

Research in Review

Dear Members,

We are pleased to bring to you the April 2020 issue of Research in Review highlighting research articles relevant to neurologic physical therapy over the past months. We hope that you enjoy perusing through the collection of articles we selected for this edition. In the midst of this unprecedented Covid-19 pandemic, our team hopes you are all doing well and staying safe!

We choose recently published articles that are available through a link on PubMed or directly through the link on the Research in Review citation. Please note that to avoid redundancy with other APTA-based research newsletters, typically, we do not include articles published in Physical Therapy or Journal of Neurologic Physical Therapy. However, we included a couple in this cycle due to their importance and impact. We welcome any suggestions or comments you may have to help improve the newsletter.

Sincerely,
Trisha Kesar, PT, PhD
Associate Professor
Division of Physical Therapy
Department of Rehabilitation Medicine
Emory University School of Medicine

Visit the Academy of Neurologic Physical Therapy website

Research Topics

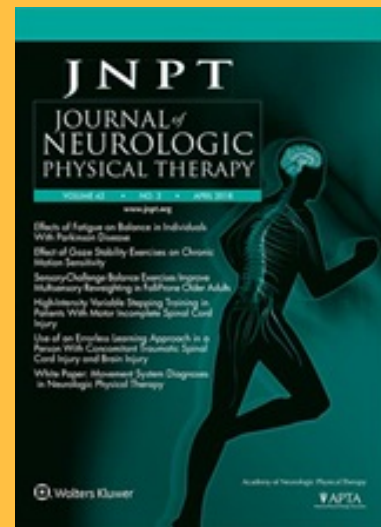
Feature Article

Motor Control

Rehabilitation

Clinical Neurophysiology

Technologies



Full text articles in [JNPT](#) are **free** for members

Feature Article(s)

Advances and challenges in stroke rehabilitation.

Stinear CM, Lang CE, Zeiler S, Byblow WD. Lancet Neurol. 2020 Apr;19(4):348-360.

Clinical Practice Guideline to Improve Locomotor Function Following Chronic Stroke, Incomplete Spinal Cord Injury, and Brain Injury.

Hornby TG, Reisman DS, Ward IG, Scheets PL, Miller A, Haddad D, Fox EJ, Fritz NE, Hawkins K, Henderson CE, Hendron KL, Holleran CL, Lynskey JE, Walter A; and the Locomotor CPG Appraisal Team. J Neurol Phys Ther. 2020 Jan;44(1):49-100.

Italian Physical Therapists' Response to the Novel COVID-19 Emergency.

Paolo Pedersini, Camilo Corbellini, Jorge Hugo Villafañe. Physical Therapy, April 2020 (accepted).

Motor Control

Does disability level impact the relationship of muscle strength to walking performance in people with multiple sclerosis? a cross-sectional analysis.

Mañago MM, Callesen J, Dalgas U, Kittelson J, Schenkman M. Mult Scler Relat Disord. 2020 Mar 13;42:102052.

Management of Spasticity After Traumatic Brain Injury in Children.

Enslin JMN, Rohlwick UK, Figaji A. Front Neurol. 2020 Feb 21;11:126.

Gait asymmetry pattern following stroke determines acute response to locomotor task.

Little VL, Perry LA, Mercado MWV, Kautz SA, Patten C. Gait Posture. 2020 Mar;77:300-307.

Ghost spasticity in multiple sclerosis.

Trompetto C, Currà A, Puce L, Mori L, Palleschi I, Gazzola P, Fabbri S, Uccelli A, Novi G, Crisafulli O, Serrati C, Marinelli L. J Electromyogr Kinesiol. 2020 Apr;51:102408.

Postural control of arm and fingers through integration of movement commands.

Albert ST, Hadjiosif AM, Jang J, Zimnik AJ, Soteropoulos DS, Baker SN, Churchland MM, Krakauer JW, Shadmehr R. Elife. 2020 Feb 11;9.

Effects of remote limb ischemic conditioning on muscle strength in healthy young adults: A randomized controlled trial.

Surkar SM, Bland MD, Mattlage AE, Chen L, Gidday JM, Lee JM, Hershey T, Lang CE. PLoS One. 2020 Feb 4;15(2):e0227263.

Effect of investigator observation on gait parameters in individuals with stroke.

Ardestani MM, Hornby TG. J Biomech. 2020 Feb 13;100:109602.

Differential deficits in spatial and temporal interlimb coordination during walking in persons with incomplete spinal cord injury.

Thibaudier Y, Tan AQ, Peters DM, Trumbower RD. Gait Posture. 2020 Jan;75:121-128.

Rehabilitation

Locomotor training intensity after stroke: Effects of interval type and mode.

Boyne P, Scholl V, Doren S, Carl D, Billinger SA, Reisman DS, Gerson M, Kissela B, Vannest J, Dunning K. Top Stroke Rehabil. 2020 Feb 16:1-11.

Effects of trunk rehabilitation with kinesio and placebo taping on static and dynamic sitting postural control in individuals with chronic stroke: A randomized controlled trial.

Cho YH, Cho KH, Park SJ. Top Stroke Rehabil. 2020 Apr 6:1-10.

Cognitively Challenging Agility Boot Camp Program for Freezing of Gait in Parkinson Disease.

King LA, Mancini M, Smulders K, Harker G, Lapidus JA, Ramsey K, Carlson-Kuhta P, Fling BW, Nutt JG, Peterson DS, Horak FB. Neurorehabil Neural Repair. 2020 Apr 4:1545968320909331.

Advances in neuroprosthetic management of foot drop: a review.

Gil-Castillo J, Alnajjar F, Koutsou A, Torricelli D, Moreno JC. J Neuroeng Rehabil. 2020

Mar 25;17(1):46.

Machine Learning Methods Predict Individual Upper-Limb Motor Impairment Following Therapy in Chronic Stroke.

Tozlu C, Edwards D, Boes A, Labar D, Tsagaris KZ, Silverstein J, Pepper Lane H, Sabuncu MR, Liu C, Kuceyeski A. Neurorehabil Neural Repair. 2020 Mar 20;1545968320909796.

Feasibility of a Home-Based Action Observation Training for Children With Unilateral Cerebral Palsy: An Explorative Study.

Beani E, Menici V, Ferrari A, Cioni G, Sgandurra G. Front Neurol. 2020 Feb 28;11:16.

Moving exercise research in multiple sclerosis forward (the MoXFo initiative): Developing consensus statements for research.

Dalgas U, Hvid LG, Kwakkel G, Motl RW, de Groot V, Feys P, Op't Eijnde B, Coote S, Beckerman H, Pfeifer K, Streber R, Peters S, Riemann-Lorenz K, Rosenkranz SC, Centonze D, Van Asch P, Bansi J, Sandroff BM, Pilutti LA, Ploughman M, Freeman J, Paul L, Dawes H, Romberg A, Kalron A, Stellmann JP, Friese MA, Heesen C. Mult Scler. 2020 Mar 12;1352458520910360.

Accelerated Trajectories of Walking Capacity Across the Adult Life Span in Persons With Multiple Sclerosis: An Underrecognized Challenge.

Hvid LG, Feys P, Baert I, Kalron A, Dalgas U. Neurorehabil Neural Repair. 2020 Mar 4;1545968320907074.

Characterization of Upper Limb Impairments at Body Function, Activity, and Participation in Persons With Multiple Sclerosis by Behavioral and EMG Assessment: A Cross-Sectional Study.

Valè N, Gandolfi M, Mazzoleni S, Battini E, Dimitrova EK, Gajofatto A, Ferraro F, Castelli M, Camin M, Filippetti M, De Paoli C, Picelli A, Corradi J, Chemello E, Waldner A, Saltuari L, Smania N. Front Neurol. 2020 Feb 14;10:1395.

An Exploratory Randomized Trial of Physical Therapy for the Treatment of Chemotherapy-Induced Peripheral Neuropathy.

Andersen Hammond E, Pitz M, Steinfeld K, Lambert P, Shay B. Neurorehabil Neural Repair. 2020 Mar;34(3):235-246.

Effects of Exercise Intensity on Acute Circulating Molecular Responses Poststroke.

Boyne P, Meyrose C, Westover J, Whitesel D, Hatter K, Reisman DS, Carl D, Khoury JC, Gerson M, Kissela B, Dunning K. Neurorehabil Neural Repair. 2020 Mar;34(3):222-234.

Early Mobilization of Mild-Moderate Intracerebral Hemorrhage Patients in a Stroke Center: A Randomized Controlled Trial.

Yen HC, Jeng JS, Chen WS, Pan GS, Chuang Pt Bs WY, Lee YY, Teng T. Neurorehabil Neural Repair. 2020 Jan;34(1):72-81.

Clinical Neurophysiology

Cognitive Impairment and Brain Reorganization in MS: Underlying Mechanisms and the Role of Neurorehabilitation.

Nasios G, Bakirtzis C, Messinis L. Front Neurol. 2020 Mar 6;11:147.

Limited capacity for ipsilateral secondary motor areas to support hand function post-stroke.

Wilkins KB, Yao J, Owen M, Karbasforoushan H, Carmona C, Dewald JPA. J Physiol. 2020 Mar 7.

Test-retest reliability and minimal detectable change of corticospinal tract integrity in chronic stroke.

Lewis AF, Myers M, Heiser J, Kolar M, Baird JF, Stewart JC. Hum Brain Mapp. 2020 Feb 24.

Altered corticomotor latencies but normal motor neuroplasticity in concussed athletes.

Stokes W, Choynowki J, St Pierre M, Anaya MA, Statton MA, Celnik PA, Cantarero G. J Neurophysiol. 2020 Feb 19.

Motor-Equivalent Intersegmental Coordination Is Impaired in Chronic Stroke.
Subramanian SK, Baniña MC, Sambasivan K, Haentjens K, Finestone HM, Sveistrup H, Levin MF. *Neurorehabil Neural Repair*. 2020 Mar;34(3):210-221.

Cerebellar White Matter Damage Is Associated With Postural Sway Deficits in People With Multiple Sclerosis.

Gera G, Fling BW, Horak FB. *Arch Phys Med Rehabil*. 2020 Feb;101(2):258-264.

Technologies

Telerehabilitation services for stroke.

Laver KE, Adey-Wakeling Z, Crotty M, Lannin NA, George S, Sherrington C. *Cochrane Database Syst Rev*. 2020 Jan 31;1:CD010255.

Accuracy and precision of stimulus timing and reaction times with Unreal Engine and SteamVR.

Wiesing M, Fink GR, Weidner R. *PLoS One*. 2020 Apr 8;15(4):e0231152. doi: 10.1371/journal.pone.0231152. eCollection 2020. PMID: 32267886

The Effects of Augmented Reality Visual Cues on Turning in Place in Parkinson's Disease Patients With Freezing of Gait.

Janssen S, de Ruyter van Steveninck J, Salim HS, Cockx HM, Bloem BR, Heida T, van Wezel RJA. *Front Neurol*. 2020 Mar 24;11:185. doi: 10.3389/fneur.2020.00185. eCollection 2020.

Appraisals of robotic locomotor exoskeletons for gait: focus group insights from potential users with spinal cord injuries.

Heinemann AW, Kinnett-Hopkins D, Mummidisetty CK, Bond RA, Ehrlich-Jones L, Furbish C, Field-Fote E, Jayaraman A. *Disabil Rehabil Assist Technol*. 2020 Apr 7:1-11.

Analysis of Machine Learning-Based Assessment for Elbow Spasticity Using Inertial Sensors.

Kim JY, Park G, Lee SA, Nam Y. *Sensors (Basel)*. 2020 Mar 14;20(6).

Evaluation of EEG Headset Mounting for Brain-Computer Interface-Based Stroke Rehabilitation by Patients, Therapists, and Relatives.

Jochumsen M, Knoche H, Kidmose P, Kjær TW, Dinesen BI. *Front Hum Neurosci*. 2020 Feb 14;14:13.

A 3D printing approach toward targeted intervention in telerehabilitation.

Barak Ventura R, Rizzo A, Nov O, Porfiri M. *Sci Rep*. 2020 Feb 28;10(1):3694.

Efficacy of Controlled Whole-Body Vibration Training on Improving Fall Risk Factors in Stroke Survivors: A Meta-analysis.

Yang F, Butler AJ. *Neurorehabil Neural Repair*. 2020 Feb 28:1545968320907073.

Telerehabilitation for people with low vision.

Bittner AK, Yoshinaga PD, Wykstra SL, Li T. *Cochrane Database Syst Rev*. 2020 Feb 27;2:CD011019.

The Research in Review Editorial Team



Antoinette Domingo PT, PhD
San Diego State Univ.



Brendan Dougherty PT, PhD
University of Minnesota



Evan Papa, DPT, PhD
Idaho State University HSC



Elisa Gonzalez-Rothi, DPT, PhD
University of Florida

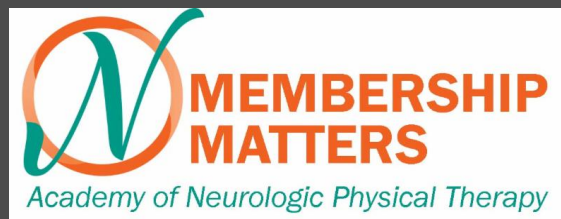


Trisha Kesar PT, PhD
Emory University

The Research in Review was designed using Medline filters to extract high impact research articles related to the field of neuroscience and physical therapy, which includes areas of motor control, rehabilitation, clinical neurophysiology, and technology. Emphasis is placed heavily on articles published within the last eight weeks, that cover issues related to spinal cord injury, stroke, balance and falls, brain injury, degenerative diseases, and vestibular rehabilitation. The list contains the full citation and a link to the abstract or full text article. The Research in Review is published once every 2 months and will arrive in your email box in a format that is easily viewable by both HTML and text-based readers. Articles with no volume, issue or page numbers indicate that the article has not been published in paper form yet, but may be available in electronic form through the publisher. We welcome requests for article postings at the first and third Mondays of each month. Those interested in assisting with this endeavor are welcome to contact [Trisha Kesar, PT, PhD.](#)

Academy of Neurologic Physical Therapy
www.neuropt.org | info@neuropt.org

Connect with your Community



STAY CONNECTED

