***Occupational and Physical Therapy Management of Spinal Cord Injury***

**References -** Listed in order of presentations during the course

**General, ISNCSCI, Prognosis, Functional Outcomes**

* American Spinal Injury Association. *International Standards for Neurological Classification of Spinal Cord Injury.* Available at: https://asia-spinalinjury.org/learning/
* Anderson K, Aito S, Atkins M, Biering-Sørensen F, Charlifue S, Curt A, Ditunno J, Glass C, Marino R, Marshall R, Mulcahey MJ. Functional recovery measures for spinal cord injury: an evidence-based review for clinical practice and research: report of the national institute on disability and rehabilitation research spinal cord injury measures meeting. *The journal of spinal cord medicine*. 2008;31(2):133-44.
* Consortium for Spinal Cord Medicine. *Functional Outcomes after Traumatic Spinal Cord Injury*. Washington, DC: Paralyzed Veterans of America, 1999.
* Kirshblum et al. International Standards for Neurological Classification of Spinal Cord Injury (Revised 2011). *J Spinal Cord Med.*  2011; 34(6): 535-546.
* Kirshblum S, Millis S, McKinley W, Tulsky D. Late neurologic recovery after traumatic spinal cord injury. *Arch Phys Med Rehabil* 2004; 85: 1811-7.
* Kirshblum, S. C., and O’Connor, K. C. Predicting neurologic recovery in traumatic cervical spinal cord injury. *Arch Phys Med Rehabil*. 1998; 79: 1456–1466.
* Middendorp J, Hosman A, Donders R, et al. A clinical prediction rule for ambulation outcomes after traumatic spinal cord injury: a longitudinal cohort study. *Lancet*. 2011;377(9770):1004–1010.
* National Spinal Cord Injury Statistical Center. *Spinal cord injury: Facts and figures at a glance.* 2018. Spinal Cord Injury Information Network. Model Systems Knowledge Translation Center website. Available at: [www.msktc.org/sci](http://www.msktc.org/sci)
* Scivoletto G, Tamburella F, Laurenza L, Torre M, Molinari M. Who is going to walk? A review of the factors influencing walking recovery after spinal cord injury. *Front Hum Neurosci*. 2014;8: article 141.
* Somers MF. *Spinal Cord Injury Functional Rehabilitation.* 3rd Edition.Prentice-Hall, Inc; 2010.
* Wilson JR, Grossman RG, Frankowski RF, et al. A Clinical Prediction Model for Long-Term Functional Outcome after Traumatic Spinal Cord Injury Based on Acute Clinical and Imaging Factors *J Neurotrauma* 2012; 29:2263–2271.
* Wilson J, Jaja B, Kwon B, et al. Natural History, Predictors of Outcome, and Effects of Treatment in Thoracic Spinal Cord Injury: A Multi-Center Cohort Study from the North American Clinical Trials Network. Journal of Neurotrauma. 2018.

**Medical Complications after SCI**

* Aslan S, Randall D, Krassioukov A, Phillips A, Ovechkin A. Respiratory Training Improves Blood Pressure Regulation in Individuals With Chronic Spinal Cord Injury. *Arch Phys Med Rehabil.* 2016;97(6):964–973.
* Bauman CA, Milligan JD, Lee FJ, Riva JJ. Autonomic dysreflexia in spinal cord injury patients: an overview. *J Can Chiropr Assoc* 2012; 56(4).
* Berlowitz D, Wadsworth B, Ross J. Respiratory problems and management in people with spinal cord injury. *Breathe*. 2016;12(4):328–340.
* [Citak M](http://www.ncbi.nlm.nih.gov/pubmed/?term=Citak%20M%5BAuthor%5D&cauthor=true&cauthor_uid=26643987), et al. The roles of serum alkaline and bone alkaline phosphatase levels in predicting heterotopic ossification following spinal cord injury. [*Spinal Cord.*](http://www.ncbi.nlm.nih.gov/pubmed/26643987) 2016;54(5):368-70 .
* Consortium for Spinal Cord Medicine. *Acute Management of Autonomic Dysreflexia: Individuals with Spinal Cord Injury Presenting to Health-Care Facilities*. 2nd Edition. Washington, DC: Paralyzed Veterans of America, 2001.
* Consortium for Spinal Cord Medicine. *Pressure Ulcer Prevention and Treatment Following Spinal Cord Injury: A Clinical Practice Guideline for Health-Care Professionals*. 2nd Edition. Washington, DC: Paralyzed Veterans of America, 2014.
* Consortium for Spinal Cord Medicine. *Respiratory Management Following Spinal Cord Injury: A Clinical Practice Guideline for Health-Care Professionals.* Paralyzed Veterans of America. 2005.
* European Pressure Ulcer Advisory Panel. Available at URL: [http://epuap.org](http://epuap.org/); US National Pressure Ulcer Advisory Panel. Available at URL: [http://npuap.org](http://npuap.org/)
* Frownfelter D, Massery M. Facilitating airway clearance with coughing techniques. In: Frownfelter D, Dean E, eds. *Cardiovascular and Pulmonary Physical Therapy Evidence and Practice, ed. 4.* St. Louis, MO: [Mosby & Elsevier Health Sciences](http://www.us.elsevierhealth.com/product.jsp?isbn=032302775X); 2006: Chapter 22:363-376.
* Genêt F, Kulina I, et al. Neurological heterotopic ossification following spinal cord injury is triggered by macrophage‐mediated inflammation in muscle. *J Pathol*. 2015; 236(2):229-40.
* Hagen E. Acute complications of spinal cord injuries. World Journal of Orthopedics. 2015;6(1):17.
* Hart N, Laffont I, Perez de La Sota A, et al. Respiratory effects of combined truncal and abdominal support in patients with spinal cord injury. *Arch Phys Med Rehabil.* 2005;86:1447-1451.
* McCaughey, Borotkanics, Gollee, Folz, McLachlan. Abdominal functional electrical stimulation to improve respiratory function after spinal cord injury: a systematic review and meta-analysis. *Spinal Cord*. 2016;54(9):628–639.
* Sezer N, Akkuş S, Uğurlu FG. Chronic complications of spinal cord injury. World journal of orthopedics. 2015 Jan 18;6(1):24.
* Tran J, McLaughlin J, Li R, Phillips L. Prevention of Pressure Ulcers in the Acute Care Setting: New Innovations and Technologies. *Plast Reconstr Surg*. 2016;138(3S):232S.
* Wong S, Shem K, Crew J. Specialized Respiratory Management for Acute Cervical Spinal Cord Injury: A Retrospective Analysis. *Topics in Spinal Cord Injury Rehabilitation*. 2012;18(4):283–290.
* Zychowicz M. Pathophysiology of Heterotopic Ossification. *Orthop Nurs*. 2013;32(3):173.

**Bowel/Bladder Management, Sexuality**

* Adriaansen JJ, Ruijs LE, van Koppenhagen CF, van Asbeck FW, Snoek GJ, van Kuppevelt D, et al. Secondary health conditions and quality of life in persons living with spinal cord injury for at least ten years. *J Rehabil Med.*  2016; 48(10): 853-860.
* Al Taweel W, Seyam R. Neurogenic bladder in spinal cord injury patients. *Research and reports in urology*. 2015;7:85.
* Barbonetti A, Cavallo F, Felzani G, Francavilla S, Francavilla F. Erectile dysfunction is the main determinant of psychological distress in men with spinal cord injury. *J sexual medicine*. 2012 Mar 1;9(3):830-6.
* Bozan BC, Karamehmetoglu SS, Koyuncu H. The sex effect on the perceived significance of functional loss due to spinal cord injury. *Neurosurgery quarterly.* 2015; 25(3): 388-391.
* Cabigon, R. D.,Wojciechowski, E., Rosen, L.,Miller, D.,Mix, C., Chen, D. (2017). Interprofessional collaboration and peer mentors for bowel education in spinal cord injury. *Rehabil Nursing*, Publish Ahead of Print, 13 December 2017.
* Fritz HA, Dillaway H, Lysack C. Don't think paralysis takes away your womanhood: Sexual intimacy after spinal cord injury. 2015;69:1-10.
* Gomes CM, Miranda EP, de Bessa Jr J, Bellucci CH, Battistella LR, Abdo CH, Bruschini H, Srougi M, Mulhall JP. Erectile function predicts sexual satisfaction in men with spinal cord injury. *Sexual medicine*. 2017;5(3):e148-55.
* Hess MJ, Hough S. Impact of spinal cord injury on sexuality: broad-based clinical practice intervention and practical application. *J Spinal Cord Med*. 2012 Jul 1;35(4):211-8.
* Johns, J., Krogh, K., Rodriguez, G. M., Eng, J., Haller, E., Heinen, M., Laredo, R., Longo, W., Montero-Colon, W., & Korsten, M. (2021). Management of Neurogenic Bowel Dysfunction in Adults after Spinal Cord Injury: Clinical Practice Guideline for Healthcare Providers. Journal of Spinal Cord Med. 2021.
* Kasum M, Oreskovic S, Kordic M, Cehic E, Hauptman D, Ejubovic E, Lila A, Smolcic G. Improvement of Sexual and Reproductive Function in Men with Spinal Cord Lesion. *Acta Clinica Croatica*. 2018;57(1):149-57.
* Khak M, Hassanijirdehi M, Afshari-Mirak S, Holakouie-Naieni K, Saadat S, Taheri T, Rahimi-Movaghar V. Evaluation of sexual function and its contributing factors in men with spinal cord injury using a self-administered questionnaire. *American journal of men's health*. 2016;10(1):24-31.
* Koyuncu E, Nakipoglu Yuzer GF, Tasoglu O, Kasap Z, Ozgirgin N. Neurogenic Bowel Dysfunction and its Effect on Quality of Life in Patients with Spinal Cord Injury. *J PMR Sci* 2017; 20:77-82.
* Krassioukov A, Elliott S. Neural Control and Physiology of Sexual Function: Effect of Spinal Cord Injury. *Topics in spinal cord injury rehabilitation*. 2017;23(1):1-10.
* Otero-Villaverde S, Ferreiro-Velasco ME, Montoto-Marqués A, Salvador de la Barrera S, Arias-Pardo AI, Rodriguez-Sotillo A. Sexual satisfaction in women with spinal cord injuries. *Spinal Cord.* 2015; 53:557-60.
* Park SE, Elliott S, Noonan VK, Thorogood NP, Fallah N, Aludino A, et al. Impact of bladder, bowel and sexual dysfunction on health status of people with thoracolumbar spinal cord injuries living in the community. *J Spinal Cord Med.* 2016 Aug 31;1–12.
* Patel DP, Lenherr SM, Stoffel JT, Elliott SP, Welk B, Presson AP, Jha A, Rosenbluth J, Myers JB. Study protocol: patient reported outcomes for bladder management strategies in spinal cord injury. *BMC* urology. 2017;17(1):95.
* Simpson LA, Eng JJ, Hsieh JT, Wolfe and the Spinal Cord Injury Rehabilitation Evidence (SCIRE) Research Team DL. The health and life priorities of individuals with spinal cord injury: a systematic review. *J neurotrauma*. 2012 May 20;29(8):1548-55.
* Stoffel JT, Van der Aa F, Wittmann D, Yande S, Elliott S. Fertility and sexuality in the spinal cord injury patient. *World J Urol*. 2018;36(10):1577-1585.
* Tate DG, Forchheimer M, Rodriguez G, Chiodo A, Cameron AP, Meade M, Krassioukov A. Risk factors associated with neurogenic bowel complications and dysfunction in spinal cord injury. *Arch Phys Med Rehab.*  2016 Oct 31;97(10):1679-86.
* Tulsky DS, Kisala PA, Victorson D, Tate DG, Heinemann AW, Charlifue S, Kirshblum SC, Fyffe D, Gershon R, Spungen AM, Bombardier CH. Overview of the spinal cord injury–quality of life (SCI-QOL) measurement system. *The journal of spinal cord medicine*. 2015;38(3):257-69.
* Zlatev DV, Shem K, Elliott CS. How many spinal cord injury patients can catheterize their own bladder? The epidemiology of upper extremity function as it affects bladder management. *Spinal Cord*. 2016 Apr; 54(4):287-91.

**Shoulder Dysfunction**

* Consortium for Spinal Cord Medicine. *Preservation of Upper Limb Function Following SCI*. Washington, DC: Paralyzed Veterans of America; 2005.
* Donatelli R, McMahon T. Physical therapy of the shoulder (5th ed). Manual therapy techniques. St. Louis. Churchhill Livingstone. 2012:305-327.
* Elkstrom R, Osborn R. Physical therapy of the shoulder (5th ed). Muscle length testing and electromyographic evidence for manual strength testing and exercises for the shoulder. St. Louis. Churchill Livingstone. 2012:329-350.
* Ludewig PM, Reynolds JF. The Association of Scapular Kinematics and Glenohumeral Joint Pathologies. *J Orthop Sports Phys Ther*. 2009 February ; 39(2): 90–104.
* Mulroy SJ, Thompson L, Kemp B, et al. Strengthening and Optimal Movements for Painful Shoulders (STOMPS) in chronic spinal cord injury: a randomized controlled trial. *Phys Ther* 2011; 91:305–324.
	+ Appendix of actual exercises available here: [http://sci.washington.edu/spasticity/Paraplegic%20shld%20therex%20instructions%20(STOMPS)-%20part%201.pdf](http://sci.washington.edu/spasticity/Paraplegic%20shld%20therex%20instructions%20%28STOMPS%29-%20part%201.pdf)
* Thurner MS, Donatelli RA, Basharon R. Subscapularis Syndrome: A Case Report. *Int J Sports Phys Ther.* Dec 2013; 8(6): 871–882.

**Seating and Mobility**

* Dysterheft J, Rice I, Learmonth Y, Kinnett-Hopkins D, Motl R. Effects of Daily Physical Activity Level on Manual Wheelchair Propulsion Technique in Full-Time Manual Wheelchair Users During Steady-State Treadmill Propulsion. *Arch Phys Med Rehab.* 2017;98(7):1374-81.
* Gagnon DH, Roy A, Gabison S, Duclos C, Verrier MC, Nadeau S. Effects of seated postural stability and trunk and upper extremity strength on performance during manual wheelchair propulsion tests in individuals with spinal cord injury: an exploratory study. *Rehabilitation Research and Practice*. 2016; <http://dx.doi.org/10.1155/2016/6842324>
* Harrand J, Bannigan K. Do tilt-in-space wheelchairs increase occupational engagement: a critical literature review. *Disability and Rehabilitation: Assistive Technology*. 2016;11(1):3-12.
* Jan YK, Crane BA, Liao F, Woods JA, Ennis WJ. Comparison of muscle and skin perfusion over the ischial tuberosities in response to wheelchair tilt-in-space and recline angles in people with spinal cord injury. *Archives of physical medicine and rehabilitation.* 2013;94(10):1990-6.
* Learmonth YC, Kinnett-Hopkins D, Rice IM, Dysterheft JL, Motl RW. Accelerometer output and its association with energy expenditure during manual wheelchair propulsion. *Spinal cord*. 2016; 54(2):110.
* Moon Y, Jayaraman C, Hsu IM, Rice IM, Hsiao-Wecksler ET, Sosnoff JJ. Variability of peak shoulder force during wheelchair propulsion in manual wheelchair users with and without shoulder pain. *Clinical Biomechanics.* 2013;28(9-10):967-72.
* Requejo PS, McNitt-Gray JL. Wheeled Mobility Biomechanics. *Frontiers in bioengineering and biotechnology.* 2016; 28(4):53. <https://www.frontiersin.org/articles/10.3389/fbioe.2016.00053/full>
* Rosin NR, Tabibi RS, Trimbath JD, Henzel MK. A Primary Care Provider's Guide to Prevention and Management of Pressure Injury and Skin Breakdown in People With Spinal Cord Injury. *Top Spinal Cord Inj Rehabil*. 2020;26(3):177-185. doi:10.46292/sci2603-177
* Sprigle S, Maurer C, Sorenblum SE. Load redistribution in variable position wheelchairs in people with spinal cord injury. *The journal of spinal cord medicine.* 2010;33(1):58-64.
* Sosnoff JJ, Rice IM, Hsiao-Wecksler ET, Hsu IM, Jayaraman C, Moon Y. Variability in wheelchair propulsion: a new window into an old problem. *Frontiers in bioengineering and biotechnology.* 2015;3:105. <https://www.frontiersin.org/articles/10.3389/fbioe.2015.00105/full>

**Standing and Gait for the Motor Incomplete Client**

* Beekman C, Perry J, Boyd L, Newsam CJ, Mulroy SJ. The Effects of a Dorsiflexion-Stopped Ankle-Foot Orthosis on Walking in Individuals with Incomplete Spinal Cord Injury.  *Top Spinal Cord Inj Rehabil.* 2000; 5(4): 54-62.
* Behrman AL, Bowden MG, Nair PM. Neuroplasticity After Spinal Cord Injury and Training: An Emerging Paradigm Shift in Rehabilitation and Walking Recovery. *Phys Ther*. 2006; 86(10): 1406-1425.
* Brown AK, Woller SA, Moreno G, Grau JW, Hook MA. Exercise therapy and recovery after SCI: evidence that shows early intervention improves recovery of function. *Spinal Cord*. 2011; 49: 623-628.
* Buehner J, Forrest G, Schmidt-Read M, White S, Tansey K, Basso M. Relationship Between ASIA Examination and Functional Outcomes in the NeuroRecovery Network Locomotor Training Program. *Arch Phys Med and Rehab.* 2012;93(9):1530–1540.
* Dobkin B, et al. Weight-supported treadmill vs. over-ground training for walking after acute incomplete SCI. *Neurology.* 66(4): 2006; 484-493.
* Field-Fote EC, Lindley SD, Sherman AL. Locomotor Training Approaches for Individuals with Spinal Cord Injury: A Preliminary Report of Walking-related Outcomes. *J Neuro Phys Ther.* 29(3): 2005;127-137.
* Leech, Kinnaird, Holleran, Kahn, Hornby. Effects of Locomotor Exercise Intensity on Gait Performance in Individuals With Incomplete Spinal Cord Injury. *Physical Therapy*. 2016;96(12):1919–1929.
* Middendorp, J.J. et al. 2011. A clinical prediction rule for ambulation outcomes after traumatic spinal cord injury: a longitudinal cohort study. *The Lancet*. 377, 9770 (2011), 1004–1010.
* Paleg, G. and Livingstone, R. Systematic review and clinical recommendations for dosage of supported home-based standing programs for adults with stroke, spinal cord injury and other neurological conditions. *BMC musculoskeletal disorders*. 2015; 16: 358.
* Wirz M, Zemon DH, Rupp R, Scheel A, Colombo G, Dietx V, Hornby TG. Effectiveness of Automated Locomotor Training in Patients with Chronic Incomplete Spinal Cord Injury: A Multi-Center Trial. *Arch Phys Med and Rehab. 2005;* 86(4): 672-680.

**Activities of Daily Living and Home Considerations**

* Chapparo C, Ranka J. The perceive, recall, plan, perform (PRPP) system of task analysis. The PRPP Research Training Manual, 2nd ed., University of Sydney, Lidcombe, NSW, Australia. 1996:1-11.
* Hooper B, Verdonck M, Amsters D, Myburg M, Allan E. Smart-device environmental control systems: experiences of people with cervical spinal cord injuries. *Disabil Rehabil Assist Technol*. 2018;13(8):724-730.
* Ullrich PM, Spungen AM, Atkinson D, Bombardier CH, Chen Y, Erosa NA, Groer S, Ottomanelli L, Tulsky DS. Activity and participation after spinal cord injury: state-of-the-art report. *Journal of Rehabilitation Research & Development.* 2012;49(1):155-174.
* Wirz M, Dietz V, EMSCI Network. Recovery of sensorimotor function and activities of daily living after cervical spinal cord injury: the influence of age. *Journal of neurotrauma*. 2015;32(3):194-9.

**Splinting**

* Jung HY, Lee J, Shin HI. The natural course of passive tenodesis grip in individuals with spinal cord injury with preserved wrist extension power but paralyzed fingers and thumbs. *Spinal cord*. 2018; 22:1.
* Kilgore KL, Bryden A, Keith MW, Hoyen HA, Hart RL, Nemunaitis GA, Peckham PH. Evolution of Neuroprosthetic Approaches to Restoration of Upper Extremity Function in Spinal Cord Injury. *Topics in spinal cord injury rehabilitation*. 2018; 24(3):252-64.
* Portnova AA, Mukherjee G, Peters KM, Yamane A, Steele KM (2018) Design of a 3D-printed, open-source wrist-driven orthosis for individuals with spinal cord injury. PLoS ONE 13(2): e0193106. <https://doi.org/10.1371/journal.pone.0193106>

**Shoulder Dysfunction**

* Consortium for Spinal Cord Medicine. *Preservation of Upper Limb Function Following SCI*. Washington, DC: Paralyzed Veterans of America; 2005.
* Donatelli R, McMahon T. Physical therapy of the shoulder (5th ed). Manual therapy techniques. St. Louis. Churchhill Livingstone. 2012:305-327.
* Elkstrom R, Osborn R. Physical therapy of the shoulder (5th ed). Muscle length testing and electromyographic evidence for manual strength testing and exercises for the shoulder. St. Louis. Churchill Livingstone. 2012:329-350.
* Ludewig PM, Reynolds JF. The Association of Scapular Kinematics and Glenohumeral Joint Pathologies. *J Orthop Sports Phys Ther*. 2009 February ; 39(2): 90–104.
* Mulroy SJ, Thompson L, Kemp B, et al. Strengthening and Optimal Movements for Painful Shoulders (STOMPS) in chronic spinal cord injury: a randomized controlled trial. *Phys Ther* 2011; 91:305–324.
	+ Appendix of actual exercises available here: [http://sci.washington.edu/spasticity/Paraplegic%20shld%20therex%20instructions%20(STOMPS)-%20part%201.pdf](http://sci.washington.edu/spasticity/Paraplegic%20shld%20therex%20instructions%20%28STOMPS%29-%20part%201.pdf)
* Thurner MS, Donatelli RA, Basharon R. Subscapularis Syndrome: A Case Report. *Int J Sports Phys Ther.* Dec 2013; 8(6): 871–882.

**Psychosocial Considerations**

* Anderson, Delany. From Persuasion to Coercion: Responding to the Reluctant Patient in Rehabilitation. *Physical Therapy*. 2016;96(8):1234–1240. doi:10.2522/ptj.20150586
* Charlifue SB, Botticello A, Kolakowsky-Hayner SA, Richards JS, Tulsky DS. Family caregivers of individuals with spinal cord injury: exploring the stresses and benefits. *Spinal cord*. 2016;54(9):732.
* Hettema J, Steele J, Miller W. Motivational Interviewing. *Clin Psychology*. 2005;1(1):91–111.