM was observed from BL to TRT-12M (50.2 +/- 7.4 vs. 52.9 +/- 6.8 kg, P < 0.01), which persisted Post-TRT compared to BL (52.2 +/- 7.8 kg, P < 0.05). The increase in REE from BL to TRT-12M (1283 +/- 246 vs. 1410 +/- 250 kcal/day) was also retained at Post-TRT (1393 +/- 220 kcal/day). These sustained improvements in LTM and REE after termination of anabolic hormonal therapy may be associated with persistent beneficial effects on health and physical function of hypogonadal men with chronic SCI.

Publication type: Journal Article

Source: MEDLINE

Full text: Available Nature Publishing Group at Spinal Cord

26. Title: Lifestyle changes and pressure ulcer prevention in adults with spinal cord injury in the pressure ulcer prevention study lifestyle intervention.

Citation: American Journal of Occupational Therapy, January 2015, vol./is. 69/1(6901290020p1-6901290020p10), 0272-9490;1943-7676 (2015 Jan-Feb)

Author(s): Ghaisas S, Pyatak EA, Blanche E, Blanchard J, Clark F, PUPS II Study Group

Language: English

Abstract: Pressure ulcers (PrUs) are a major burden to patients with spinal cord injury (SCI), affecting their psychological, physical, and social well-being. Lifestyle choices are thought to contribute to the risk of developing PrUs. This article focuses on the interaction between lifestyle choices and the development of PrUs in community settings among participants in the University of Southern California-Rancho Los Amigos National Rehabilitation Center Pressure Ulcer Prevention Study (PUPS II), a randomized controlled trial of a lifestyle intervention for adults with SCI. We conducted a secondary cross-case analysis of treatment notes of 47 PUPS II participants and identified four patterns relating PrU development to lifestyle changes: positive PrU changes (e.g., healing PrUs) with positive lifestyle changes, negative or no PrU changes with positive lifestyle changes, positive PrU changes with minor lifestyle changes, and negative or no PrU changes with no lifestyle changes. We present case studies exemplifying each pattern. Copyright 2015 by the American Occupational Therapy Association, Inc.

Publication type: Journal Article

Source: MEDLINE

Full text: Available ProQuest at American Journal of Occupational Therapy, The

27. Title: Low-energy extracorporeal shock wave therapy promotes vascular endothelial growth factor expression and improves locomotor recovery after spinal cord injury.
Abstract: OBJECT: Extracorporeal shock wave therapy (ESWT) is widely used for the clinical treatment of various human diseases. Recent studies have demonstrated that low-energy ESWT upregulates the expression of vascular endothelial growth factor (VEGF) and promotes angiogenesis and functional recovery in myocardial infarction and peripheral artery disease. Many previous reports suggested that VEGF produces a neuroprotective effect to reduce secondary neural tissue damage after spinal cord injury (SCI). The purpose of the present study was to investigate whether low-energy ESWT promotes VEGF expression and neuroprotection and improves locomotor recovery after SCI. METHODS: Sixty adult female Sprague-Dawley rats were randomly divided into 4 groups: sham group (laminectomy only), sham-SW group (low-energy ESWT applied after laminectomy), SCI group (SCI only), and SCI-SW group (low-energy ESWT applied after SCI). Thoracic spinal cord contusion injury was inflicted using an impactor. Low-energy ESWT was applied to the injured spinal cord 3 times a week for 3 weeks. Locomotor function was evaluated using the Basso, Beattie, and Bresnahan (BBB) Scale (open field locomotor score) at different time points over 42 days after SCI. Hematoxylin and eosin staining was performed to assess neural tissue damage in the spinal cord. Neuronal loss was investigated by immunostaining for NeuN. The mRNA expressions of VEGF and its receptor, Flt-1, in the spinal cord were assessed using real-time polymerase chain reaction. Immunostaining for VEGF was performed to evaluate VEGF protein expression in the spinal cord. RESULTS: In both the sham and sham-SW groups, no animals showed locomotor impairment on BBB scoring. Histological analysis of H & E and NeuN stainings in the sham-SW group confirmed that no neural tissue damage was induced by the low-energy ESWT. Importantly, animals in the SCI-SW group demonstrated significantly better locomotor improvement than those in the SCI group at 7, 35, and 42 days after injury (p < 0.05). The number of NeuN-positive cells in the SCI-SW group was significantly higher than that in the SCI group at 42 days after injury (p < 0.05). In addition, mRNA expressions of VEGF and Flt-1 were significantly increased in the SCI-SW group compared with the SCI group at 7 days after injury (p < 0.05). The expression of VEGF protein in the SCI-SW group was significantly higher than that in the SCI group at 7 days (p < 0.01). CONCLUSIONS: The present study showed that low-energy ESWT significantly increased expressions of VEGF and Flt-1 in the spinal cord without any detrimental effect. Furthermore, it significantly reduced neuronal loss in damaged neural tissue and improved locomotor function after SCI. These results suggested that low-energy ESWT enhances the neuroprotective effect of VEGF in reducing secondary injury and leads to better locomotor recovery following SCI. This study provides the first evidence that low-energy ESWT can be a safe and promising therapeutic strategy for SCI.

Publication type: Journal Article, Research Support, Non-U.S. Gov't

Source: MEDLINE

28. Title: Medical complications and falls in patients with spinal cord injury during the immediate phase after completing a rehabilitation program.

Citation: Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(84-90), 1079-0268;1079-0268 (2015 Jan)

Author(s): Wannapakhe J, Arrayawichanon P, Saengsuwan J, Amatachaya S

Language: English

Abstract: Background/objectives Complications and falls are crucial problems in patients with spinal cord injury (SCI). However, existing evidence on complications comes from data from hospital records over a long period of time, and falls were mostly reported retrospectively in patients with incomplete SCI. This study prospectively explored the occurrence of complications and falls, and associated factors in patients with SCI during the 6 months after discharge. Methods One hundred subjects with SCI (50 wheelchair-bound (WB) and 50 ambulatory (AM) subjects) from a tertiary rehabilitation center completed the study. Every month, subjects were monitored for data on medical complications and falls. Descriptive information is provided for each group. Results Every WB subject had complications and 14 subjects were re-hospitalized. The most frequent complications found in these subjects were neurogenic pain (36 subjects), urinary tract infection (UTI) (25 subjects), and pressure ulcers (21 subjects). In AM subjects, 38 subjects (76%) experienced complications and 3 subjects needed re-hospitalization. The most frequent complications included neurogenic pain (35 subjects) and UTI (11 subjects). Eighteen WB subjects (36%) and 27 AM subjects (54%) experienced falls. WB subjects had significantly increased odds for incidence of UTI and pressure ulcers, whereas AM subjects had significantly greater odds for falls (P < 0.05). Conclusion A number of subjects with SCI experienced complications and falls after completing a rehabilitation program. The findings add to our knowledge about complications and falls after SCI, and confirm the importance of effective strategies to minimize the occurrence of complications and falls in these individuals.

Publication type: Journal Article

Source: MEDLINE

Full text: Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The


Citation: Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(57-62), 1079-0268;1079-0268 (2015 Jan)

Author(s): Leduc BE, Fournier C, Jacquemin G, Lepage Y, Vinet B, Hetu PO, Chagnon M
Abstract: Objective The objective of this study is to evaluate the efficacy of midodrine in the treatment of anejaculation in men with spinal cord injury (SCI). Study design Prospective, double-blind, randomized, placebo-controlled pilot study. Method Men with anejaculation associated with SCI (level of injury above T10) of more than 1 year in duration were approached. Those with no ejaculatory response to one penile vibratory stimulation (PVS) trial were assigned in a double-blind manner to one of the two following interventions once a week for a maximum of 3 weeks or until ejaculation occurred: oral administration of flexible midodrine (7.5-22.5 mg max) followed by PVS (group M), or oral administration of flexible sham-midodrine (placebo) followed by PVS (group P). Sociodemographic data, medical characteristics, and plasma desglymidodrine concentration were collected for all participants. Outcome measure Ejaculation success rate in each group. Results Among the 78 men approached, 23 participants (level of SCI: C4-T9) were randomized. Three participants abandoned the study and 20 completed the study; 10 were assigned to group M, 10 to group P. Ejaculation was reached for one participant of group M and for two participants of group P. Autonomic dysreflexia associated to PVS occurred in three patients. Conclusion In this small sample study, treatment of anejaculation after SCI with midodrine and PVS did not result in a better rate of antegrade ejaculation in 10 men than in 10 men treated with a placebo and PVS.

Publication type: Journal Article

Source: MEDLINE

Full text: Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The
32. Title: Optimal scaling of weight and waist circumference to height for adiposity and cardiovascular disease risk in individuals with spinal cord injury.

Citation: Spinal Cord, January 2015, vol./is. 53/1(64-8), 1362-4393;1476-5624 (2015 Jan)

Author(s): Cragg JJ, Ravensbergen HR, Borisoff JF, Claydon VE

Language: English

Abstract: STUDY DESIGN: Observational cross-sectional study. OBJECTIVES: Body mass index (BMI), measured as a ratio of weight (Wt) to the square of height (Wt/Ht(2)), waist circumference (WC) and waist-to-height ratio (WHtR) are common surrogate measures of adiposity. It is not known whether alternate scaling powers for height might improve the relationships between these measures and indices of obesity or cardiovascular disease (CVD) risk in individuals with spinal cord injury (SCI). We aimed to estimate the values of 'x' that render Wt/Ht(x) and WC/Ht(x) maximally correlated with dual energy x-ray absorptiometry (DEXA) total and abdominal body fat and Framingham Cardiovascular Risk Scores. SETTING: Canadian public research institution. METHODS: We studied 27 subjects with traumatic SCI. Height, Wt and body fat measurements were determined from DEXA whole-body scans. WC measurements were also obtained, and individual Framingham Risk Scores were calculated. For values of 'x' ranging from 0.0 to 4.0, in increments of 0.1, correlations between Wt/Ht(x) and WC/Ht(x) with total and abdominal body fat (kg and percentages) and Framingham Risk Scores were computed. RESULTS: We found that BMI was a poor predictor of CVD risk, regardless of the scaling factor. Moreover, BMI was strongly correlated with measures of obesity, and modification of the scaling factor from the standard (Wt/Ht(2)) is not recommended. WC was strongly correlated with both CVD risk and obesity, and standard measures (WC and WHtR) are of equal predictive power. CONCLUSION: On the basis of our findings from this sample, alterations in scaling powers may not be necessary in individuals with SCI; however, these findings should be validated in a larger cohort.

Publication type: Journal Article

Source: MEDLINE

Full text: Available Nature Publishing Group at Spinal Cord

33. Title: Pain prevalence and its determinants after spinal cord injury: A systematic review.

Citation: European Journal of Pain, January 2015, vol./is. 19/1(5-14), 1090-3801;1532-2149 (2015 Jan)

Author(s): van Gorp S, Kessels AG, Joosten EA, van Kleef M, Patijn J

Language: English

Abstract: Pain prevalence studies are as important as they illustrate the magnitude of pain problems in a certain patient population, such as patients living with a spinal cord injury (SCI). Strikingly, reported pain prevalence rates in SCI patients are found to vary greatly, while determinants for the differences between pain prevalence reports remain unclear. We here aim to identify determinants for the differences (heterogeneity) in pain prevalence reports through a systematic review of all SCI pain prevalence reporting studies. Literature search was done using Medline, Cumulative Index to Nursing and Allied Health Literature, ISI Web of Knowledge and Embase. Data abstraction was performed while blinded and was followed by meta-(regression)-analyses. We identified 82 studies. Study design-related determinants of SCI pain prevalence reports were pain definition strictness (mild, moderate or high), primary study goal (pain study or not), data source (retrospective or not), and in a limited number of cases response/attrition rates. While correcting for these items, population characteristics correlating with pain prevalence rates were both proportion of patients with a depression and average time after injury (positive correlations). Between-study heterogeneity may remain even after the identification/correction of above-mentioned causes of heterogeneity. Pain after SCI does seem to relate to the duration of the injury and depression, yet major causes of bias in reported pain prevalence are found to be related to the primary study goal (pain study or not), choice of pain definition and the use of retrospective data. Copyright 2014 European Pain Federation - EFIC

Publication type: Journal Article

Source: MEDLINE

34. Title: Phenomenological study of neurogenic bowel from the perspective of individuals living with spinal cord injury.

Citation: Archives of Physical Medicine & Rehabilitation, January 2015, vol./is. 96/1(49-55.e1), 0003-9993;1532-821X (2015 Jan)

Author(s): Burns AS, St-Germain D, Connolly M, Delparte JJ, Guindon A, Hitzig SL, Craven BC

Language: English

Abstract: OBJECTIVE: To gain greater insight into the lived experience of individuals with spinal cord injury (SCI) and neurogenic bowel dysfunction (NBD). DESIGN: Qualitative (phenomenologic) interviews and analysis. SETTING: Community. PARTICIPANTS: Individuals with SCI and NBD (N=19) residing in the community. INTERVENTIONS: Not applicable. MAIN OUTCOME MEASURE: Concerns related to living with NBD after SCI. RESULTS: Challenges related to living with SCI and NBD included costs and requirements, emotional impact, diet, education and employment, intimacy and interpersonal relations, social participation, spontaneity and daily schedule, travel, lack of appropriate and consistent assistance, loss of autonomy (independence, privacy), lack of predictability and fear of incontinence, medical
complications, pain or discomfort, physical effort of the bowel routine, physical experience, and time requirements. CONCLUSIONS: Living with NBD presents many challenges. When categorized according to the International Classification of Functioning, Disability and Health, identified domains include body functions and structures, activity, participation, environmental factors, and personal factors. Identified issues have implications for improving clinical management and should be assessed when determining the impact and efficacy of interventions. Copyright 2015 American Congress of Rehabilitation Medicine. Published by Elsevier Inc. All rights reserved.

**Publication type:** Journal Article

**Source:** MEDLINE

**Full text:** Available ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION at Archives of Physical Medicine and Rehabilitation

**Full text:** Available ARCHIVES OF PHYSICAL MEDICINE AND REHABILITATION at Salisbury District Hospital Healthcare Library

35. **Title:** Psychosocial outcomes among youth with spinal cord injury by neurological impairment.

**Citation:** Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(76-83), 1079-0268;1079-0268 (2015 Jan)

**Author(s):** Riordan A, Kelly EH, Klaas SJ, Vogel LC

**Language:** English

**Abstract:** Objective. Examine psychosocial outcomes of youth with spinal cord injury (SCI) as a function of neurological level (paraplegia/tetraplegia) and severity. Methods. Participants were 360 youth with SCI ages 5-18 with neurological impairment classifications of: tetraplegia AIS ABC (tetraplegia ABC), paraplegia AIS ABC (paraplegia ABC), or AIS D. Outcome Measures. Children's Assessment of Participation and Enjoym...ent, Pediatric Quality of Life Inventory, Revised Children's Manifest Anxiety Scale, and Children's Depression Inventory. Results. Three hundred and forty youth participated; 57% were male; 60% were Caucasian, 21% Hispanic, 7% African-American, 2% Native American, and 3% reported "other". Their mean age was 8.15 years (standard deviation (SD) = 5.84) at injury and 13.18 years (SD = 3.87) at interview. Ninety-six youth (28%) had tetraplegia ABC injuries, 191 (56%) paraplegia ABC injuries, and 53 (16%) AIS D injuries. Neurological impairment was significantly related to participation and quality of life (QOL). Specifically, youth with paraplegia ABC and AIS D injuries participated in more activities than youth with tetraplegia ABC (P = 0.002; P = 0.018, respectively) and youth with paraplegia ABC participated more often than youth with tetraplegia ABC (P = 0.006). Youth with paraplegia ABC reported higher social QOL than youth with tetraplegia ABC (P = 0.001) and AIS D injuries (P = 0.002). Groups did not differ regarding mental health. Conclusion. Interventions should target youth with tetraplegia ABC, as they may need support in terms of participation, and both youth with tetraplegia ABC and AIS D injuries in terms of social integration.

**Publication type:** Journal Article

**Source:** MEDLINE

**Full text:** Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The

36. **Title:** Defined assessment of blood pressure instability after spinal cord injury.

**Citation:** American Journal of Hypertension, February 2015, vol./is. 28/2(173-81), 0895-7061;1941-7225 (2015 Feb)

**Author(s):** Hubli M, Gee CM, Krassioukov AV

**Language:** English

**Abstract:** BACKGROUND: This study determined whether the Autonomic Dysfunction Following Spinal Cord Injury (ADFSCI) questionnaire, a measure of self-reported frequency and severity of symptoms during hypo- and hypertensive episodes, correlates with blood pressure (BP) instability. In addition, test-retest reliability of the ADFSCI questionnaire was assessed. METHODS: Thirty individuals with spinal cord injury (SCI) (aged 42+-/12 years; level of lesion = C3-L1; American Spinal Injury Association Impairment Scale = A-C; lesion duration = 1 month to 30 years after injury) participated in this study. Twenty-four-hour ambulatory BP monitoring (ABPM) was used to assess BP instability. ABPM recorded systolic BP (SBP), diastolic BP (DBP), and heart rate at 15-minute intervals during the daytime and 1-hour intervals during the nighttime. Test-retest reliability was performed by completion of the ADFSCI questionnaire on 2 occasions (i.e., 9+/4 days in between). RESULTS: Individuals with SCI who self-reported autonomic dysreflexia (AD) episodes showed significantly higher SBP coefficient of variation (CV) (14%) and more AD events (n = 11) than individuals who reported never having AD symptoms (CV = 9%; AD events = 1). Both the number of AD events over the 24-hour period and the BP variability (SBP CV) were significantly related to the patients' self-reported total AD score (rho = 0.522, P = 0.005; rho = 0.584, P = 0.001, respectively) and daily AD frequency (rho = 0.553, P = 0.003; rho = 0.586, P = 0.001, respectively). Conversely, no significant correlations existed between the number of hypotensive events over the 24-hour period and self-reported frequency and severity in the ADFSCI questionnaire. CONCLUSIONS: This study provides evidence that ABPM offers a strong clinical basis for documenting and understanding BP instability, such as AD, and related symptoms in individuals with SCI. Copyright American Journal of Hypertension, Ltd 2014. All rights reserved. For Permissions, please email: journals.permissions@oup.com.

**Publication type:** Journal Article
Source: MEDLINE

37. Title: Relationship between leptin and adiponectin concentrations in plasma and femoral and spinal bone mineral density in spinal cord-injured individuals.

Citation: Spine Journal: Official Journal of the North American Spine Society, January 2015, vol./is. 15/1(1-9), 1529-9430;1878-1632 (2015 Jan 1)


Language: English

Abstract: BACKGROUND CONTEXT: Previously, the associations between leptin and adiponectin levels with bone mineral density (BMD) have been reported in different populations, and occasionally, controversial results have been demonstrated. Until now, these relationships in spinal cord-injured individuals have not yet been described. PURPOSE: We tried to investigate the correlation between leptin and adiponectin concentrations in plasma and BMD in Iranian patients with spinal cord injury (SCI). STUDY DESIGN/SETTING: Cross-sectional investigation. PATIENT SAMPLE: Referred patients with SCI who did not meet our exclusion criteria such as pregnancy, lactation, amputation, history of diabetes, cancer, endocrinology disease, and use of special medications entered the study. OUTCOME MEASURES: Bone mineral density of femoral neck, trochanter, intertrochanteric zone, total hip, and lumbar vertebrae assessed by dual-energy X-ray absorptiometry and serum leptin and adiponectin levels measured by blood sample analysis using immunoassay techniques. METHODS: Patient demographic characteristics were measured during face-to-face visits. Injury level and Spinal cord Injury Association (ASIA) score were assessed by clinical examination and were confirmed by imaging aids. Measured levels of leptin and adiponectin and dual-energy X-ray absorptiometry results were analyzed with partial correlation analysis method after adjustment for weight, body mass index (BMI), and age. RESULTS: Total of 104 patients (19 females and 85 males) entered this investigation. Higher leptin concentration was significantly associated with higher BMD in femoral neck (p=.006, r=0.73), femoral intertrochanteric zone (p=.001, r=0.83), and hip (p=.001, r=0.81) only in female patients, whereas no such association was detected in male participants after adjusting for BMI and age. Leptin and adiponectin levels were not associated with lumbar spine BMD in both genders. Neither injury level nor ASIA score and plegia type (paraplegia or tetraplegia) influenced on leptin and adiponectin concentrations. CONCLUSIONS: We found no association between leptin concentration and BMD in male individuals, whereas a positive correlation between leptin and BMD of femoral neck, intertrochanter, and hip was observed in female patients that shows a sexual polymorphism in this relationship. However, by considering the low number of female participants, these results should be interpreted cautiously. Lumbar spine BMD was associated with neither leptin nor adiponectin level in both genders. Copyright 2015 Elsevier Inc. All rights reserved.

Publication type: Journal Article

Source: MEDLINE

38. Title: Restoring function after spinal cord injury: Towards clinical translation of experimental strategies

Citation: The Lancet Neurology, December 2014, vol./is. 13/12(1241-1256), 1474-4422;1474-4465 (01 Dec 2014)

Author(s): Ramer L.M., Ramer M.S., Bradbury E.J.

Language: English

Abstract: Spinal cord injury is currently incurable and treatment is limited to minimising secondary complications and maximising residual function by rehabilitation. Improved understanding of the pathophysiology of spinal cord injury and the factors that prevent nerve and tissue repair has fuelled a move towards more ambitious experimental treatments aimed at promoting neuroprotection, axonal regeneration, and neuroplasticity. By necessity, these new options are more invasive. However, in view of recent advances in spinal cord injury research and demand from patients, clinicians, and the scientific community to push promising experimental treatments to the clinic, momentum and optimism exist for the translation of candidate experimental treatments to clinical spinal cord injury. The ability to rescue, reanimate, and rewire spinal systems to restore function after spinal cord injury might soon be within reach.

Publication type: Journal: Review

Source: EMBASE

39. Title: Say "no" to spinal cord injury: Is nitric oxide an option for therapeutic strategies

Citation: International Journal of Neuroscience, February 2015, vol./is. 125/2(81-90), 0020-7454;1563-5279 (01 Feb 2015)


Language: English

Abstract: Purpose: a literature review was made to investigate the role of nitric oxide (NO) in spinal cord injury, a pathological condition that leads to motor, sensory, and autonomic deficit. Besides, we were interested in potential therapeutic strategies interfering with NO mechanism of secondary damage. MATERIALS: A literature search using PubMed Medline database has been performed. RESULTS: Excessive NO production after spinal cord injury promotes oxidative damage perpetuating the injury causing neuronal loss at the injured site and in the surrounding area. CONCLUSION: different therapeutic approaches for contrasting or avoiding NO secondary damage have been studied, these include nitric oxide
synthase inhibitors, compounds that interfere with inducible NO synthase expression, and molecules working as antioxidant. Further studies are needed to explain the neuroprotective or cytotoxic role of the different isofoms of NO synthase and the other mediators that take part or influence the NO cascade. In this way, it would be possible to find new therapeutic targets and furthermore to extend the experimentation to humans.

**Publication type:** Journal: Review  
**Source:** EMBASE

**40. Title:** Sequential changes of ascending myelopathy after spinal cord injury on magnetic resonance imaging: A case report of neurologic deterioration from paraplegia to tetraplegia  
**Citation:** Spine Journal, December 2014, vol./is. 14/12(e9-e14), 1529-9430;1878-1632 (01 Dec 2014)  
**Author(s):** Okada S., Saito T., Kawano O., Hayashida M., Matsumoto Y., Harimaya K., Iwamoto Y.  
**Language:** English  
**Abstract:** Background context Marked neurologic deterioration within a few days of traumatic spinal cord injury, known as subacute posttraumatic ascending myelopathy, is rare. Although several hypotheses regarding the pathogenesis of this condition have been proposed, the details remain elusive. 2014 Elsevier Inc. Purpose To report a case of ascending myelopathy in which a series of magnetic resonance images (MRIs) taken through the course of the illness helped follow the course of the disease and discuss possible pathogenesis. Study design Case report and review of the literature. Patient sample A 75-year-old woman involved in a motor vehicle collision sustained a fracture dislocation of T7-T8 with complete paraplegia below T8. Methods Neurologic examination and radiologic imaging taken by various means. Results Posterior surgical stabilization was performed 18 hours after the injury. Both the surgical and postsurgical courses were uneventful. Four days after the injury, however, the patient reported feeling a tingling sensation in the right-hand fingers and gradually suffered from motor weakness of the upper extremities, deteriorating within a few hours to complete tetraplegia and ventilator dependence. Subsequent cervicothoracic MRI showed abrupt cord swelling with abnormal areas of signal intensity in the cervical and upper thoracic spinal cord during the interval between the onset of tingling and the development of motor paralysis in the arms. On the 20th postsurgical day, an area of hypointensity within the region of high intensity was observed on T2-weighted MRIs, indicating intramedullary spinal cord hemorrhage. Conclusions Our MRI findings suggest that systemically increased intraspinal pressure resulting from the impairment of spinal venous drainage is involved in the pathogenesis of ascending myelopathy. Although ascending myelopathy is often thought to be partly reversible, persisting increase of the intraspinal pressure may result in intramedullary hemorrhage and irreversible neurologic deficit.  
**Publication type:** Journal: Review  
**Source:** EMBASE

**41. Title:** The effects of electrical stimulation on body composition and metabolic profile after spinal cord injury - Part II.  
**Citation:** Journal of Spinal Cord Medicine, January 2015, vol./is. 38/1(23-37), 1079-0268;1079-0268 (2015 Jan)  
**Author(s):** Gorgey AS, Dolbow DR, Dolbow JD, Khalil RK, Gater DR  
**Language:** English  
**Abstract:** Diet and exercise are cornerstones in the management of obesity and associated metabolic complications, including insulin resistance, type 2 diabetes, and disturbances in the lipid profile. However, the role of exercise in managing body composition adaptations and metabolic disorders after spinal cord injury (SCI) is not well established. The current review summarizes evidence about the efficacy of using neuromuscular electrical stimulation or functional electrical stimulation in exercising the paralytic lower extremities to improve body composition and metabolic profile after SCI. There are a number of trials that investigated the effects on muscle cross-sectional area, fat-free mass, and glucose/lipid metabolism. The duration of the intervention in these trials varied from 6 weeks to 24 months. Training frequency ranged from 2 to 5 days/week. Most studies documented significant increases in muscle size but no noticeable changes in adipose tissue. While increases in skeletal muscle size after twice weekly training were greater than those trials that used 3 or 5 days/week, other factors such as differences in the training mode, i.e. resistance versus cycling exercise and pattern of muscle activation may be responsible for this observation. Loading to evoke muscle hypertrophy is a key component in neuromuscular training after SCI. The overall effects on lean mass were modest and did not exceed 10% and the effects of training on trunk or pelvic muscles remain unestablished. Most studies reported improvement in glucose metabolism with the enhancement of insulin sensitivity being the major factor following training. The effect on lipid profile is unclear and warrants further investigation.  
**Publication type:** Journal Article  
**Source:** MEDLINE  
**Full text:** Available The journal of spinal cord medicine at Journal of Spinal Cord Medicine, The

**42. Title:** The good, the bad and the ugly of catheterization practices among elite athletes with spinal cord injury: a global perspective.  
**Citation:** Spinal Cord, January 2015, vol./is. 53/1(78-82), 1362-4393;1476-5624 (2015 Jan)  
**Author(s):** Krassioukov A, Cragg JJ, West C, Voss C, Krassioukov-Enns D
Abstract: STUDY DESIGN: Despite significant progress in bladder management, urinary tract infections (UTIs) are still common among individuals with spinal cord injury (SCI), and could negatively impact their health and quality of life. However, there are no data available on bladder management and frequency of UTIs among elite athletes with SCI.METHODS: Athletes were assessed during the London 2012 Paralympic Games and 2013 Paracycling World Championships. Athletes completed the standard form of the International Standards to Document remaining Autonomic Functions after SCI, along with the standardized Autonomic Function Questionnaire.RESULTS: A total of 61 (age=35.5+/-.7.7 years (mean+/s.d.); time since injury=16.0+/-.7.6 years) elite athletes from 15 countries with traumatic SCI and who used clean intermittent catheterization were included in this study. The majority (75%) were from developed nations. Athletes catheterized on average 6+/2 times per day. We found that individuals who reused catheters experienced more frequent UTIs (P<0.001). We also demonstrated that 83% of individuals from developed nations never reused a single-use catheter, whereas only 27% of individuals from developing nations used a new catheter each time (P<0.001). We also noted a twofold increase in the frequency of UTIs in individuals from developing nations (P=0.027).CONCLUSIONS: This study demonstrates that catheter reuse is intimately linked to UTI frequency and provides novel insight on bladder function and management in elite athletes with SCI. Reasons for catheter reuse may be due to a lack of health education and/or a lack of bladder-management resources. (Support: Craig Nielseni Foundation, ICORD, IPC).

Publication type: Journal Article
Source: MEDLINE

Full text: Available Nature Publishing Group at Spinal Cord

43.Title: The influence of a rocker sole adaptation on gait parameters in spinal cord injury patients ambulating with the advanced reciprocating gait orthosis - a pilot study.
Citation: Disability & Rehabilitation Assistive Technology, January 2015, vol./is. 10/1(89-92), 1748-3107;1748-3115 (2015 Jan)
Author(s): Arazpour M, Hutchins SW, Ahmadi Bani M, Curran S, Bahramizadeh M, Saberi H, Mardani MA
Language: English
Abstract: UNLABELLED: Abstract Objective: When walking with an advanced reciprocating gait orthosis (ARGO), ankle and knee joint motion is restricted which causes an un-cosmetic gait compared to normal walking. The purpose of this study was to develop and evaluate a rocker modification for use with the ARGO in order to improve hip joint kinematics, walking speed, step length and cadence.METHOD: Spinal cord injury patients (n=4) with thoracic-level injury participated in this study, and walked with a standard ARGO and one which was also adapted with a rocker sole in a randomized order.RESULTS: Mean walking speed and step length were both significantly increased by volunteer SCI subjects when ambulating using the ARGO adapted with a rocker sole compared to the standard ARGO. Cadence was not significantly affected, but swing time was significantly reduced and mean hip flexion and extension were both significantly increased when walking with the adapted ARGO.CONCLUSION: The rocker sole modification produced an increase in walking speed and step length, and improved sagittal plane hip joint kinematics when ambulating using an ARGO. Using this type of shoe modification has the potential to improve gait parameters in SCI patients compared to the standard unmodified version. Implications for Rehabilitation The ARGO adapted with a rocker sole could be used by spinal cord injury patients. A major advantage of the walking with the ARGO adapted with a rocker sole was increased walking speed and step length, and improvement of the sagittal plane hip joint kinematics. The findings of this study would appear to provide useful data for rehabilitation teams who utilize orthoses to walk and rehabilitate SCI subjects. Using this type of shoe modification has the potential to improve gait parameters in SCI patients compared to the standard un-modified version.

Publication type: Journal Article
Source: MEDLINE

44.Title: The microanatomy of spinal cord injury: A review
Citation: Clinical Anatomy, January 2015, vol./is. 28/1(27-36), 0897-3806;1098-2353 (01 Jan 2015)
Language: English
Abstract: Spinal cord injury is a highly prevalent condition associated with significant morbidity and mortality. The pathophysiology underlying it is extraordinarily complex and still not completely understood. We performed a comprehensive literature review of the pathophysiologic processes underlying spinal cord injury. The mechanisms underlying primary and secondary spinal cord injury are distinguished based on a number of factors and include the initial mechanical injury force, the vascular supply of the spinal cord which is associated with spinal cord perfusion, spinal cord autoregulation, and post-traumatic ischemia, and a complex inflammatory cascade involving local and infiltrating immunomodulating cells. This review illustrates the current literature regarding the pathophysiology behind spinal cord injury and outlines potential therapeutic options for reversing these mechanisms. Clin. Anat. 28:27-36, 2015.

Publication type: Journal: Review
Source: EMBASE
Over time, various treatment modalities for spinal cord injury have been trialed, including pharmacological and nonpharmacological methods. Among these, replacement of the injured neural and paraneural tissues via cellular transplantation of neural and mesenchymal stem cells has been the most attractive. Extensive experimental studies have been done to identify the safety and effectiveness of this transplantation in animal and human models. Herein, we review the literature for studies conducted, with a focus on the human-related studies, recruitment, isolation, and transplantation, of these multipotent stem cells, and associated outcomes. Clin. Anat. 28:37-44, 2015.

**UNLABELLED: Abstract**

**Purpose:** The purpose of this article is to explore the use of Mobile Shower Commodes (MSCs) by adults with Spinal Cord Injury (SCI) and to understand how adults with SCI and expert clinicians identify and select MSC designs and features.

**Method:** Semi-structured interviews were conducted with seven adults with SCI and eight expert clinical prescribers using semi-structured guides. Transcripts were analysed thematically using the Policy, Human, Activity, Assistance and Technology, and Environment (PHAATE) model as the underpinning theoretical framework.

**Results:** Analysis of the interview transcripts revealed 3 themes and 12 sub-themes. The main themes were:
1. Activities, routines and interacting factors,
2. Features for functioning and
3. Getting it right. Substantial links existed between and across the themes and subthemes.

**Conclusions:** The use of MSCs by adults with SCI is complex. MSC performance varies across activities, and during interactions between the user, the MSC, other assistive technologies, assistance and physical environments. Future studies should explore service delivery processes and develop validated clinical assessment instruments and outcome measures for MSC provision. Implications for Rehabilitation Mobile shower commode use is complex, involving nine distinct activities and three types of routines. Mobile shower commodes used by Australian adults with SCI are individualised to users and include customisations and custom-made components. Trialling individualised mobile shower commodes prior to funding is problematic and not reflected in assistive service delivery models. Validated clinical instruments for assessing and selecting mobile shower commode features are needed.
News

NHS Choices

'Bionic' spinal implant helped paralysed rats walk
Friday Jan 9 2015
"Elastic implant 'restores movement' in paralysed rats," BBC News reports after researchers developed an implant that can be used to treat damaged spinal cords in rats...

Disclaimer and Feedback

This current awareness bulletin contains a selection of information which is not intended to be exhaustive, and although library staff have made every effort to link only to reputable and reliable websites, the information contained in this bulletin has not been critically appraised by library staff. It is therefore the responsibility of the reader to appraise this information for accuracy and relevance.

This bulletin was produced by Caroline Thomas, Librarian, Salisbury NHS Foundation Trust Healthcare Library. If you have any comments to make about this bulletin please contact Caroline.thomas@salisbury.nhs.uk.