## **Spasticity in TBI**

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Fact Sheet	References:
	1. Segal M. Muscle overactivity in the upper motor neuron syndrome: pathophysiology. Phys Med Rehabil Clin N Am. 2018 Jun 2;29(3):427–436.
Produced by	<ol> <li>Bose P, Hou J, Thompson F. Traumatic Brain Injury (TBI)-Induced Spasticity: Neurobiology, Treatment, and Rehabilitation. In: Kobeissy FH, editor. Brain Neurotrauma: Molecular, Neuropsychological, and Rehabilitation Aspects [Internet]. Boca Raton, FL: CRC Press/Taylor &amp; Francis; 2015 [cited 2020 Apr 1]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK299194/</li> </ol>
	3. Capizzi A, Woo J, Verduzco-Gutierrez M. Traumatic brain injury: an overview of epidemiology, pathophysiology, and medical management. Med Clin North Am. 2020 Mar;104(2):213–238.
	4. Report to Congress on Traumatic Brain Injury in the United States: Epidemiology and Rehabilitation. Atlanta, GA: U.S. Department of Health and Human Services National Center for Injury Prevention and Control; Division of Unintentional Injury Prevention; 2019.
	5. Banky M, Ryan HK, Clark R, Olver J, Williams G. Do clinical tests of spasticity accurately reflect muscle function during walking: A systematic review. Brain Inj. 2017 Mar 7;31(4):440–455.
	<ol> <li>Ambrose AF, Verghese T, Dohle C, Russo J. Muscle overactivity in the upper motor neuron syndrome: conceptualizing a treatment plan and establishing meaningful goals. Phys Med Rehabil Clin N Am. 2018 Jun 1;29(3):483–500.</li> </ol>
A Special Interest Group of	7. Khan F, Amatya B, Bensmail D, Yelnik A. Non-pharmacological interventions for spasticity in adults: An overview of systematic reviews. Ann Phys Rehabil Med. 2019 Jul;62(4):265–273.
ACADEMY OF NEUROLOGIC PHYSICAL THERAPY Contact us: ANPT 5841 Cedar Lake Rd S. Ste 204 Minneapolis, MN 55416 Phone: 952.646.2038 Fax: 952.545.6073 info@neuropt.org www.neuropt.org	8. Synnot A, Chau M, Pitt V, O'Connor D, Gruen RL, Wasiak J, et al. Interventions for managing skeletal muscle spasticity following traumatic brain injury. Cochrane Database Syst Rev. 2017 Nov 22;11:CD008929.
	9. Leung J, King C, Fereday S. Effectiveness of a programme comprising serial casting, botulinum toxin, splinting and motor training for contracture management: a randomized controlled trial. Clin Rehabil. 2019 Jun;33(6):1035–1044.
	<ol> <li>Thibaut A, Piarulli A, Martens G, Chatelle C, Laureys S. Effect of multichannel transcranial direct current stimulation to reduce hypertonia in individuals with prolonged disorders of consciousness: A randomized controlled pilot study. Ann Phys Rehabil Med. 2019 Nov;62(6):418–425.</li> </ol>
	11. Celletti C, Suppa A, Bianchini E, Lakin S, Toscano M, La Torre G, et al. Promoting post-stroke recovery through focal or whole body vibration: criticisms and prospects from a narrative review. Neurol Sci. 2020 Jan;41(1):11–24.
	12. Miyara K, Kawamura K, Matsumoto S, Ohwatashi A, Itashiki Y, Uema T, et al. Acute changes in cortical activation during active ankle movement after whole-body vibration for spasticity in hemiplegic legs of stroke patients: a functional near-infrared spectroscopy study. Top Stroke Rehabil. 2020 Jan;27(1):67–74.
a component of	13. Estes S, Iddings JA, Ray S, Kirk-Sanchez NJ, Field-Fote EC. Comparison of Single- Session Dose Response Effects of Whole Body Vibration on Spasticity and Walking Speed in Persons with Spinal Cord Injury. Neurotherapeutics. 2018;15(3):684–696.