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University of Colorado Denver Physical Therapy Program  
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Education:

University of Colorado Denver Graduate School Anschutz Medical Campus Aurora, CO	PhD, Clinical Science	2018
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University of Colorado Denver Health Sciences Center Aurora, CO	Doctor of Physical Therapy	2008
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University of Colorado Denver Health Sciences Center Denver, CO	MS, Physical Therapy	2005
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Carleton College Northfield, MN	BA, Spanish Literature	1997
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Licensure Information:

Colorado #8935, 2005-present

Certifications:

Neurologic Clinical Specialist, American Board of Physical Therapy Specialties	2009
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Advanced Credentialed Clinical Instructor, American Physical Therapy Association	2011
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Credentialed Clinical Instructor, American Physical Therapy Association	2007
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Credentialed Medical Interpreter (Spanish), University of Colorado Hospital	2005
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Employment and Positions Held:

Assistant Professor	July 2018 - Present
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Physical Therapy Program, University of Colorado Denver,  
Anschutz Medical Campus, Aurora, CO

Aug 2016 – June 2018

Senior Instructor  
Physical Therapy Program, University of Colorado Denver,  
Anschutz Medical Campus, Aurora, CO

Physical Therapist Specialist  
University of Colorado Hospital, AF Williams Outpatient  
Clinic, Denver, CO

Feb 2011 – Aug 2016

Instructor  
Physical Therapy Program, University of Colorado Denver,  
Anschutz Medical Campus, Aurora, CO

Sep 2013 – Aug 2016

Adjunct Clinical Instructor  
Physical Therapy Program, University of Colorado Denver,  
Anschutz Medical Campus, Aurora, CO

2009 - August 2013

Physical Therapist  
University of Colorado Hospital, Anschutz Outpatient  
Pavilion, Anschutz Medical Campus, Aurora, CO

2005 – January 2011

#### Scholarly Agenda:

To advance clinical research in the field of rehabilitation in people with multiple sclerosis and other neurological conditions by investigating clinically feasible targeted exercise interventions to improve participation.

To apply novel methods of instruction into the application of evidence based practice and interpretation of the medical literature; and subsequently to evaluate those methods via research into learning outcomes and educational effectiveness.

#### Peer Reviewed Publications:

1. Mañago MM, Cameron M, Schenkman M. Association of the Dynamic Gait Index to fall history and muscle function in people with multiple sclerosis: A secondary data analysis. *Disability and Rehabilitation*. May 2019:1-6. doi:[10.1080/09638288.2019.1607912](https://doi.org/10.1080/09638288.2019.1607912)
2. Mañago MM, Hebert JR, Kittelson J, Schenkman M. Feasibility of a targeted strengthening program to improve gait in people with multiple sclerosis: a brief report. *Int J Rehabil Res*. 2018;41(4):364-367. doi:[10.1097/MRR.0000000000000306](https://doi.org/10.1097/MRR.0000000000000306)
3. Mañago MM, Glick S, Hebert JR, Coote S, Schenkman M. Strength Training to Improve Gait in People with Multiple Sclerosis: A Critical Review of Exercise Parameters and Intervention Approaches. *International Journal of MS Care*. April 2018. doi:[10.7224/1537-2073.2017-079](https://doi.org/10.7224/1537-2073.2017-079)
4. Mañago MM, Hebert JR, Kittelson J, Schenkman M. Contributions of Ankle, Knee, Hip, and Trunk Muscle Function to Gait Performance in People With Multiple Sclerosis: A Cross-Sectional Analysis. *Phys Ther*. 2018;98(7):595-604. doi:[10.1093/ptj/pzy048](https://doi.org/10.1093/ptj/pzy048)

5. Mañago MM, Hebert JR, Schenkman M. Psychometric Properties of a Clinical Strength Assessment Protocol in People with Multiple Sclerosis. *International Journal of MS Care*. 2017;19(5):253-262. doi:10.7224/1537-2073.2016-078.
6. Hebert JR, Mañago MM. Reliability and Validity of the Computerized Dynamic Posturography Sensory Organization Test in Persons with Multiple Sclerosis. *International Journal of MS Care*. 2017;19(3):151–157. doi: 10.7224/1537-2073.2016-027
7. Mañago MM, Schenkman M, Berliner J, Hebert JR. Gaze stabilization and dynamic visual acuity in people with multiple sclerosis. *Journal of Vestibular Research*. 2016;26 (5-6):469-477.
8. Ketelhut NB, Kindred JH, Mañago MM, Hebert JR, Rudroff T. Core muscle characteristics of patients with multiple sclerosis during walking. *Journal of Rehabilitation Research and Development*. 2015;52(6):713-724.
9. Hebert JR, Corboy J, Mañago MM, Schenkman M. Effects of vestibular rehabilitation on Multiple Sclerosis-related fatigue and upright postural control. *Physical Therapy*. 2011;91:1166-1183.

Published Abstracts of Peer Reviewed Presentations:

1. Mañago MM, Hebert JR, Schenkman M. Strengthening of Ankle, Hip, and Trunk to Improve Gait in People with Multiple Sclerosis: a Feasibility Study. Poster Abstracts from the Eight International Symposium on Gait and Balance in Multiple Sclerosis. Sept 15, 2018. *Int J MS Care*. 2018; 20(6):298-299.
2. Mañago MM, Hebert JR, Schenkman M. The utility of handheld dynamometry and clinical strength assessments in people with multiple sclerosis. *JNPT*. 2017;41(1):75-88.
3. Mañago MM, Schenkman M, Hebert JR. Evaluating the Functional Capacity of the Vestibulo-Ocular Reflex in Persons with Multiple Sclerosis: Validity and Reliability of Computerized Testing. *Int J MS Care*. 2016; 18(6):312-313.
4. Lamb C, Mañago MM. Improvements in Strength, Walking, and Participation Following CoreAlign® Training for a person with Multiple Sclerosis. *JNPT*. 2016; 40(1):56.
5. Mañago MM, Hebert JR. Computerized sensory organization test as a measure of fall risk in people with Multiple Sclerosis. *JNPT*. 2016; 40(1):56.
6. Mañago MM, Hebert JR. Vestibular rehabilitation in a person with multiple sclerosis and sensation of motion at rest: A case report. *JNPT*. 2016; 40(1):56.
7. Mañago MM, Lamb C, Hebert JR. CoreAlign Training for a Person with Multiple Sclerosis: Effects on Strength, Walking, and Participation. *Arch Phys Med Rehabil*. 2015; 96(10):e1. DOI: 10.1016/j.apmr.2015.08.292

8. Mañago MM, Hebert JR. Concurrent validity of the Patient-Specific Functional Scale and Timed 25 Foot Walk Test in people with multiple sclerosis. Poster Abstracts from the Third International Symposium on Gait and Balance in Multiple Sclerosis. Oct 1, 2011. *Int J MS Care*. 2013; 15(4):179-180.
9. Hebert JR, Corboy JR, Mañago MM, Schenkman M. Effects of Vestibular Rehabilitation on Multiple Sclerosis-Related Fatigue and Upright Postural Control: A Randomized Controlled Trial. Poster Abstracts from the First International Symposium on Gait and Balance in Multiple Sclerosis: Gait and Balance as Biomarkers in MS. Oregon Health & Science University, Portland, OR. Oct 1, 2011. *Int J MS Care*. 2011; 13(4):199-204.

Peer Reviewed Scientific and Professional Presentations (not previously cited above under abstracts):

1. Mañago, M. New Insights into Muscle Function for Gait in People with Multiple Sclerosis. American Physical Therapy Association NEXT Meeting. Chicago, IL. June 12-15, 2019.
2. Mañago, M. A Critical Review of Strength Training to Improve Gait in People with Multiple Sclerosis: Exercise Parameters and Intervention Approaches [Platform]. World Congress of Physical Therapy. Geneva, Switzerland. May 10-13, 2019.
3. Mañago, M, Herbert, JR. Clinical Management of Gait and Balance in multiple sclerosis: Applying the Evidence. Colorado Physical Therapy Association Fall Conference. Black Hawk, CO; October 2016.
4. Glick S, Mañago MM. Improvements in mobility and employment in an adult with fascioscapulohumeral muscular dystrophy (FSHD) following a femur fracture: A case report. [Poster Presentation] American Physical Therapy Association Colorado Spring Conference. Keystone, CO, Apr 15-17, 2016.
5. Mañago MM. Fatigue in multiple sclerosis: implications on practice and management. [Symposium] Part of: The effects of fatigue on function and pathology: a cross-disciplinary view. American Physical Therapy Association Combined Sections Meeting. Anaheim, CA. Feb 19, 2016.
6. Hebert, J, Mañago, M. Multiple sclerosis: Clinical management of gait, balance and related problems. Nebraska Physical Therapy Association Spring Conference. North Platte, NE; April 2014.
7. Mañago MM, Leibold, MR; Backstrom, KM. Evaluating Clinical Outcomes and Meaningful Change: An Example Using the Neck Disability Index [Poster Presentation]. First Annual Performance Excellence Summit. University of Colorado Hospital, Aurora, CO. November 11, 2014.
8. Mañago, M. The patient with Parkinson's Disease: Evidence based evaluation and treatment [lecture]. Centennial Area Health Education Center. University of Colorado Denver Health Sciences Center. Aurora, CO; March 2008

Other Publications:

1. Mañago MM, Gisbert R. Kahlo and Beyond: The Importance of Art and Medical Humanities in Physical Therapy. *Phys Ther*. 2017;97(11):1114. doi:10.1093/ptj/pzx084.

Non-Peer Reviewed Presentations:

1. Mañago M. Targeted Strength Training to Improve Gait in People with Multiple Sclerosis. Aarhus University, Department of Public Health, Section of Sport Science. Aarhus, Denmark. May 29<sup>th</sup>, 2019.
2. Mañago, M. Jordan, S. Sawyer, E. Are you Up to Date on Electrotherapy and Other Modalities? Evidence and Clinical Decision Making: Choosing Wisely. University of Colorado Denver Physical Therapy Program Clinical Instructor Update Series. Aurora, CO; June 2017.
3. Mañago M. Concurrent validity of the Patient-Specific Functional Scale and the Timed 25-foot Walk in people with multiple sclerosis. 15<sup>th</sup> Annual Rehabilitation Forum. University of Colorado Hospital. Aurora, CO; September 2013.
4. Mañago, M. Supportive Services in Neuromuscular Disorders. Neurology Grand Rounds, University of Colorado Denver School of Medicine. Aurora, CO; September 2013.
5. Mañago, M. Physical Therapy and Stroke Rehabilitation [lecture]. Family Medicine Resident Program, University of Colorado Denver Health Sciences Center. Aurora, CO. 2012.
6. Mañago, M. Vestibular Rehabilitation: Physical Therapy Clinical Decision Making and Intervention [lecture]. Audiology Doctoral Program. University of Colorado Denver Audiology Program. Aurora, CO; April 2011, November 2012, October 2014.
7. Mañago, M. Ankle Foot Orthotics: Clinical Practice and Evidence [lecture]. Resident Program, Rehabilitation Medicine, University of Colorado Denver Health Sciences Center. Aurora, CO; Feb 2012.
8. Mañago, M. Vertebral Artery Syndrome [lecture]. Professional Advancement Lecture Series. University of Colorado Hospital. Aurora, CO; May 2011.
9. Mañago M. Deep Vein Thrombosis: Evidenced Based Management for Physical Therapists [lecture]. 12<sup>th</sup> Annual Rehabilitation Education Forum, University of Colorado Hospital. Aurora, CO; September 2010.
10. Mañago, M. Assistive Devices and Orthotics [lecture]. Neuromuscular Fellowship Program, Department of Neurology, University of Colorado Denver Health Sciences Center. Aurora, CO; June 2010.
11. Mañago, M. Physical Therapy Interventions and Stroke Rehabilitation [annual seminar lecture]. Resident Program, Rehabilitation Medicine, University of Colorado Denver Health Sciences Center. Aurora, CO. 2009-2015.

Funded/In Review Grant Activity:

Mañago, MM (Co-I), Shattuck, J (PI). A novel, wearable, motion-capture and corrective feedback system to induce proper technique during in-clinic physical therapy in Parkinson's Disease. University of Colorado Movement Disorders Center Pilot Grant. 10/1/19 to 9/30/20.

Mañago, MM (PI). Instrumented motion analysis of hip and trunk movement compensations for people with multiple sclerosis. University of Colorado Physical Medicine and Rehabilitation Pilot Funding. 9/1/2018 to 8/31/2018.

Other Research Activity:

Outcome assessor (Ongoing). A Phase 2 Randomized, Double-Blind, Placebo-Controlled Study of ACE-083 in Patients with Facioscapulohumeral Muscular Dystrophy

Outcome assessor (Ongoing). A Phase 2 Randomized, Double-Blind, Placebo-Controlled Study of ACE-083 in Patients with Charcot-Marie-Tooth Disease Types I and X

Data Collection and Site Coordinator. Baert I, Smedal T, Kalron A, et al. Responsiveness and meaningful improvement of mobility measures following MS rehabilitation. *Neurology*. October 2018;10.1212/WNL.0000000000006532. doi:[10.1212/WNL.0000000000006532](https://doi.org/10.1212/WNL.0000000000006532)

Outcome assessor. A Phase 2, Double-Blind, Randomized, Placebo-Controlled, Multiple Dose Study of CK-2127107 in Two Ascending Cohorts of Patients with Spinal Muscular Atrophy (SMA). 2017.

Treating physical therapist. Stevens-Lapsley JE, Balter JE, Wolfe P, Eckhoff DG, Kohrt WM. Early Neuromuscular Electrical Stimulation to Improve Quadriceps Muscle Strength After Total Knee Arthroplasty: A Randomized Controlled Trial. *Phys Ther*. 2011;92: Nov 17.

Continuing Education Workshops Organized:

Site Coordinator. Expanding Neurologic Expertise: Advanced Practice in Vestibular Physical Therapy. Neurology Section, American Physical Therapy Association. University of Colorado Denver Health Sciences Center. Aurora, CO; September 2011.

Submission Reviewer & Moderator. Annual Rehabilitation Education Forum, University of Colorado Hospital. Aurora, CO; September 2007-2015.

Membership in Scientific/Professional Organizations:

American Physical Therapy Association	2003-present
<i>Colorado Chapter, Neurology Section, Research Section, Education Section</i>	

Health Volunteers Overseas	2010-2016
<i>Allied Healthcare Providers Section</i>	

Consortium of Multiple Sclerosis Centers	2017-present
<i>Healthcare Providers Section</i>	

Consultative and Advisory Positions Held:

Journal Reviewer:

PLOS One  
Multiple Sclerosis and Related Disorders  
Restorative Neurology and Neuroscience  
Annals of Translational Medicine  
Journal of Clinical Medicine  
Medicine and Science in Sport  
Journal of Neurologic Physical Therapy

Community Service:

Volunteer, 9News Health Fair. Provided free posture and balance screenings at local community health fair; oversaw physical therapy students performing same screenings. Denver, CO. 2016-present.

Language Interpreter and Program Guide, Clinical Education Experience in Nicaragua. Physical Therapy Program, University of Colorado Denver Health Sciences Center. Health Volunteers Overseas, Nicaragua, January 2010, 2013, 2016

Mañago M. Physical Therapist Management in Fascio-Scapular Humeral Muscular Dystrophy. World FSHD Day Colorado Chapter Meeting. University of Colorado Anschutz Medical Campus. Aurora, CO; June 20<sup>th</sup>, 2019.

Mañago M. Physical Therapy Management in Amyotrophic Lateral Sclerosis. Muscular Dystrophy Association ALS Summit. University of Colorado Hospital. Aurora, CO; November 4<sup>th</sup>, 2017.

Mañago, M. Exercise in Multiple Sclerosis. Rocky Mountain Multiple Sclerosis Center Spring Educational Summit. Denver, CO; May 2015.

Mañago, M. Physical Therapy for Stroke Survivors: A Lifelong Journey [annual seminar lecture]. National Stroke Association Life-long Education and Advocacy Program (LEAP) for Stroke Survivors. University of Colorado Hospital. Aurora, CO; October 2009, October 2010, September 2011, October 2012, May 2014.

Mañago, M. Exercise and Inclusion Body Myositis [lecture]. Inclusion Body Myositis Support Group. Swedish Hospital. Denver, CO; June 2012, November 2013.

Mañago, M. Mobility Assessment and Funding [lecture]. Muscular Dystrophy Association ALS Symposium. Denver, CO; May 2011.

Services to the University/College/School on Committees/Councils/Commissions:

Organizing committee member, 9th International Symposium on Gait and Balance in Multiple Sclerosis: Technology for Assessment and Intervention. University of Colorado Denver, Anschutz Medical Campus, Aurora, CO.

Member, Recruitment and Admissions Committee, University of Colorado Denver Physical Therapy Program. 2018-Present

Chair, Hidden Curriculum Task Force. University of Colorado Denver Physical Therapy Program. 2018-Present.

Chair, Student Debt Task Force. University of Colorado Denver Physical Therapy Program. 2018-Present.

Facilitator, Hidden Curriculum. University of Colorado School of Medicine. 2018-2019

Facilitator, Clinical Reasoning Through Art. University of Colorado School of Medicine. 2018

Member, Writing Task Force. University of Colorado Denver Physical Therapy Program. Fall 2016 – 2017.

Chair, University of Colorado Hospital Education Committee. Oversaw coordination of an interdisciplinary, peer-reviewed, bi-annual education forum. 2012, 2014.

Member, University of Colorado Hospital Education Committee. 2007-Present.

Honors and Awards:

Top abstract by a trainee, Eighth International Symposium on Gait and Balance in Multiple Sclerosis: Sensory Contributions to Gait and Balance. Oregon Health & Science University, Portland, OR. 2018.

President's Fund for the Humanities Award, Office of Academic Affairs, University of Colorado.

Herndon Award for Outstanding Article in the *International Journal of MS Care*. Recognizes the best article published in the journal, 2017.

Top abstract by a trainee, Sixth International Symposium on Gait and Balance in Multiple Sclerosis: Sensory Contributions to Gait and Balance. Oregon Health & Science University, Portland, OR. Sept 9-10, 2016.

Chancellor Diversity Scholarship, School of Medicine, University of Colorado Denver Health Sciences Center, 2004.

Continuing Education Attended:

APTA NEXT. Chicago, IL. June 2019.

8<sup>th</sup> International Symposium on Gait and Balance in Multiple Sclerosis. Oregon Health Science Center. Portland, OR. 2018

APTA Combined Sections Meeting. San Antonio, TX. February 2017.

6<sup>th</sup> International Symposium on Gait and Balance in Multiple Sclerosis. Oregon Health Science Center. Portland, OR. September 2016

APTA Combined Sections Meeting. Anaheim, CA. February 2016.



3<sup>rd</sup> International Symposium on Gait and Balance in Multiple Sclerosis. Saint Louis University. St. Louis, MO. October 2013.

2<sup>nd</sup> International Symposium on Gait and Balance in Multiple Sclerosis: Interventions for Gait and Balance in MS. Sponsored by MS Center of Oregon, Oregon Health Science Center Department of Neurology, MS Center of Excellence-West, Portland VA Medical Center and the Oregon Health Science Center Brain Institute. Portland, OR. October 2012.

APTA/ Colorado Chapter Fall Convention. Sponsored by APTA/ Colorado Chapter and University of Colorado Denver Health Sciences Center. Aurora, CO; November 2011.

Expanding Neurologic Expertise: Advanced Practice in Vestibular Physical Therapy. Sponsored by Neurology Section, American Physical Therapy Association. University of Colorado Denver Health Sciences Center. Aurora, CO; September 2011

Advanced Credentialed Clinical Instructor. Sponsored by American Physical Therapy Association and University of Colorado Denver Health Sciences Center. Aurora, CO; May 2011.

Current Teaching Responsibilities in the Entry-level Physical Therapy Program:

Fall 1 (Semester 2):

DPTR 5621: Evidence Based Practice: Course Coordinator

Spring 1 (Semester 3):

DPTR 5631: Clinical Reasoning I: Instructor

Summer 2 (Semester 4):

DPTR 6502: Neuromuscular Conditions II: Lecturer

Fall 2 (Semester 5)

DPTR 6632: Clinical Reasoning II: Instructor

Spring 2 (Semester 6)

DPTR 6633: Clinical Reasoning III: Instructor

Summer 3 (Semester 7)

DPTR 7651: Clinical Reasoning Capstone: Instructor

DPTR 7641: Integrated Practice: Instructor