Jacob G. McPherson, PhD
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Contact Information

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Present Position

2025 - present Associate Professor (*Investigator track*)
Program in Physical Therapy, Department of Anesthesiology
Washington University School of Medicine; St. Louis, MO

Education

Undergraduate

2001 - 2005 **B.S.** – Biomedical Engineering, Applied Sciences
University of North Carolina, Chapel Hill, NC

Graduate

2005 - 2008 **M.S.** – Biomedical Engineering
Northwestern University, Evanston, IL

2008 - 2011 **Ph.D.** – Biomedical Engineering
Northwestern University, Evanston, IL
Thesis: McPherson JG (2011). *A quantitative and neuropharmacological investigation of mechanisms underlying upper limb movement abnormalities in individuals with chronic hemiparetic stroke*. ProQuest Dissertations and Theses, No. 3488499.
Advisor: Julius P.A. Dewald, P.T., Ph.D.

Post-graduate training

2011 - 2013 **Post-doctoral Fellowship**: Physiology and Biophysics (Neurophysiology)
University of Washington School of Medicine, Seattle, WA

2013 - 2015 **Post-doctoral Fellowship**: Physical Therapy, Phys. Med. And Rehabil.
Northwestern University Feinberg School of Medicine, Chicago, IL

Academic and Promotion History

2004 **Undergraduate Research Assistant**
University of North Carolina, Chapel Hill, NC

2005 - 2011 **Graduate Research Assistant**
Northwestern University Feinberg School of Medicine, Chicago, IL

2011 - 2013 **Senior Fellow** (post-doctoral)
University of Washington School of Medicine, Seattle, WA

2012 - 2013	**Sackler Scholar of Integrative Biophysics** University of Washington School of Medicine, Seattle, WA
2013 - 2015	**Post-doctoral Fellow** Northwestern University Feinberg School of Medicine, Chicago, IL
2015 - 2019	**Assistant Professor** (tenure earning) Department of Biomedical Engineering Florida International University, Miami, FL
2019 - 2025	**Assistant Professor** Program in Physical Therapy, Department of Anesthesiology Affiliate Faculty: Department of Biomedical Engineering Faculty: Washington University Pain Center, Program and Neurosciences Washington University School of Medicine, St. Louis, MO
2025 -	**Associate Professor (with tenure)** Program in Physical Therapy, Department of Anesthesiology Affiliate Faculty: Department of Biomedical Engineering Faculty: Washington University Pain Center, Program and Neurosciences Washington University School of Medicine, St. Louis, MO

Honors and Awards

2011 Finalist, Best Student Paper. *IEEE International Conference on Rehabilitation Robotics*. Zurich, CH, 2011.

2015 Research featured in *IEEE Spectrum*: "Stimulating damaged spines rewires rats for recovery." Sept 14th, 2015.

2015 Research featured in *Medical Xpress*: "New electrostatic stimulation technique improves damaged nerve function in rats." Sept 15th, 2015.

2015 Research featured in *Nature:* "Electric zaps help spinal-cord rehab." 525: 428. Sept 24, 2015.

2015 Research featured in *Nature*: Nudo, RJ. "Rehabilitation: Boost for movement." *Nature*, 527: 314-315, Sept 19th, 2015.

2015 Research featured: Ozpinar A, Tempel ZJ, Monaco EA 3rd. "Targeted, activity-dependent spinal stimulation produces long-lasting motor recovery in chronic cervical spinal cord injury." Commentary in *Neurosurgery.* 2016 Feb; 78(2): N18-9. doi: 10.1227/01.neu.0000479893.25489.47.

2018 Research featured: "New insights into stroke treatment." *Medindia*. Feb. 16th, 2018.

2018 Research featured: "Study could lead to new therapies to improve movement control in stroke survivors." *The Medical News*. Feb. 16th, 2018.

2018 Research featured: "New research on the brain's backup motor systems could open door to novel stroke therapies." *EurekAlert!* (American Association for the Advancement of Science; AAAS). Feb. 14th, 2018.

2020 Top cited article of 2018 – 2019, The Journal of Physiology.

2023 Research featured: "Zeroing in on neuropathic pain in spinal cord injury: partnerships in the modern research community." *Department of Defense Congressionally Directed Medical Research Program – Spinal Cord Injury Directorate*.

2025 Research featured: "The ins and outs of spinal cord stimulation." *Brain Communications,* January 15th, 2025.

Editorial and Review Responsibilities

Editorial Positions

2016 - **Section Editor**: *Spinal Interfaces*; The Encyclopedia of Computational Neuroscience. Jaeger D and Jung R, eds. Springer, NY. ISBN: 978-1-4614-6676-5

Ad Hoc Manuscript Reviews

2005 - (non-exhaustive list): eLife, Cell Reports Methods, Science Advances, Neuron, Current Biology, Journal of Physiology, Brain Stimulation, Experimental Neurology, Journal of Neural Engineering Neurorehabilitation and Neural Repair, Journal of Neurophysiology, Journal of Orthopaedic and Sports Physical Therapy, IEEE Transactions on Neural Systems and Rehabilitation Engineering, Journal of Neuroengineering and Rehabilitation, Archives of Physical Medicine and Rehabilitation, Journal of Electromyography and Kinesiology, Scientific Reports

Extramural Grant Review

2017 - **Reviewer pool**: National Science Foundation

2019 - **Reviewer pool**: National Institutes of Health

2019 - **Reviewer pool**: American Heart Association

2020 - **Reviewer**: NIH/NINDS BNVT study section

2022 - **Reviewer:** NIH/NINDS ICN/IFCN study sections

2022 - **Reviewer:** VA Rehabilitation Research and Development grants

2023 - **Reviewer:** NIH/NINDS ZNS1-SRB Program Grant (P01) study section

2024 - **Reviewer:** Natural Sciences and Engineering Research Council (NSERC) of Canada Z-N-1502/EG 1502 - Biological Systems and Functions

2025 - **Reviewer**: Swiss National Science Foundation

Community Service Contributions

Washington University in St. Louis *School of Medicine* Committee and Administrative Service:

2019 - Program in Physical Therapy MSP PhD program applicant reviewer

2020 - Program in Physical Therapy, co-lead: Pain Thread

2022 - Program in Physical Therapy, DPT student coaching

2023 - Dept. of Neurosurgery, NIH Mock Study Section

2024 Program in Physical Therapy, Research Faculty Search Committee

2024 Institute for Clinical and Translational Sciences NIH Mock Study Section

2025 - Member, WashU Institutional Review Board

Washington University in St. Louis Committee and Administrative Service:

2019 - 2020 Dept. of Biomedical Engineering Faculty Search Committee

2019 - Dept. of Biomedical Engineering PhD program applicant reviewer

Other University Committee and Administrative Service:
Florida International University (Miami, FL):

2015 - 2017 **Dept**. of Biomedical Engineering Seminar Series Committee

2015 - 2019 **Dept**. of Biomedical Engineering Graduate Program Committee

2016 - 2019 **College** of Engineering and Computing Scholarship Committee

2017 - 2019 **College** of Engineering and Computing Faculty Council (*Secretary*)

2018 - 2019 **University** Provost's Leadership in Evaluating Teaching Committee

Membership in Professional Societies

2017 - Society for Neuroscience

2016 - 2017 International Association for the Study of Pain

2017 - International Society of Motor Control

2018 - International Motoneuron Society

2018 - American Heart Association

Teaching

Major External Invited Presentations

2012 A novel, physiologically based intervention for motor rehabilitation following spinal cord injury. *HD Patton Society Symposium*. Leavenworth, WA; September 14th, 2012.

2013 Targeted, activity-dependent spinal stimulation for motor rehabilitation following spinal cord injury. *Northwestern University Feinberg School of Medicine Grand Rounds, Department of Physical Therapy and Human Movement Sciences*. Chicago, IL; April 23rd, 2013.

2013 Targeted, activity-dependent spinal stimulation for motor rehabilitation following spinal cord injury. *3rd Annual Sackler Biophysics Symposium.* Seattle, WA; June 6th, 2013.

2014 Integrating technology with physiology to drive novel neurorehabilitation interventions. *Florida International University, Wallace H. Coulter Foundation and Department of Biomedical Engineering Seminar Series*. Miami, FL; May 12th, 2014.

2016 MRI and spinal cord injury edema: a biomarker for walking with potential predictive ability? *13th Annual Society of Brain Mapping and Therapeutics World Congress*. Miami, FL; April 9th, 2016.

2016 Neuroprosthetics to drive activity-dependent plasticity. *1st Annual Neural Engineering Research Symposium, University of Miami and the Miami Project to Cure Paralysis*. Miami, FL; Oct. 13th, 2016.

2017 Altered neuromodulatory drive post-stroke: evidence and implications. *University of Florida, Rehabilitation Science Seminar Series*. Gainesville, FL; February 22nd, 2017.

2017 Neuroprosthetics for plasticity-based sensorimotor recovery. *Northwestern University Feinberg School of Medicine Movement and Rehabilitation Sciences Training Day*. Chicago, IL; August 25th, 2017.

2018 Hebbian-type neural plasticity in spinal sensorimotor circuits. *International Motoneuron Society Conference*. Boulder, CO. June 11-14, 2018.

2018 Neuroprosthetics for plasticity-based multimodal rehabilitation. *Progress in Clinical Motor Control: Neurorehabilitation I*. State College, PA. July 23-25, 2018.

2018 Spinal neuromodulation for plasticity-based, multimodal rehabilitation. *American Society of Neurorehabilitation Annual Meeting.* San Diego, CA. October 31st, 2018.

2018 Therapeutic intraspinal microstimulation to rebalance transmission in motor and pain pathways after spinal cord injury. *Drexel University College of Medicine, Department of Neurobiology and Anatomy Seminar Series.* Philadelphia, PA; November 14th, 2018.

2018 Leveraging the interconnectivity of spinal motor and pain pathways to drive multi-modal rehabilitation. *University of Florida, Department of Applied Physiology and Kinesiology Seminar Series.* Gainesville, FL; December 10th, 2018.

2018 Therapeutic intraspinal microstimulation to rebalance transmission in motor and pain pathways after spinal cord injury. *University of Miami, Department of Biomedical Engineering Seminar Series*. Miami, FL; December 12th, 2018.

2019 Leveraging the interconnectivity of spinal motor and pain pathways to drive multi-modal rehabilitation. *Resident Research Day Keynote Address.* Larkin Community Hospital Physical Medicine and Rehabilitation. Miami, FL. June 3rd, 2019.

2020 Activity-dependent plasticity in spinal sensorimotor circuits: from basic science to clinical relevance. *Annual Spinal Cord Plasticity Meeting (Sponsors: National Center for Neuromodulation for Research and National Center for Adaptive Neurotechnologies).* Charleston, SC. March 23rd, 2020 (postponed due to SARS-COV-2; delivered December 2020).

2022 It's not a matter of if, but when: spatial vs. temporal specificity for plasticity-promoting spinal neuromodulation. *Spinal Cord Plasticity in Motor Control Meeting: Neuromodulation for Engaging and Enhancing Spinal Cord Plasticity.* November 11th, 2022. San Diego, CA. Sponsored by the National Center of Neuromodulation for

Rehabilitation (P2C HD086844) and the National Center for Adaptive Neurotechnologies (P41 EB018783).

2023 A matter of 'if' not 'when'? Spatial and temporal specificity for plasticity-promoting spinal neuromodulation. *Arizona State University Department of Biomedical Engineering Seminar Series.* April 21st, 2023. Tempe, AZ.

2023 Zombie cats, cyborg rats, and monkeys with computer chip hats: just another day in the clinic? *Progress in Clinical Motor Control Meeting*. July 13-15th, 2023. Chicago, IL.

Washington University Presentations and Lectures

2021 Spontaneous neural synchrony links intrinsic spinal sensory and motor networks during unconsciousness: implications for plasticity-promoting interventions. *Washington University School of Medicine in St. Louis Department of Anesthesiology Seminar Series*.

2023 Why do pets like to be petted? Does the spinal cord sound like a sleep machine? Can you get better at playing the piano by taking a nap? Curiosities from a guided tour through the lumbar enlargement. *Washington University Program in Physical Therapy Seminar Series.* January 24th, 2023. St. Louis, MO.

2023 Zombie cats, cyborg rats, and monkeys with computer chip hats: just another day in the clinic? *Avioli Musculoskeletal Research Seminar.* Oct. 27th, 2024. St. Louis, MO.

Courses

Washington University in St. Louis:

2019 – Movement Sciences PhD Program: Program Seminar

2019 – Movement Sciences PhD Program: Biocontrol

2019 – Movement Sciences PhD Program: Bio-Instrumentation (Co-course master since 2024)

2020 – Doctor of Physical Therapy Program: Diagnosis and Evidence Analysis III

2020 – Doctor of Physical Therapy Program: Neuroscience

Florida International University (2015 – 2019):

2015 – 2019 BME 3403: Engineering Analysis of Biological Systems

2015 – 2019 BME 5411: Biomedical Physiology and Engineering II

2015 – 2019 BME 4211: Orthopedic Biomechanics

2015 – 2019 BME 4908: Biomedical Engineering Senior Design

Mentorship and Sponsorship Record

Served as **faculty research mentor and/or sponsor** for:

Undergraduate students

2015 - 2019 Valentina Melero
Research mentor and sponsor for Coulter Undergraduate Research Excellence Program Fellowship; Current position: Biomedical Engineer, Boston Scientific

2016 - 2017 Kelly Rojas
Research mentor and sponsor for Ronald E. McNair Post-baccalaureate Achievement Program Scholarship

2017 Rayniel Perez, BS
Research mentor

2017 Afra Toma, BS, MS, PhD
Research mentor and professional/career development mentor
Current position: Defended PhD in Bioengineering Georgia Tech/Emory, 08/2024; now a consultant for LEK Consulting in San Fransisco, CA.

2023 - 2024 Jane Wu
Research mentor and sponsor for Amgen and BioSurf Scholarships

Graduate students

Masters students

2016 - 2018 Vivian Soliz, BS, MS
Advisor: Jacob McPherson, PhD
Program: FIU Biomedical Engineering (Professional Track)

2016 - 2017 Daniel Duben, BS, MS
Advisor: Jacob McPherson, PhD
Program: FIU Biomedical Engineering (Professional Track)

2016 - 2017 Nathalie Brossard, BS, MS
Advisor: Jacob McPherson, PhD
Program: FIU Biomedical Engineering (Professional Track)

2016 - 2017 Luis Barreto, BS, MS
Advisor: Jacob McPherson, PhD
Program: FIU Biomedical Engineering (Professional Track)

2017 Alexander Copa, BS, MS
Advisor: Jacob McPherson, PhD
Program: FIU Biomedical Engineering (Professional Track)

2018 Rabeya Zinnat Adury
Advisor: Ranu Jung, PhD
Program: FIU Biomedical Engineering (Research Track)
Role (if not advisor): Thesis Committee Member

2018 - 2020 Lorraine Campos
Advisor: Jacob McPherson, PhD
Program: FIU Biomedical Engineering (Research Track)

PhD students

2014 - 2016 Andrew Smith, PT, PhD
Advisor: James Elliott, PT, PhD
Program: Northwestern University Neuroscience Program
Role (if not advisor): Dissertation Committee Member
Current position: Associate Professor, University of Colorado

2015 - 2019 Ricardo Siu
Advisor: Ranu Jung, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member
Current position: post-doctoral fellow, Case Western Reserve University

2015 - 2020 Andres Peña
Advisor: Ranu Jung, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member
Current position: Assistant Professor, University of Arkansas

2017 - 2020 Iian Black
Advisor: Ranu Jung, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member

2016 - 2021 Lakshmini Balachandar
Advisor: Jorge Riera, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member

2016 - 2021 Md Ashfaq Ahmed
Advisor: Ranu Jung, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member

2017 - 2021 Arezoo Pour
Advisor: Zachary Danziger, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member

2017 - 2022 Carolina Moncion
Advisor: Jorge Riera, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member

2017 - 2024 Maria Bandres
Advisor: Jacob McPherson, PhD, also sponsor for NINDS F99/K00 award
Program: FIU Biomedical Engineering, 2017-2019; Washington University Biomedical Engineering, beginning Fall 2019.
Defended dissertation: 09/06/2024
Current position: post-doctoral fellow, Columbia University

2018 - 2021 Megan Buchanan
Advisor: Jacob McPherson, PhD

Program: FIU Biomedical Engineering, 2018-2019; Washington University Biomedical Engineering, beginning Fall 2019.

2019 - 2022 Sathyakumar Kuntaegowdanahalli
Advisor: Ranu Jung, PhD
Program: FIU Biomedical Engineering
Role (if not advisor): Dissertation Committee Member

2022 - Jacob Parsons
Advisor: Gretchen A Meyer, PhD
Program: WashU Movement Sciences PhD Program
Role (if not advisor): Dissertation Committee Member

2023 - Gerson Moreno Romero
Advisor: Jacob McPherson, PhD, and sponsor for Chancellor's-Olin Fellowship, American Association for the Advancement of Hispanics in Higher Education fellowship and Hispanic Scholarship Fund fellowship
Program: Washington University Biomedical Engineering

2023 - Avery Twyman
Advisor: Jacob McPherson, PhD, and sponsor for NINDS Translational Research in Membrane Excitability Disorders (TriMED) T32 fellowship
Program: Washington University Biomedical Engineering

2025 Adrian Rivera (Rotation student)
Advisor: Jacob McPherson
Program: Washington University Biomedical Engineering

Post-doctoral Fellows

2017 - 2018 Behdad Tahayori, PT, PhD
Mentor: Jacob McPherson, PhD
Discipline: Neurophysiology and neurorehabilitation engineering
Current position: Assistant Professor of Physical Therapy, University of St. Augustine for Health Sciences

2023 - Javier de Lucas Romero, PhD
Mentor: Jacob McPherson, PhD
Discipline: Neurophysiology and neurorehabilitation

Other learners

2023 - Jeremie Ferey, PhD (senior scientist/lab manager)
Mentors: Jacob McPherson, PhD, and Gretchen Meyer, PhD
Discipline: Neurophysiology and muscle physiology

2023 - Lucía Lopez Nieto, BS (visiting research scholar)
Mentor: Jacob McPherson, PhD
Discipline: Neurophysiology and neurorehabilitation

Research

Present extramural grants

1. 5 R01 NS11234-04 **McPherson JG** (PI) 03/15/2019 – 02/28/2026
   NINDS $1,142,506
   Title: "Intraspinal microstimulation for multi-modal rehabilitation."
   Role: Principal Investigator
   Effort: 40% FTE

2. W81XWH-22-1-1100 **McPherson JG**, Thompson AK (Co-PIs) 09/30/2022 – 9/30/2025
   Dept. of Defense, CDMRP $933,911
   Title: "Targeted spinal cord plasticity for alleviating SCI-related neuropathic pain."
   Role: Principal Investigator
   Effort: 30% FTE

3. F99 NS13581101 Bandres (trainee), **McPherson JG** (sponsor) 09/15/2023 – 08/31/2025
   NINDS $72,128
   Title: "Integrative spinal physiology to restore neural control of sensorimotor functions after neurological injury."
   Role: Sponsor and primary mentor for PhD student trainee

Present Intramural Grants

1. McDonnell Center for Systems Neuroscience 07/01/2024 – 06/30/2026
   McPherson JG and de Lucas* (Co-PIs) $100,000
   Title: "Parvalbumin interneurons and retinoic acid signaling in spinal cord injury-related neuropathic pain."
   Role: Principal Investigator
   *post-doctoral trainee of McPherson JG

Submitted Applications

1. Howard Hughes Medical Institute
   Moreno Romero (trainee) and **McPherson JG** (Sponsor PI)
   Title: Gilliam Fellows Program

2. WM Keck Foundation Post-doctoral Fellowship
   Lucas Romero (trainee) and **McPherson JG** (sponsor PI)

3. Christopher and Dana Reeve Foundation **McPherson JG** (PI)
   Title: "*Enhancing SCI rehabilitation through synergism of regeneration and plasticity*."

4. R21 **McPherson JG** (Contact PI), Meyer GA (mPI)
   NINDS/NIMH
   Title: "GLP-1 receptor agonists to enhance sensorimotor and neuromuscular recovery after spinal cord injury."

5. R21 **McPherson JG** (PI)
   NINDS/NIMH
   Title: *"Parvalbumin-expressing spinal interneurons and spinal cord injury-related neuropathic pain."*

6. SCIRTS Post-doctoral Fellowship Lucas Romero (Trainee), **McPherson JG** (Sponsor PI)
   Craig H. Neilsen Foundation
   Title: *"Addressing spinal cord injury-related pain at the circuit level through parvalbumin expressing neurons."*

7. SCIRTS Senior Research Grant **McPherson JG** (PI)
   Craig H. Neilsen Foundation
   Title: *"GLP-1 receptor agonists to prevent or mitigate SCI-related sensorimotor and muscle pathologies."*

Past Extramural Grants

1. R01 NS054269 Dewald (PI) 09/01/2005 - 05/31/2010
   NINDS $1,150,031
   Title: *"Monoaminergic drive and discoordination following stroke."*
   Role: Graduate research associate

2. Scholar of Integrative Biophysics **McPherson JG** (PI) 01/01/2012 - 10/01/2013
   Raymond and Beverly Sackler Foundation $89,333
   Title: *"Development of flexible, biocompatible electrode arrays for chronic stimulation of the central nervous system following neurological injury."*
   Role: Principal Investigator

3. R01 HD079076-01A1 Elliott (PI) 12/01/2014 - 05/01/2015
   NICHD $1,258,840
   Title: *"Neuromuscular mechanisms underlying poor recovery from whiplash injuries."*
   Role: Post-doctoral research associate

4. K12HD073945 Dewald, **McPherson JG** (PI) 01/01/2017 - 06/30/2018
   NICHD IRE-K12 Program $187,500
   Title: *"Spinal stimulation for neuropathic pain."*
   Role: Scholar/Principal Investigator of individual award under parent K12 (PI, Dewald)

5. SEED Grant **McPherson JG** (multi-PI) 5/01/2017 - 04/30/2018
   Wallace H. Coulter Foundation $25,000
   Title: *"Exploring Neural Contributions to Aortic Valve Function and Disease"*
   Role: Principal Investigator

6. SEED Grant **McPherson JG** (Multi-PI) 06/21/2018 – 06/20/2019
   Wallace H. Coulter Foundation $59,952.34
   Title: "*Non-invasive decoding of neuromuscular activity for rehabilitation and prosthetic control."*
   Role: Principal Investigator

7. SCIRTS Grant 460399 Danziger and **McPherson** (Co-PIs) 07/31/2017 - 06/30/2021
   Craig H. Neilsen Foundation $321,000
   Title: *"Post-SCI bladder reflex conditioning with pelvic neuromodulation."*
   Role: Co-Principal Investigator

8. 3 R01 NS11234-04S1 **McPherson JG** (PI) 05/04/2022 – 05/03/2023
   NINDS $78,750
   Title: "*Intraspinal microstimulation for multi-modal rehabilitation."* – Research supplement to promote retention.

Role: Principal Investigator

9. 3 R01 NS11234-04S2 **McPherson JG** (PI) 05/05/2022 – 05/04/2023
   NINDS $62,950/annual
   Title: "*Intraspinal microstimulation for multi-modal rehabilitation."* – Research supplement to promote diversity in health-related research.
   Role: Principal Investigator
10. 19IPLOI34760603-S1 **McPherson JG** (PI) 07/01/2021 – 06/30/2022
    American Heart Association Innovative Project Award $45,455
    Title: *"Restorative neuroplasticity in brainstem motor pathways to enhance rehabilitation post-stroke."* Research supplement
    Role: Principal Investigator
11. 19IPLOI34760603 **McPherson JG** (PI) 07/01/2019 – 09/30/2024
    American Heart Association Innovative Project Award $199,998
    Title: "Restorative neuroplasticity in brainstem motor pathways to enhance rehabilitation post-stroke."
    Role: Principal Investigator
12. Univ. of Missouri Spinal Cord Injury/Disease Research Program 03/01/2024 – 02/28/2025
    Ray (PI) and **McPherson JG** (Co-I) $100,000
    Title: ""Electrical stimulation therapy to improve outcomes of nerve transfer surgery in tetraplegia."
    Role: Co-investigator

Bibliography

Peer-reviewed articles ($^{\xi}$post-doctoral trainee author; †student author; *corresponding author.)

1. **McPherson JG**, Ellis MD, Heckman CJ, Dewald JPA (2008). Evidence for increased activation of persistent inward currents in individuals with chronic hemiparetic stroke. *J Neurophysiol*. 2008 Dec; 100(6): 3236-3243. DOI: 10.1152/jn.90563.2008
2. Stienen AH, **McPherson JG**, Schouten AC, Dewald JPA (2011). The ACT-4D: a novel rehabilitation robot for the quantification of upper limb motor impairments following brain injury. *IEEE Int Conf Rehabil Robot.* 2011:5975460. DOI: 10.1109/ICORR.2011.5975460.
3. **McPherson JG**, Stienen AH, Drogos JM, Dewald JPA (2011). The relationship between the flexion synergy and stretch reflexes in individuals with chronic hemiparetic stroke. *IEEE Int Conf Rehabil Robot.* 2011: 5975516. DOI: 10.1109/ICORR.2011.5975516.
4. **McPherson JG**, Edwards WB, Prasad A, Troy KL, Griffith JW, Schnitzer TJ (2014). Dual energy x-ray absorptiometry of the knee in individuals with spinal cord injury: methodology and correlation with quantitative computed tomography. *Spinal Cord*. 2014 Nov; 52(11): 821-825. DOI: 10.1038/sc.2014.122.
5. Smith AC, Parrish TB, Hoggarth MA, **McPherson JG**, Tysseling VM, Wasielewski M, Kim HE, Hornby TG, Elliott JM (2015). Potential associations between chronic whiplash and incomplete spinal cord injury. *Spinal Cord Ser Cases.* 2015; 1. pii: 15024. PMID: 27630770.

6. **McPherson JG**, Miller RR, Perlmutter SI (2015). Targeted, activity-dependent spinal stimulation produces long-lasting motor recovery in chronic cervical spinal cord injury. *Proc Natl Acad Sci USA*. 2015 Sept 29; 112(39): 12193-12198. DOI: 10.1073/pnas.1505383112.
7. Smith AC, Knikou M, Yelick K, Alexander A, Murnane M, Kristelis A, Houmpavlis P, **McPherson JG**, Wasielewski M, Hoggarth M, Elliott (2016). MRI measures of fat infiltration in lower extremities following motor incomplete spinal cord injury: reliability and potential implications for muscle activation. *Conf Proc IEEE Eng Med Biol Soc*. 2016 Aug; 2016:5451-5456. DOI: 10.1109/EMBC.2016.7591960.
8. Elliott JM, Sudarshan D, Haxie C, Hoggarth M, **McPherson JG**, Sparks C, Weber K (2016). Advancements in imaging technology: do they (or will they) equate to advancements in our knowledge of recovery in whiplash? *J Orthop Sports Phys Ther.* 2016 Oct; 46(10):862-873. PMID: 27690846.
9. Smith AC, Weber KA, Parrish TB, Hornby TG, Tysseling VM, **McPherson JG**, Wasielewski M, Elliott JM (2017). Ambulatory function in motor incomplete spinal cord injury: a magnetic resonance imaging study of spinal cord edema and lower extremity muscle morphometry. *Spinal Cord*. 2017 Jul; 55(7): 672-678. DOI: 10.1038/sc.2017.18.
10. **McPherson JG**, Stienen AH, Drogos JM, Dewald JPA (2017). Modification of spastic stretch reflexes at the elbow by flexion synergy expression in individuals with chronic, hemiparetic stroke. *Arch Phys Med Rehabil*. 2018 Mar; 99(3): 491-500; Epub 2017 Jul 24. DOI: 10.1016/j.apmr.2017.06.019.
11. **McPherson JG**, Chen A, Ellis MD, Yao J, Heckman CJ, Dewald JPA (2018). Progressive recruitment of contralesional cortico-reticulospinal pathways drives impairment post-stroke. *J Physiol.* 2018 Apr 1; 596(7):1211-1225. DOI: 10.1113/JP274968.
12. **McPherson JG**, McPherson LM, Thompson CK, Ellis MD, Heckman CJ, Dewald JPA (2018). Altered neuromodulatory drive may contribute to exaggerated tonic vibration reflexes in chronic hemiparetic stroke. *Front Hum Neurosci*. 2018 Apr 9; 12:131. DOI: 10.3389/fnhum.2018.00131.
13. **McPherson JG**, Ellis MD, Harden RN, Carmona C, Drogos JM, Heckman CJ, Dewald JPA (2018). Neuromodulatory inputs to motoneurons contribute to the loss of independent joint control in chronic moderate to severe hemiparetic stroke. *Front Neurol*. 2018 Jun 21; 9:470. DOI: 10.3389/fneur.2018.00470.
14. **McPherson JG***, Smith AC, Duben D, Wasielewski M, McMahon K, Parrish TB, Elliott JM (2018). Short- and long-term reproducibility of diffusion-weighted magnetic resonance imaging of lower extremity musculature in asymptomatic individuals and a comparison to individuals with spinal cord injury. *BMC Musculoskeletal Disorders.* 2018 Dec 6th; 19:443. DOI: 10.1186/s12891-01802361-7. *corresponding author
15. **McPherson JG**, Stienen AH, Schmit BD, Dewald JPA (2018). Biomechanical parameters of the elbow stretch reflex in chronic hemiparetic stroke. *Exp. Brain Res.* 2018 Oct 1st; DOI: 10.1007/s00221-018-5389-x.
16. **McPherson JG**, Chen A, Ellis MD, Yao J, Heckman CJ, Dewald JPA (2019). Response to Letter to the Editor. *J Physiol.* 2019 Aug; 597(16): 4413-4414; DOI: 10.1113/JP278464.

17. **McPherson JG***, Bandres MF† (2021). Spontaneous neural synchrony links intrinsic spinal sensory and motor networks during unconsciousness *eLife*. 2021;10:e66308 DOI: 10.7554/eLife.66308. †student author; *corresponding author.
18. Bandres, MF †, Gomes, J., **McPherson, JG*** (2021). Spontaneous multimodal neural transmission suggests that adult spinal networks maintain an intrinsic state of readiness to execute sensorimotor behaviors. *J Neurosci*, doi:10.1523/JNEUROSCI.0662-21.2021. †student author; *corresponding author.
19. Bandres MF†, Gomes JL, **McPherson JG*** (2022). Spinal stimulation for motor rehabilitation immediately modulates nociceptive transmission. *J Neural Engineering*. doi: 10.1088/1741-2552/ac9a00 †student author; *corresponding author.
20. Bandres MF†, Gomes J, Moreno-Romero GN†, Twyman AR†, **McPherson JG*** (2023) Precision neuromodulation: promises and challenges of spinal stimulation for multi-modal rehabilitation. *Front. Rehabil. Sci.,* 4; DOI: 10.3389/fresc.2023.1135593. †student author; *corresponding author.
21. Bandres MF†, Gomes JL, **McPherson JG*** (2024). Intraspinal microstimulation of the ventral horn has therapeutically relevant cross-modal effects on nociception. *Brain Communications*. DOI: https://doi.org/10.1101/2023.04.12.536477. †student author; *corresponding author.
22. Twyman AR†, Moreno-Romero GN†, Bandres MF†, **McPherson JG*** (2024). Unintentionally intentional: unintended effects of spinal stimulation as a platform for multi-modal neurorehabilitation after spinal cord injury. *Bioelectronic Medicine*. https://doi.org/10.1186/s42234-024-00144-7. †student author; *corresponding author.
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