Program in Physical Therapy

2025 Annual Report

WashU Medicine

Contents

By the Numbers.....2

Education.....4

Research.....11

Community.....14

Clinical Practice.....19

Bloom Lecture.....23

Class Notes &
Program Highlights.....27

Grants.....29

Scholarships.....32

Publications.....33

Welcome

I recently set out to count how many plants I have in my home and stopped counting when I got to 80. I guess it's safe to say that I love plants! I love the way they adapt to changing conditions, go through periods of amazing growth, branch out in new directions, and make the space around them more welcoming. I also love WashU PT! I love how, as a team and as individual members of the team, we adapt to changing conditions, go through periods of amazing growth, branch out in new directions, and continually strive to make our community more welcoming. This annual report illustrates some of the ways we have adapted, grown, branched out and built community over time. And while I doubt that you will enjoy reading this report as much as I enjoy caring for plants, I do hope it will grow on you.

Gammon M. Earhart, PT, PhD, FAPTA

Associate Dean for Physical Therapy
Director, Program in Physical Therapy
Professor of Physical Therapy, Neuroscience, and Neurology

WashU Medicine

Program in Physical Therapy

2025 by the Numbers

Ranked #1 PT Program by U.S. News & World Report

92 incoming DPT students for the class of 2028

100% employment of WashU PT'24 graduates

25 active grants

9 clinical practice sites

69,000+ patient visits from January 1 – December 1

Education

Education

WashU PT Hosts First Competency-Based Education in PT Symposium

The Program in Physical Therapy at WashU Medicine hosted the Competency-Based Education (CBE) in PT Symposium in St. Louis. This event, held from March 7-8, brought together thought leaders, educators, and innovators in physical therapy from 15 universities and 5 organizations including the American Physical Therapy Association (APTA), American Council of Academic Physical Therapy (ACAPT), American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE), and Commission on Accreditation in Physical Therapy Education (CAPTE) and the Federation of State Boards of Physical Therapy (FSBPT). The symposium's primary aim was to foster collaboration and advance the implementation of CBE in physical therapy and other health professions.

The CBE in PT symposium provided a unique opportunity for attendees to connect with peers, share current work, and explore new ideas in competency-based education. The overarching themes of the symposium were collaboration, sustainability, and alignment as they relate to the current and future use and implementation of competency-based education. Thirteen expert keynote speakers covered a wide range of topics, including CBE frameworks, pedagogy, assessment, and learning environments. The event featured presentations, expert panels, and round-table discussions focused on two main areas: 1) sharing work and ideas across institutions and 2) reflecting on how to successfully transition to sustainable CBE practices within the profession.

Symposium host, Steven Ambler, PT, DPT, PhD, MPH, Professor of Physical Therapy and Orthopaedic Surgery, Division Director of Education, and DPT Program Director for the Program in Physical Therapy at WashU Medicine shared, "We were so grateful that many came to share their work and learn from each other. I was struck by the innovative examples programs presented, and our clear shared goal of advancing education and fostering lifelong learning in physical therapy. As always, the best part was connecting with old friends and making new ones."

When brilliant minds unite with a shared vision, such as enhancing and assessing our educational methodologies, innovative perspectives and strategies naturally emerge. We are delighted with the success of the CBE in PT symposium. This event fostered and fortified collaborations that will shape the future of education within the field of physical therapy.

Empowering Education: Major Scholarship Contributions in 2025

Education transforms lives, and this year, that transformation was made possible on an unprecedented scale. In fiscal year 2025, WashU Medicine Physical Therapy distributed $691,917 in scholarship support, a 24% increase since 2020. These awards reflect not only the generosity of our donors but also the shared belief that financial support is an investment in human potential.

Through 22 distinct scholarship mechanisms, including merit-based, need-based, moving on, flash and half-ride awards, the Program granted 136 awards to 89 dedicated students. An additional 17 learners received Research Assistantships, further enhancing their academic and professional development.

Expanding access, year after year

There are a variety of ways students can apply for and access scholarship opportunities, which are intentionally designed to support learners at every stage of their education. Dr. Gammon Earhart, Associate Dean, Director, and Professor of Physical Therapy, explains, “We don’t just give all the awards up front to first-year incoming students. There are opportunities that are specifically for second- and third-year learners. They appreciate having multiple scholarship opportunities throughout their time at WashU PT.”

Thanks to contributions from donors, the Program offers a wide range of awards, including the Barton Family Scholarship, which is granted to a third-year learner pursuing a career in endurance sports. By offering scholarships beyond the first year of study, WashU PT demonstrates its commitment to supporting students throughout their journey.

The ripple effect of generosity

Behind every scholarship is a story, and often, a lasting impact that reaches beyond the classroom. Abigail Hodges, second-year DPT learner and Anita Hefti Frumson Scholarship recipient, shares, “I think scholarships allow us the opportunity to fully engage in our coursework and clinical experiences with some external stress lifted off our shoulders. It is comforting to know that there are individuals who give the gift of higher education to dedicated and ambitious individuals like (me) and the (other) learners at WashU PT.”

Anita Hefti Frumson, scholarship donor and alumna of the class of 1966, knows firsthand the difference this support makes. She received a scholarship while attending the Program in Physical Therapy, allowing her to graduate debt-free. Recognizing the rising cost of tuition, she shared that scholarships are helping to keep PT thriving at WashU and attracting students to the field.

A legacy of giving

Many of the Program's most dedicated benefactors are alumni or former faculty — individuals whose careers began here and whose generosity continues to shape the future of the profession.

Dr. Shirley Sahrmann, PT, PhD, FAPTA, pioneer of the movement system and founding member of the Program, shared why she continues to give:

"As a graduate of the WashU Physical Therapy Program in 1958, I have had the amazing opportunity to participate as the Program progressed from the baccalaureate degree to the master's, and now the DPT degree. There were 3 faculty, none with a PhD and 18 students in my class. The faculty has truly progressed from schoolteachers, passing on information generated by other individuals to true academics, actively and extensively contributing to the body of knowledge of the profession.

Now there are almost 100 students in each class, and all faculty have PhDs or DPT degrees. They are among the leading researchers in the profession with many NIH grants. Investigation is not the only accomplishment; the Program is the first to establish a competency-based educational Program and there are also several sites for clinical practice. They are doing it all, education, research, and clinical practice.

The recognition of the level of the Program is evident in its rating as the number one program in physical therapy. The students are committed to proving the best care possible to help people who have compromises in their movement, whether from pain, paralysis, or even sports performance. The need for the range of services is great. Providing scholarships enables individuals who want to make such contributions but are lacking in resources without additional help. I am very grateful to be able to contribute to such an outstanding Program that is doing so much for a profession that can make contributions to the health of society."

Dr. Nancy Bloom, PT, DPT, MSOT, has also newly pledged a substantial gift to the Program, sharing her inspiration:

"My parents never questioned my desire to pursue higher education, and I want to honor their commitment to me by providing a scholarship for an individual to achieve their doctorate in physical therapy from the best Program in the country. Our professional future is in the hands of our graduates, and I can't think of a better way to ensure our role in preparing physical therapists who can transform society by optimizing movement. The cost of education is challenging, and I hope others will join me in supporting the scholarship Program."

A gift inspired by gratitude

Not all donors begin as alumni. For Jack MacDonough and his family, their connection to WashU Medicine Physical Therapy began as patients.

About four years ago, the MacDonoughs were referred to Dr. Theresa Notestine, Clinical Practice Manager, whose care made a lasting impression. When Medicare stopped covering his wife's visits, Dr. Notestine offered a creative solution - connecting them with DPT students who could provide at-home stretching and exercise support.

Since that first conversation, the MacDonoughs have worked with and gotten to know eight DPT students, and counting.

"We have a rotating cadre of students who come in when they're not off on their clinicals or somewhere else," says Mr. MacDonough. "Given that they come to where we live, we can talk to them and get to know them. That's how I learned about the going rate, once they graduate, versus the cost of tuition."

That connection inspired the family to give back. The MacDonoughs recently committed $250,000 to an endowed scholarship fund to benefit first-year learners and help attract top talent and passionate students.

"Right now, we as a family, my wife, me, our son and daughter-in-law, like to do things in which we have a hands-on feeling and to know where the money's going. We want that connection. (The scholarship) is really a way of appreciating what the school does, what Theresa did. That's in her honor."

"I'm glad I can help the school recruit good people. Because the best I can figure out is this is the best (PT) school in the country, but that doesn't mean you get the best students if you cannot get some of them with a little bit of scholarship to come in and help them with their dreams of helping others.... And not surprisingly, if you go into this field, you're a very caring individual. Their personalities are very kind."

Looking ahead

Donors like Ms. Frumson, Dr. Sahrmann, Dr. Bloom and the MacDonough family play a crucial role in the sustainability and success of our scholarship programs, serving as the heart and backbone that enable open doors for countless students who might not otherwise have the opportunity to pursue doctorate degrees in physical therapy due to financial constraints.

As for the Program's future, the goal is clear.

Dr. Earhart shares, "We set a goal 2 years ago to increase scholarship funding by 25% in 4 years' time and we're about halfway there, so we're on track. Once we reach that goal, we'll set a new one."

She adds, "A great reason to give is the satisfaction of knowing you are helping someone achieve their dreams. You can see directly how your generosity can make a difference in the life of a learner, and not just impact them directly, but all the people that they're going to see throughout their career over the years. That ripple effect is powerful."

To honor this work, gifts may be designated to WashU Medicine Physical Therapy scholarships.

Select School of Medicine, then Physical Therapy Annual Fund, and note the designation in the special instructions or comments field.

Scan the QR code to give.

Research

Research

Catherine Lang Named Inaugural Barbara J. Norton Professor in Physical Therapy

Named professorships are a long-standing and honored tradition in the academic world. They are a prestigious way to acknowledge and recognize the academic excellence of our most outstanding scholars while funding advancements in their specific areas of expertise and teaching endeavors. Additionally, professorship installations uniquely honor those who have pioneered the way forward and created the steppingstones towards advancement and exponential growth in their respective fields.

This year, a truly historic appointment was made. Catherine E. Lang, PT, PhD, FASNR, FAPTA was installed as the inaugural Barbara J. Norton Professor in Physical Therapy. This distinguished honor marked the first endowed, named professorship in the history of WashU Medicine's Program in Physical Therapy. The installation, officiated by David H. Perlmutter, MD, Executive Vice Chancellor for Medical Affairs, the Spencer T. and Ann W. Olin Distinguished Professor, and the George and Carol Bauer Dean of WashU Medicine, occurred on February 20, 2025, at the newly opened Jeffrey T. Fort Neuroscience Research Building.

As the longest-serving faculty member at WashU Medicine's Program in Physical Therapy, Barb J. Norton, PT, PhD, FAPTA has more than earned the honor of having a professorship named in recognition of her. Dr. Norton has been a faculty member for more than 50 years. She began her journey at WashU as a volunteer when in high school. She then went on to study physical therapy at WashU and work at WashU's Irene Walter Johnson Institute of Rehabilitation. She then became an instructor in the Program in Physical Therapy, playing an integral role in establishing the vibrant research community and culture at WashU and ultimately rising to her current rank of full professor.

Lang's installation as the inaugural Barbara J. Norton Professor in Physical Therapy should come as no surprise, as she is a trailblazer in the fields of neurorehabilitation and physical therapy. Her transformative work in post-stroke recovery has directly influenced how we evaluate, treat, and measure rehabilitation efforts. The purpose of her research is to help people with neurological injuries recover function and achieve as much independence as possible in their daily lives. Dr. Lang's research has revolutionized the use of wearable sensors to monitor activity in daily life, assisting in stroke rehabilitation and providing better measurement and evaluation of patients both in and away from the clinic. Her research is resulting in better treatment outcomes for this patient population.

In addition to this named professorship, Dr. Lang has been recognized with many awards, honors, and accolades since earning her PhD in Movement Science at WashU Medicine, including the Helen Hislop Award for Outstanding Contributions to Professional Literature and the Marian Williams Award for Research from the American Physical Therapy Association, the Steven J Rose Excellence in Research Award from the Academy of Orthopedic Physical Therapy, as well as the Excellence in Neurologic Research Award from the Academy of Neurologic Physical Therapy. Lang is also a Fellow for the American Society of Rehabilitation and a Catherine Worthingham Fellow of the American Physical Therapy Association. Moreover, Catherine has mentored over 30 trainees, has published over 120 peer-reviewed original research papers, and has given over 150 invited lectures.

History is made when determined and excellent minds are focused on innovation and advancement. Drs. Barbara Norton and Catherine Lang have made and continue to make significant contributions to the history of WashU Medicine and the physical therapy profession. We are grateful for their contributions and thrilled to see them both recognized with this coveted honor.

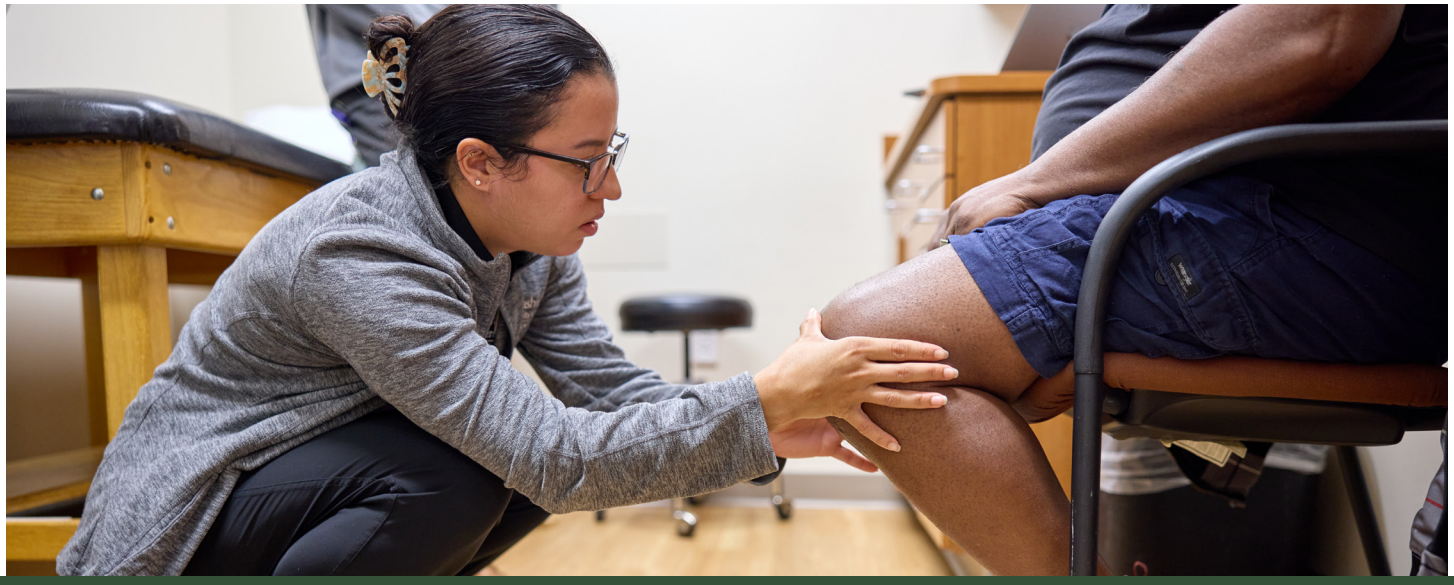
Community

Community

Growth and Community Success of WashU Medicine's Pro Bono Health Clinic

Since opening in February 2022, the WashU Medicine Interprofessional Pro Bono Health Clinic has served as a beacon of hope for uninsured and underinsured residents of Greater St. Louis. The student-led clinic provides compassionate, skilled care, ensuring that community members have access to healthcare services while assisting them to secure affordable, long-term care.

Under the leadership of Stacy Tylka, PT, DPT, WCS, CLT-LANA, Barbara Lutey, MD, and Jessica Dashner, OTD, OTR/L, the clinic offers physical therapy, occupational therapy, and short-term medical services. Each patient receives an individualized therapy assessment and plan of care designed to improve movement, reduce pain, and restore function.



A mission rooted in care and connection

The clinic's mission is multifaceted, prioritizing the assessment of patient needs while connecting them to ongoing care with providers, including those at St. Louis City and County Federally Qualified Health Centers (FQHCs). Through trauma-informed physical therapy, occupational therapy, and medical services, the clinic delivers interprofessional care tailored to each patient's circumstances.

Advocacy is at the heart of its work, linking uninsured and underinsured patients to community resources that support long-term health and well-being.

"Everyone is extremely helpful. Students may be the ones treating you, but they know a lot. I have had major improvements after my ankle injury, now I am back to 100%. Eternally grateful to the clinic for helping me." — Male patient, age 47

A collaborative model that sets it apart

The clinic's interdisciplinary structure sets it apart from many other pro bono programs, combining the expertise of physical therapists, medical doctors, and occupational therapists to deliver holistic, team-based care. This integrative approach reflects WashU Medicine's commitment to addressing the multifaceted health needs of the community, while also giving students invaluable, hands-on experience in clinical practice and collaboration.

Beth Crowner, PT, DPT, NCS, MPPA, Professor of Physical Therapy and Neurology and former Clinic Division Director, has seen how the growth of the DPT program has strengthened pro bono services. "The change in our DPT curriculum has made (the Pro Bono clinic) much more effective and sustainable. We can have learners (in the pro bono clinic) every Friday afternoon."

DPT learners completing clinical rotations at WashU's Central West End or O'Fallon clinics now also rotate through the Interprofessional Clinic, where they gain firsthand experience caring for diverse patients alongside interdisciplinary teams that also include the Program's physical therapy residents.

Learning through service

Through the clinic, students refine their clinical and interprofessional skills while gaining insight into the social and structural challenges patients face within the St. Louis healthcare system.

"This clinic has given me an unparalleled perspective in how to apply the didactic material we learn in the classroom in the real world, especially in communities with limited resources," says Cody Li, a second-year pro bono clinic student leader. "It has constantly challenged my ability to solve problems and break down barriers to care, as well as provide me a space to meet people with incredibly different backgrounds and in different stages of life."

Another Student Leader, Feleesia Cunningham, adds, "This opportunity has improved my interprofessional skills, clinical, and communication skills. These skills will continue to improve as I continue to learn and work with the amazing Pro Bono team!"

Leadership that inspires

Under the exceptional leadership of Dr. Stacy Tylka, Director of the Interprofessional Clinic and its Physical Therapy services, the clinic has seen remarkable growth. Her dedication to patient care, mentorship, and innovation has been instrumental in advancing the clinic's mission.

As director, Dr. Tylka ensures that all three services, along with the community referral coordinator from the St. Louis Integrated Health Network and the clinic coordinator, have what they need to keep operations running smoothly. She also oversees patient care coordination, budgeting, and leadership and steering committee meetings.

One of the clinic's key milestones, Dr. Tylka shares, has been hiring a sustainable clinic coordinator in Tyla Carter. In her role, Carter advocates for patients, answers inquiries, and ensures they have everything they need.

"Even before they walk in the door, patients are often already well-educated about their options and what we can and cannot do," says Dr. Tylka.

Getting three professions on the same schedule can be challenging, she admits, “but when it’s done right, it’s a spectacular model and beneficial for patients in our community.”

With limited access to therapy services through Medicaid, the clinic helps fill what Dr. Tylka calls “a pretty significant gap in access, as people are still getting injured, having accidents, or undergoing surgical repair.”

Driven by her passion for improving the lives of others, she says the most rewarding part of her role is “having the opportunity to meet individuals one-on-one to learn about them, their day to day, what they like and what we can help them get back to doing by helping them move better and decreasing their pain. Also, it’s simple from an access perspective: If (the clinic) can provide someone working 12-hour days in a row with shoe inserts and a couple of simple ways to relieve their symptoms, it can make a huge difference. It is really rewarding and just reminds us that we’re here to partner with each other for the community.”

A model of sustainable impact

The WashU Medicine Interprofessional Clinic continues to thrive through the efforts of student volunteers, dedicated faculty and clinicians, and strong institutional support.

As the clinic looks toward the future, Dr. Tylka’s vision remains clear: “I want the Pro Bono Clinic to be a sought-after cornerstone service of the university. This is just what we do. This is part of who we are, as a university, as a profession and as a community member. I want us to be thought of when people need resources.”

Special thanks

The Interprofessional Clinic’s continued success is made possible by the extraordinary service of its student leaders, faculty and collaborators along with generous funding from WashU Medicine’s Office of Medical Education.

With gratitude to past and current WashU PT contributors to the Pro Bono Clinic: Maggie Bland, Mary Crumley, Kiaana Howard, Julian Magee, Katie McDonnell, Patrick McNickle, Mitchell Powell, Cameron Swick, Alyssa Skala, Sylvia Son, Dale Thuet, and Anna Watts.

To see the full list of contributors, visit: probono-healthclinic.wustl.edu/home-2/who-we-are

Clinical Practice

Clinical Practice

Twenty Years of Excellence:

The Growth and Expanded Footprint of WashU Medicine Physical Therapy Clinical Practice

Twenty years ago, WashU Medicine's Physical Therapy Clinical Practice was a small, faculty-run clinic at 4444 Forest Park Avenue. Today, it's a thriving network of four locations — with more on the way — serving tens of thousands of patients each year. What began with eight to ten faculty practicing part-time has grown into more than 90 active clinical providers, including faculty, full-time staff physical therapists, and physical therapist assistants.

In fiscal year 2025, the Clinical Division completed more than 69,000 unique patient visits — more than double the number just six years ago. This remarkable growth reflects both the increasing needs of our community and the deep trust our patients and partners place in the WashU Medicine model of care.

Built on a movement-focused foundation

A key driver of the clinical practice's success is the continued demand for its one-on-one, movement-focused approach. "At each appointment, patients receive one-on-one personalized care," says Division Director of Clinical Practice Gregory Holtzman, PT, DPT, SCS. "Our one-on-one care and our focus on movement have been critical for a lot of our referral sources. It's continued to build that foundation of trust, in terms of what we can do if they have a patient that is complicated."

That care model — focused on individualized attention and communication — allows WashU PT to treat complex impairments from disease, injury and chronic conditions, even for patients who have not found success elsewhere.

Expanding access across the region

The practice now includes five embedded clinics and four main, freestanding clinical locations.

- ***4444 Forest Park Avenue*** on the Medical Campus, serving patients with musculoskeletal, pelvic health and lymphedema rehabilitation needs while continuing to care for WashU faculty, staff and students.

- ***@4240 Duncan Avenue*** in the Cortex District, home to orthopedic and neuromuscular rehabilitation and multidisciplinary services including physical therapy, speech-language pathology and occupational therapy.

- ***1 Progress Point Parkway*** in O'Fallon, Missouri, offering a breadth of services including orthopedic and neurologic rehabilitation, sports and performance programs, pelvic health rehabilitation.

- ***Zetcher House*** on the Danforth Campus, providing convenient access to WashU faculty, staff and

Whether in the city or the suburbs, every WashU PT location delivers the same commitment to evidence-based, personalized care. Dr. Holtzman emphasizes that collaboration across service lines and disciplines is essential: "We can really streamline and improve communication to the patient's benefit."

Meeting people where they are

"Our providers and service lines meet people where they have needs, so whether or not they're individuals who have experienced an amputation or a stroke, runners, cyclists, performing artists or golfers — they see the difference in terms of how we listen, how we focus on movement education in addition to exercise," says Dr. Holtzman.

Former Division Director and current neurorehabilitation provider Beth Crowner, PT, DPT, NCS, MPPA, agrees. "We're fortunate to be in a position to help people achieve their wins — whether they're small, medium or large. Every win counts."

Innovation inspired by need

As the provider base grows, so do the service lines. Many of WashU PT's specialty programs began because a clinician recognized a need among patients and turned that insight into action. One example is the newly embedded weightlifting clinic, created after seeing athletes eager to learn proper lifting form to prevent injury and improve performance.

"When the practice began, our core areas of focus were musculoskeletal rehabilitation and pelvic health with a limited emphasis on neuromuscular rehabilitation," Dr. Holtzman explains. "Today, we have over 10 general service lines with embedded clinics, highlighting specialty care in musculoskeletal rehabilitation, sports performance and injury, neuromuscular rehabilitation, TMJ pain, oncology rehabilitation, pelvic health, lymphedema, vestibular and concussion rehabilitation, and pre- and post-surgical rehabilitation."

WashU PT providers also collaborate across the Milliken Hand Rehabilitation Center, the Center for Advanced Medicine, the Amyotrophic Lateral Sclerosis (ALS) Clinic, the Pain Management Center and the Center for Lymphedema Excellence. Two in-house residency programs — in Orthopaedics and Women's Health — continue to advance specialty education within our clinical settings.

Deep roots in the community

In fiscal year 2025, WashU PT providers and staff attended more than 50 community events across the St. Louis area, including collaborations with Big Shark Bicycle Company, Big River Running, the ALS Foundation, COCA and Telemundo's Tu Salud Health Fair. The Clinical Division also co-sponsored the GO! STL Marathon, where more than 60 volunteers offered post-race recovery services to runners.

"These community outreach endeavors are great opportunities to educate the public about what we, as physical therapists, do," says Dr. Holtzman. "Once educated on our services and how we can help, they're more likely to advocate for themselves, they're more likely to go see (their) primary care physician and say, 'Hey, I want to go to see a PT.'"

Dr. Crowner credits the Division's marketing and engagement efforts for much of that growth. "We didn't have a marketing person or community engagement focused person when I started, so Jennifer Brown, Senior Manager for Marketing Services, has done a tremendous amount for us in terms of our visibility. It's important from a volume perspective, but also from a community health perspective. It's not just about patient care. It's about providing education and resources to the community."

Rising to challenges

Like all progress, growth has come with challenges. From expanding westward to O'Fallon to adjusting during the COVID-19 pandemic, the Clinical Division has learned to adapt and lead with purpose.

"When the pandemic hit, everyone had to pivot to remote work," recalls Dr. Crowner. "Telehealth visits became the new normal. As challenging as that time was, remote work was uncommon pre-pandemic. While we prefer to treat patients in person, we learned we could now hire staff who could work remotely on pre-arrival or pre-authorization. These staff could then help with the higher volume of patients without needing the physical workspace."

For Dr. Holtzman, deliberate growth is key. "You can sometimes equate growth with success. I think you do have to grow in very deliberate ways and make sure that that growth in and of itself does not become your downfall. We've been able to not only grow but sustain that growth. I think that's because we're able to understand and anticipate, and then either react or prevent some of the issues associated with rapid growth."

He adds that strong communication within the leadership team has been central to success. "We're not perfect, but we communicate well with each other. We listen to one another. We can healthily debate, and that's been such a driving force behind the clinical practice. We listen to our providers. We listen to our staff."

Looking ahead

Growth continues on the horizon. The Clinical Division will soon open a new clinic in Sunset Hills, Missouri, designed to support patients returning to sport, work and high-level physical activity.

"As we are opening this new location, we are thinking about the clinical model differently, gearing it toward return to sport and returning to high-level activity or work," says Dr. Holtzman. "The new clinic will have turf, a throwing lane, a golf simulator, and a dance floor."

"The Sunset Hills location will not only meet the needs of those returning to sport but allow us to be more responsive to post-operative care," he adds. "We hope to get patients back not only from injury, but also from surgery itself. The clinic will be an avenue to continue to improve access, improve collaborative care, and improve the outcomes of high-level workers and athletes."

Bloom Delivers 30th Annual John H.P. Maley Lecture

Nancy Bloom, PT, DPT, MSOT, presented the 30th annual John H.P. Maley Lecture at the 2025 American Physical Therapy Association (APTA) Leadership Congress on July 13, 2025. Dr. Bloom is a Professor Emerita of WashU Medicine's Program in Physical Therapy and is a member of the current board of directors for APTA Orthopedics. The John H.P. Maley Lecture Award acknowledges and honors a physical therapist who has made a significant contribution to the profession in clinical practice.

Her talk, entitled “Let’s Do It! Fully Embrace Movement as Our Identity,” emphasized the essential role of the movement system in physical therapy. She highlighted the progress made by APTA in defining and promoting the movement system since 2013, including the association’s guiding principles recognizing its importance. Bloom discussed how viewing clinical practices through a “lens of movement” can enhance physical therapy interventions and improve patient care. Her lecture detailed the conceptual development of the movement system, its role in optimizing movement, and its significance in diagnosing and treating patients. The presentation promoted a holistic approach to health and wellness, incorporating movement science into all aspects of physical therapy practice. She emphasized the importance of integrating movement-focused education into PT curricula to prevent teaching in silos.

Additionally, Bloom urged physical therapists to embrace their identities as doctors of physical therapy and movement system experts, advocating for confident use of the title “doctor” to establish professional recognition. As Bloom said in her lecture, “Please introduce yourself with pride as a doctor of physical therapy, because it is your expertise in movement that makes you invaluable to your patients and society.” Dr. Bloom’s assertion to keep the movement system, collaborative education, and expert identity at the forefront of the profession, certainly made the 30th Annual John H. P. Maley Lecture memorable to leaders and field professionals alike.

Faculty Promotions

Lynnette Khoo-Summers, PT, DPT
promoted to Professor

Jacob McPherson, PhD
promoted to Associate Professor with Tenure

Jenn Miller, PT, DPT, WCS, CLT
promoted to Associate Professor

Stacy Tylka, PT, DPT, WCS, CLT-LANA
promoted to Professor

Retirement Announcements

Suzanne L. Cornbleet, PT, DPT

Suzy Cornbleet retired in June 2025 after 44 years of service to the Program in Physical Therapy at WashU Medicine. She was an Associate Professor of Physical Therapy and Orthopedic Surgery. She began her journey as a PT in 1975 at Jewish Hospital, now known as Barnes-Jewish Hospital, where she worked as a PT, Center Coordinator of Clinical Education, Supervisor of Neuro Rehabilitation, and Home Health PT before joining the WashU faculty in 1981. In 2015, she received the Outstanding Service Award for Education from the Missouri Physical Therapy Association. In 2023, Dr. Cornbleet received the Lifetime Achievement Award from WashU Medicine's Academy of Educators. Suzy was an integral and instrumental team player on our Clinical Education team and throughout the establishment of the new DPT competency-based curriculum.

Renee Ivens, PT, DPT

Renee Ivens retired in November 2025 after 40 years of dedicated service to the Program in Physical Therapy at WashU Medicine. She held the position of Associate Professor of Physical Therapy and Orthopaedic Surgery. Dr. Ivens worked as a physical therapist for the Irene Walter Johnson Rehabilitation Institute and became a lecturer for WashU PT in 1986. She also served as a Clinical Instructor and Orthopaedic Specialist at Barnes-Jewish Hospital. In 2002, she transitioned to a full-time instructor role at WashU PT, eventually becoming an Associate Professor in 2013. That same year, she received the Helen Mae Bradley Award at Maryville University. Renee was esteemed for her meticulous and detailed approach to assessment and her passion for teaching and learning about shoulder rehabilitation.

Class Notes and Program Highlights

Annushree Ajitcumar (PT27) – Winner of the semester's $1,000 Flash Scholarship

Steve Ambler, PT, DPT, PhD, MPH – Graduated from the inaugural cohort of the WashU Medicine Pivotal Leaders Program.

Jenny Brown, Senior Manager, Marketing Services– Completed the WashU Institute for Leadership Excellence (ILE), presenting her capstone project on talent and career development within WashU IT.

Beth Crowner, PT, DPT, NCS, MPPA; Beth Hughes, PT, DPT, NCS, Kate Mueth, PT, DPT, and Mary Crumley, PT, DPT, NCS, CBIS, MSCS. – Represented WashU PT at the ANPT Conference with multiple presentations and a moderated forum.

Morgan Flecke, Sonali Pendharkar, Ashley Stork, and Steven Zhu (DPT Learners) – Along with faculty mentors Kiaana Howard, PT, DPT, Alyssa Skala, PT, DPT, OCS, MSCS, and Stacy Tylka, PT, DPT, WCS, CLT-LANA presented at The Pro Bono Network Conference on recruitment and leadership in the WashU Medicine Pro Bono Clinic.

Mary Goodwin, PT 27 – Placed 2nd Overall Female in the Full Marathon at the Go! St. Louis Marathon.

Ashley Gisher, PTA and Aubrey Sarpy, PT, DPT – Earned USA Weightlifting Level 1 Certification, demonstrating dedication to professional growth.

Megan Hall – Promoted to Lead CSR at the 4444 Clinical Practice.

Dr. Allison Haussler – Successfully defended her Movement Science PhD dissertation, "Enhancing Exercise Engagement and Gait in Parkinson Disease: Participation Factors, Novel Approaches, and the Role of Rhythmic Auditory Cueing."

Greg Holtzman, PT, DPT, SCS – Selected to participate in the 2025–2026 Pivotal Leaders Program at WashU Medicine.

Beth Hughes, PT, DPT, NCS – Presented "Redefining Rehabilitation in Recovery in ALS: A Case Report on SOD-1 ALS" at the ANPT Conference.

Sylvia Lin, PT, DPT, OCS and Jess Nehrt, PTA – Received the APTA Outstanding PT/PTA Team Award, recognizing excellence in clinical collaboration and patient care.

Irelynne Loesche (PT 27) – Winner of the semester's $1,000 Flash Scholarship, inspired by the quote, "The comeback is always greater than the setback."

Marissa Mack – Promoted to Clinical Service Representative III and now leads CSR operations at the 4240 Clinical Practice.

Lauren Marshall (PT 27) and the Day of Service Team – Organized a successful community event with multiple volunteer sites across the region.

Somi Matthews (PT 27) and Jayme Oberman (PT27) – Accepted to present their original works at the In Our Own Words event.

Kristen Matthews – Appointed Clinical Operations Manager for the Program in Physical Therapy.

Gretchen Meyer, PhD– Awarded a new NIH R01 grant, "Role of Lysine Acetylation in Skeletal Muscle Contractile Function." This marks her second R01, a testament to her innovative research and scientific excellence.

Dr. Jacob Parson – Successfully defended his Movement Science PhD dissertation, "Targeting the Beiging of Muscle-Adipose Tissue to Promote Muscle Regeneration."

Amy Pender (PT26) – Awarded a Southern Illinois Healthcare Scholarship recognizing her commitment to interprofessional collaboration and rural healthcare.

Kerri Rawson, PhD, MS – Received a grant from the McDonnell Center for Systems Neuroscience to fund a system for remote gait monitoring.

Meaghan Ralph (PT25) – Selected for induction into the National Physical Therapy Student Honor Society.

Class Notes and Program Highlights

Carolyn Ryterski and Sherry Lohman were recognized for 25 years of service to Washington University.

Tracy Spitznagle, PT, DPT, WCS – Received the WashU Medicine 2025 Dean's Impact Award for her leadership in improving women's health globally through education, service, and nonprofit work in Ethiopia and Nigeria.

Kayley Stock, PT, DPT, NCS – Selected to serve on the ANPT Consumer and Care Partner Taskforce, recognized for her clinical excellence and dedication to improving neurologic physical therapy care.

Dale Thuet, PT, DPT, OCS– Selected as the PT26 Commencement Faculty Speaker.

Noah Watson, PT, DPT, EP-C – Appointed APTA Missouri Eastern District Chair.

WashU PT Faculty, Staff, and Students in the Med School Musical "9 to 5" – Samantha Loudermilk and Kristen Tarsala (cast) and Menghan Chen and Jonathan Trotter (orchestra) sharing their talents beyond the classroom.

WashU PT Go! Marathon Volunteers – Over 60 learners, staff, and faculty supported the event with logistics, post-race care and hospitality. Special thanks to Sami Pauli, Kaleigh Dickneite, and Jenny Brown for leadership and coordination.

PT27 Learners – Expressed gratitude at the Anatomy Donor Remembrance Ceremony through reflections, letters, readings, and performances.

Members of PT20 – Returned to campus for their 5 year reunion.

Nygel Williams – Elected as Treasurer of the WashU Black Faculty & Staff Cabinet

Members of PT05 - returned to campus for their 20 year reunion

Members of PT85 - returned to campus for their 40 year reunion

Grants
Funded in Fiscal Year 2024-2025

Laura McPherson, PT, DPT, PhD

VOLUNTARY MOTOR COMMANDS THROUGHOUT THE ADULT LIFESPAN: OPEN DATASET AND AGE/SEX INTERACTIONS

Funded by WU Institute of Clinical & Translational Sciences_TSS Project

In recent years, novel conceptual and technical advances have given us the ability to characterize excitatory, inhibitory, and neuromodulatory components of voluntary motor commands non-invasively in humans. However, the field lacks a large dataset from people without neurological injury (controls) that can be used for reference with clinical populations. The goal of this study is to determine how voluntary motor commands change throughout the adult lifespan, to identify whether this relationship differs by sex, and to create a data repository to share data with other researchers. This study will provide scientific insight into how neural control of movement changes with age and sex, and, by creating an open data repository, it will ensure efficient use of federal resources and enhance rigor and reproducibility in the field.

SUBCLINICAL PATHOPHYSIOLOGY OF MOTOR PROCESSING IN PEOPLE WITH MULTIPLE SCLEROSIS

Funded by Department of Defense - Army Research Office

We have previously shown how excitatory, inhibitory, and neuromodulatory components of voluntary motor commands are disrupted in people with multiple sclerosis who have motor deficits. Here, we explore whether we can detect subclinical disruptions to voluntary motor commands in patients with multiple sclerosis without sensorimotor disability and whether our measures change after 1 year. This will provide information about whether our approach for assessing voluntary motor commands is sensitive enough to be developed further as a disease monitoring tool for subclinical disease progression. Such a tool would be crucial for testing new drug and rehabilitation therapies to slow disease progression and for maximizing the benefit of current therapies.

Allison Miller, DPT, PhD, NCS

INTEGRATING WEARABLE SENSOR TECHNOLOGY INTO THE REHABILITATION CLINICAL ENVIRONMENT

Funded by the Foundation for Physical Therapy Research

Digital health technologies have unprecedented potential to change the delivery, accessibility, and outcomes of health care; however, this potential remains relatively unexploited across most health care settings, including rehabilitation. Previous work has shown that while rehabilitation may be effective at improving an individual's capacity for upper limb activity (defined as what a person is capable of doing on a standardized in-clinic assessment) following stroke, it may be less effective, if at all, at improving their performance of upper limb activity in daily life (defined as what a person actually does in their free-living environment). A key reason for this is that in standard rehabilitation practice, most clinicians do not have access to objective measures of performance of activity in daily life of their patients. Wearable sensors are an evolving digital health tool that can be used to measure activity performance in daily life; however, these technologies are not part of routine rehabilitation clinical practice due to a variety of barriers. This proposal seeks to tackle these barriers head-on by: (1) understanding the preferences of key stakeholders (i.e., patients and clinicians) for how these technologies should be deployed in clinical practice to minimize burden and maximize the usefulness of information derived from wearable sensors, and (2) developing and piloting a digital health solution that integrates data from wearable sensors into rehabilitation clinical practice and the electronic health record and collects data on its usability and resources needed. The expected outcome of this work is a scalable digital health solution that can be integrated into rehabilitation clinical practice within the boundaries of key stakeholder preferences to improve the delivery of rehabilitation care and the outcomes of patients who seeks these services.

Maria Bandres, PhD

INTEGRATIVE SPINAL PHYSIOLOGY TO RESTORE NEURAL CONTROL OF SENSORIMOTOR FUNCTIONS AFTER NEUROLOGICAL INJURY

Funded by NIH F99

Theresa Spitznagle, PT, DPT, WCS

ASSESSING MULTIFACTORIAL ETIOLOGY OF OVERACTIVE BLADDER USING A NOVEL PFM-HIP-TRUNK MUSCL NETWORK ANALYSIS

Funded by NIH R21 - University of Miami Subaward

Interstitial cystitis/ bladder pain syndrome (IC/BPS) is one of the most debilitating chronic pelvic pain (CPP) conditions that negatively impacts the quality of life and sexual activities in 2.7% to 6.5% of women in the US. Pelvic floor muscle (PFM) overactivity, characterized by an increase in the tonic muscle activity, is a condition related to myofascial pain that presents in the majority of CPP conditions, including up to 85% of women with IC/BPS. However, pelvic floor pain is intrinsically a multifactorial dysfunction that is attributed to postural issues, myofascial trigger points, and abnormal muscle tone. Myofascial therapy, including specific pelvic floor muscle soft tissue mobilization and muscle stretching, is standard treatment for patients with IC/BPS and concomitant PFM tenderness. Unfortunately, even among IC/BPS patients with PFM tenderness on exam, only 59% of patients report symptom improvement after myofascial therapy. Pelvic floor myofascial therapy, however, does not address movement impairments of the trunk and hips, which are also associated with pelvic pain. A pelvic floor muscle phenotyping framework would allow IC/BPS patients to be categorized to facilitate individualized treatment. Unfortunately, no technology is currently available for quantitatively and objectively assessing PFM etiologic factors associated with IC/BPS, which, otherwise, would advance the understanding of the underlying mechanisms. Through the use of novel high density electromyographic technology, this study aims to comprehensively assess the PFM overactivity, hip/trunk muscle activity alteration, PFM-to-Hip/ Trunk inter-muscular connectivity, and distinct PFM phenotypic subtypes in IC/BPS. This research represents the first effort to comprehensively assess the PFM overactivity, hip/ trunk muscle activity alteration, PFM-to-Hip/Trunk inter-muscular connectivity, and distinct PFM phenotypic subtypes in IC/BPS.

Jennifer Zellers, PT, DPT, PhD

EFFECT OF OBESITY ON ACHILLES TENDON HOMEOSTASIS AND HEALING: DISENTANGLING MECHANICAL LOAD AND METABOLIC SYNDROME

Funded by NIH – K01

Individuals with obesity are at higher risk of tendon injury than individuals without obesity, but how obesity affects tendon homeostasis and healing is not fully understood. This study investigates obesity-mediated effects of altered mechanical load and metabolic derangement on tendon structure and function (Aim 1), gene transcription (Aim 2), and healing from injury (Aim 3). This work will elucidate the effect of obesity on tendon homeostasis and healing and provide critical training opportunities for the primary investigator to leverage animal studies for translational tendon science.

Gretchen Meyer, PhD

RESOURCE BASED CENTER FOR MUSCULOSKELETAL BIOLOGY AND MEDICINE

Funded by P30

Musculoskeletal conditions affect one in two Americans. We are a group of 95+ researchers who study the underlying causes for musculoskeletal diseases like arthritis, back pain and osteoporosis. With this knowledge, we develop and test new strategies to treat these diseases, primarily using small animals to test proof of concept.

Collaborations
(Collaborative Awards)

Catherine Lang, PT, PhD, FASNR, FAPTA

TELEREHABILITATION IN THE HOME AFTER STROKE: A RANDOMIZED, CONTROLLED, ASSESSOR-BLIND CLINICAL TRIAL

Funded by NINDS, PIs: S. Cramer (UCLA) and D. Edwards (Moss Rehab. Institute)

This definitive STROKENET clinical trial evaluates the efficacy of home-based telerehabilitation for improving upper limb function, overall health, and economic costs in persons post stroke. Wearable movement sensor variables developed by Dr. Lang and her group are deployed as a key outcome in the trial.

Continuing Awards

Earhart, Gammon, PT, PhD, FAPTA
Funded by NIH R61
SING FOR YOUR SAUNTER: USING SELF-GENERATED RHYTHMIC CUES TO ENHANCE GAIT IN PARKINSON'S
Funded by NIH U01
SPARX STUDY IN PARKINSON DISEASE OF EXERCISE PHASE 3 CLINICAL TRIAL: SPARX3

Harris, Mike, PhD
Funded by NIAMS R01
LONGITUDINAL BIOMECHANICS AND PATIENT-REPORTED OUTCOMES AFTER PERIACETABULAR OSTEOTOMY FOR DEVELOPMENTAL DYSPLASIA OF THE HIP

Harris-Hayes, Marcie, PT, DPT, MSCI
Funded by NIH R25 Subaward
TURNING THE TIDE: TRAINING DIVERSE CLINICIAN SCIENTISTS IN REHABILITATION RESEARCH

Hastings, Mary, PT, DPT, MSCI, ATC
Funded by American Orthopedic Foot and Ankle Society
LONG-TERM FUNCTIONAL AND CLINICAL OUTCOMES FOLLOWING THE MODIFIED KELLER WITH INTERPOSITION ARTHROPLASTY
Funded by NIH-R01
CHRONIC KIDNEY DISEASE-MINERAL BONE DISORDER (CKD-MBD) SYNDROME IN THE DIABETIC, NEUROPATHIC FOOT

Lawrence, Rebekah, PT, PhD
Funded by NIH R00
INVESTIGATING THE MULTI-FACTORIAL ETIOLOGY OF ROTATOR CUFF PATHOLOGY IN HUMAN SUBJECTS

Lang, Catherine, PT, PhD FASNR, FAPTA
Funded by NIH RO1
TRANSLATION OF IN-CLINIC GAINS TO GAINS IN DAILY LIFE AFTER STROKE
Funded by NIH RO1
VARIATION IN EARLY MOTOR FUNCTION IN AUTISM, CEREBELLAR INJURY AND NORMAL TWINS

McPherson, Jacob, PhD
Funded by DoD Translational Research Award
TARGETED SPINAL CORD PLASTICITY FOR ALLEVIATING SCI-RELATED NEUROPATHIC PAIN
Funded by NIH RO1
INTRASPINAL MICROSTIMULATION FOR MULTI-MODAL REHABILITATION

McPherson, Laura, PT, DPT, PhD
Funded by NIH KL2
NEURAL MECHANISMS OF MOTOR HETEROGENEITY IN MULTIPLE SCLEROSIS
Funded by NIH R01
SUPERCOMPUTER-BASED MODELS OF MOTONEURONS FOR ESTIMATING THEIR SYNAPTIC INPUTS IN HUMANS

Meyer, Gretchen, PhD
Funded by NIH R01
PROMOTING MUSCLE REGENERATION THROUGH ADIPOSE SIGNALING
Funded by NIH RO1 (Sah)
MEDIATED REGULATION OF SKELETAL MUSCLE FUNCTION AND METABOLISM
Funded by RO1 (Guan)
TARGETED DELIVERY OF A PROANGIOGENIC AND PROMYOGENIC PROTEIN FOR REGENERATION OF DIABETIC ISCHEMIC LIMB

Van Dillen, Linda, PT, PhD, FAPTA
Funded by NIH R01
SIGNIFICANCE OF SPINAL MOVEMENT IMPAIRMENTS IN ACUTE LOW BACK PAIN

Zellers, Jennifer PT, DPT, PhD
Funded by NIH F32
DIABETES-RELATED TENDON CHANGES: INTEGRATING EX VIVO AND IN VIVO APPROACHES

2025 Scholarships

The University has updated its reporting procedures. Donor names and giving levels are no longer available for publication. WashU Medicine Physical Therapy is deeply grateful for every gift that supports the Program and advances our work. Your generosity continues to make an impact.

The **Barton Family Scholarship** is awarded to students based on need and merit who have interest in Endurance Sports Rehabilitation. Kristian Dimitrov, PT 26

The **Timothy B. Burnight Scholarship** is awarded to a student who demonstrates exceptional academic promise. David Hock, PT 28

The **Susan and Robert Deusinger Scholarship** is awarded to a student who has demonstrated exceptional and enduring leadership in the classroom, clinic and/or community. Kaitlyn Low, PT 27

The **Kathleen K Dixon Scholarship** is awarded to students based on need and merit. Kiya Hagene, PT 27

The **Karen Donahue Scholarship** is awarded to a student with a record of consistent and outstanding service to the profession and/or the community. Faith Kummetz, PT 27

The **Leonard Eastman Scholarship** is awarded to a student who demonstrates innovative, initiative-driven leadership that has a meaningful impact on their academic, clinical practice and community environments. Rui Gong, PT 27

The **Anne Furlong Scholarship** is awarded to a student who demonstrates outstanding academic performance in their undergraduate work. Jillian Kreimer, PT 28

The **Guebert/Lake Scholarship** is awarded to a student who demonstrates success in the areas of scholarship, clinical promise, class leadership and service to the community. Caroline Lendy, PT 27; Lauren Marshall, PT 27; Oil Panacharoensuk, PT 27

The **Anita Hefti Frumson Scholarship** is awarded to students who demonstrates need and merit. Abigail Hodges, PT 27; Trav Jarman, PT 27; Irelynne Loesche, PT 27; Ethan Patience, PT 27

The **Robert J. Hickok Scholarship** is awarded to a student who has demonstrated exemplary personal integrity, consistent professional commitment, leadership and excellence in clinical work. Rui Gong, PT 27; Caroline Lendy, PT 27; Benjamin Mulert PT 27

The **Nancy Palumbo Scholarship** is awarded to a student who shows Passion and enthusiasm for the Program in Physical Therapy inside and out. Grace Bledsoe, PT 27

The **PT Scholars Scholarship** is awarded to students who excel in their first Clinical Education experience. Melissa Baerson, PT 27; Feleesia Cunningham, PT 27; Dillion Lee, PT 27; Meira Silverman, PT 27; Naomi Smith, PT 27; Travis Wang, PT 27

The **Steven J. Rose Development Award** is awarded to students who have demonstrated academic excellence and contributed to the Program in Physical Therapy.
Kristian Dimitrov, PT 26; Somi Mathews, PT 27; Benjamin Mulert, PT 27; Alexis Schillinger, PT 26

The **Stith Family Scholarship** is awarded to students based on need. Kaitlyn Low, PT 27

The **Sahrmann Assistantship** provides funding for a student to conduct research related to musculoskeletal impairments. Jillian Kreimer, PT 28

Publications
January 1- September 1

Muscle Compensation Strategies to Maintain Glenohumeral Joint Stability in Rotator Cuff Tears: A Cadaveric Study. Hoshikawa K, Dominguez M, Lawrence RL, Jacobs PM, Yuri T, Mura N, Giambini H. J Bone Joint Surg Am. 2025 Jan 1;107(1):26-35.

Early changes in spatiotemporal dynamics of remapped circuits and global networks predict functional recovery after stroke in mice. Bowen RM, Lee J, Wang B, Lohse KR, Miao H, Padawer-Curry JA, Albertson AJ, Landsness EC, Bauer AQ, Lee JM. Neurophotonics. 2025 Jan;12(Suppl 1):S14604.

Markers of mitochondrial function and oxidative metabolism in female skeletal muscle do not display intrinsic circadian regulation. Fitzgerald LS, Reynoso Spurrier CS, Lau NJ, Melamed MD, Burnett LA, Meyer GA, Gui C, Hevener AL, Sanford JA, Schenk S. bioRxiv [Preprint]. 2025 Jan 13.

Taking the Next Step in Neurologic Rehabilitation: Contributions of Intensity and Variability of Stepping Tasks during Locomotor Training. Hornby TG, Moore J, Holleran CL, Henderson CE. Phys Ther. 2025 Jan 17.

Exploring booster session attendance, prescription, and outcomes in adults with chronic low back pain: Secondary analysis of a randomized clinical trial. Lanier VM, Lohse KR, Hooker QL, Civello JM, van Dillen LR. medRxiv [Preprint]. 2025 Jan 28.

Low Back Pain or Injury Before Collegiate Athletics, a Potential Risk Factor for Noncontact Athletic Injuries. Harris-Hayes M, Solomon S, Lin S, Prather H, Hunt D, Agarwal M, Bloom NJ, Mills L, Clohisy JC. J Athl Train. 2025 Feb 1;60(2):170-176.

The Effect of Low-Dose CT Protocols on Shoulder Model-Based Tracking Accuracy Using Biplane Videoradiography. Chen S, Lee ECS, Napier KB, Rainbow MJ, Lawrence RL. Ann Biomed Eng. 2025 Feb;53(2):481-491.

Trial-to-trial motor behavior during a reinforcement learning task in children ages 6 to 12. Konrad JD, Lohse KR, Marrus N, Lang CE. Hum Mov Sci. 2025 Feb;99:103317.

Person-specific characteristics of people with low back pain moderate the movement pattern within motor skill training and strength and flexibility exercise. Hooker QL, Lanier VM, van Dillen LR. J Electromyogr Kinesiol. 2025 Feb;80:102960.

Differential gait features across Parkinson's disease clinical subtypes. Baudendistel ST, Rawson KS, Lessov-Schlaggar CN, Maiti B, Kotzbauer PT, Perlmutter JS, Earhart GM, Campbell MC. Clin Biomech (Bristol). 2025 Feb;122:106445.

Patients' real-world engagement with movement pattern modifications for nonarthritic hip-related pain. Cheng AL, Hannemann AJ, Brady BK, Pashos MM, Huecker JB, Steger-May K, Prather H, Clohisy JC, Harris-Hayes M. PM R. 2025 Feb 15.

Dynamic femoral head coverage following periacetabular osteotomy for developmental dysplasia of the hip. Bourantas CA, Behrman EC, Shepherd MC, Lohse KR, Clohisy JC, Harris MD. Clin Biomech (Bristol). 2025 Feb 23;124:106471.

Targeted inactivation of spinal a2 adrenoceptors promotes paradoxical anti-nociception. Lucas-Romero J, Bandres MF, McPherson JG. bioRxiv [Preprint]. 2025 Feb 25.

Personalized Auditory Rhythmic Cues to Optimize Gait in Older Adults and People With Parkinson Disease. Harrison EC, Tueth LE, Haussler AM, Rawson KS, Earhart GM. J Neurol Phys Ther. 2025 Feb 27.

Site-1 Protease is a negative regulator of sarcolipin promoter activity. Sharma I, Kelly MO, Hanners K, Shin ES, Mousa MG, Ek S, Meyer GA, Brookheart RT. bioRxiv [Preprint]. 2025 Feb 28.

The effect of chronic low back pain and lumbopelvic stabilization instructions on gluteus medius activation during sidelying hip movements. Meekins MM, Zucker-Levin A, Harris-Hayes M, Singhal K, Huffman K, Kasser R. Physiother Theory Pract. 2025 Mar;41(3):563-570.

Meeting the Health Needs of Society Through Curricular Innovation in Physical Therapist Education: Examples From 3 Entry-Level Programs. Magnusson DM, Judd DL, Ambler SB, Magee J, Collins P, Kuba E, Bilyeu C. J Phys Ther Educ. 2025 Mar 1;39(1):25-32.

Lessons learned from an observational study of patients with breast cancer: adaptations for remote implementation. Salerno EA, Harriss C, Andrade DC, Peterson LL, Marx CM, Duncan RP, Luo J, Kepper MM, Anbari AB, Politi MC. Support Care Cancer. 2025 Mar 11;33(4):266.

Neural mechanisms underlying synchronization of movement to musical cues in Parkinson disease and aging. Harrison EC, Grossen S, Tueth LE, Haussler AM, Rawson KS, Campbell MC, Earhart GM. Front Neurosci. 2025 Mar 11;19:1550802.

Altered Joint Forces Found in Symptomatic Dysplastic Hips in Women During Sport-Specific Activities. Shepherd MC, Huo R, Clohisy JC, Nepple JJ, Harris MD. Orthop J Sports Med. 2025 Mar 14;13(3):23259671251318736.

Publications (Continued)
January 1- September 1

Fifteen-Year Follow-up of the Modified Oblique Keller Capsular Interposition Arthroplasty Compared to Arthrodesis for Treatment of Advanced First Metatarsophalangeal Joint Arthritis. Johnson JE, Phinney AR, Hastings MK, Jeong HJ, Chen L, Thome AP, McCormick JJ, Backus JD. Foot Ankle Orthop. 2025 Mar 20;10(1):24730114251322766.

Digital gait biomarkers in Parkinson's disease: susceptibility/risk, progression, response to exercise, and prognosis. Mancini M, Afshari M, Almeida Q, et al. NPJ Parkinsons Dis. 2025 Mar 21;11(1):51.

Defining the Minimal Clinically Important Improvement, Substantial Clinical Benefit, and Patient Acceptable Symptom State for the iHOT-12, HOOS, and HOOSglobal in the Nonoperative Management of Nonarthritic Hip-Related Pain. Cheng AL, Radlicz CM, Pashos MM, Huecker JB, Steger-May K, Prather H, Clohisy JC, Harris-Hayes M. Am J Sports Med. 2025 Mar 23.

Validity evidence for a feedback tool for an interprofessional standardized patient experience: A qualitative pilot study. East L, Stevens A, Hageman H, Perlmutter M, Garuba F, Burlis T, Chang D, McConachie A, Hanson J. J Interprof Educ Pract. 2025 Apr.

Movement system diagnosis: A consensus-based position for pediatric movement specialists. Cobb LP, Shane KA, McGee PN, et al. Pediatr Phys Ther. 2025 Apr 1;37(2):257-264.

Dynamic femoral head coverage following periacetabular osteotomy for developmental dysplasia of the hip. Bourantas CA, Behrman EC, Shepherd MC, Lohse KR, Clohisy JC, Harris MD. Clin Biomech (Bristol). 2025 Apr;124:106471.

Perspectives of key stakeholders on integrating wearable sensor technology into rehabilitation care: a mixed-methods analysis. Miller AE, Holleran CL, Bland MD, Fitzsimmons-Craft EE, Newman CA, Maddox TM, Lang CE. Front Digit Health. 2025 Apr 28;7:1534419.

Characteristics of responders to interventions for Parkinson disease: a scoping systematic review. Baudendistel ST, Earhart GM. Neurodegener Dis Manag. 2025 Apr 30:1-14.

Defining the minimal clinically important improvement... (final published version). Cheng AL, Radlicz CM, Pashos MM, Huecker JB, Steger-May K, Prather H, Clohisy JC, Harris-Hayes M. Am J Sports Med. 2025 May;53(6):1486-1493.

Spinal movement impairments in people with acute low back pain. Krueger KO, Lanier VM, Duncan RP, van Dillen LR. Musculoskelet Sci Pract. 2025 May 3;78:103344.

Physical therapy and deep brain stimulation in Parkinson disease: Safety, feasibility, and preliminary efficacy. Tueth LE, Rawson KS, Van Dillen LR, Earhart GM, Perlmutter JS, Duncan RP. J Neurol Phys Ther. 2025 May 9.

Matching clinical profiles with interventions to optimize daily stepping in people with stroke. McCartney KM, Pohlig RT, Miller AE, Thompson ED, Reisman DS. Phys Ther. 2025 May 13.

Gray matter morphology and pain-related disability in young adults with low back pain. Smith JA, Tain R, Chrisman I, Sharp KG, Glynn LM, Van Dillen LR, Jacobs JV, Cramer SC. Neuroimage. 2025 May 15;312:121227.

Development of domains of competence and competencies for physical therapist education. Ambler SB, Burlis TL, Clark BR, Holtzman GW, McGee PN, Frost JS, Randolph JL, Norton BJ, Holleran CL. J Phys Ther Educ. 2025 Jun 1;39(2):101-109.

Causal mediation analysis of factors influencing physical activity and community access among people with mild-to-moderate Parkinson disease. Paul SS, Porciuncula F, Cavanaugh JT, Rawson KS, Nordahl TJ, Baker TC, Duncan RP, Earhart GM, Ellis TD. Arch Phys Med Rehabil. 2025 Jun;106(6):871-879.

Diabetes meets exercise: Myonuclear gene transcription stays put. Meyer GA, Mittendorfer B. J Physiol. 2025 Jun;603(11):3277-3278.

Current cutting-edge omics techniques on musculoskeletal tissues and diseases. Li X, Fang L, Zhou R, et al. Bone Res. 2025 Jun 9;13(1):59.

Feasibility of a barre exercise intervention for individuals with mild to moderate Parkinson disease. Haussler AM, Tueth LE, Earhart GM. J Dance Med Sci. 2025 Jun 14.

Diagnostic domains, differential diagnosis and conditions requiring further medical attention in Achilles tendinopathy: A Delphi consensus study. Malliaras P, Gravare Silbernagel K, de Vos RJ, et al. Br J Sports Med. 2025 Jun 18;59(13):891-901.

BREATHS: A knowledge translation framework for optimizing inspiratory muscle training in physical therapy practice. Anderson J, Priluck D, Dias KJ. Med Res Arch. 2025;13(6).

Personalized Auditory Rhythmic Cues to Optimize Gait in Older Adults and People With Parkinson Disease. Harrison EC, Tueth LE, Haussler AM, Rawson KS, Earhart GM. J Neurol Phys Ther. 2025 Jul 1;49(3):162-170.

Patients' real-world engagement with movement pattern modifications for nonarthritic hip-related pain. Cheng AL, Hannemann AJ, Brady BK, Pashos MM, Huecker JB, Steger-May K, Prather H, Clohisy JC, Harris-Hayes M. PM R. 2025 Jul;17(7):761-770.

Common Data Elements for Rehabilitation Research in Neurologic Disorders (NeuroRehab CDEs). Carlozzi NE, Mendoza-Puccini MC, Marden S, et al. Arch Phys Med Rehabil. 2025 Jul;106(7):981-988.

Publications (Continued)
January 1- September 1

Matching clinical profiles with interventions to optimize daily stepping in people with stroke. McCartney KM, Pohlig RT, Miller AE, Thompson ED, Reisman DS. Phys Ther. 2025 Jul 1;105(7):pzaf070.

Replication of sensor-based categorization of upper-limb performance in daily life. Macpherson CE, Bland MD, Gordon C, et al. Sensors (Basel). 2025 Jul 25;25(15):4618.

Musical Distractions: Music-Based Rhythmic Auditory Stimulation Fails to Improve Gait in Huntington's Disease. Baudendistel ST, Tueth LE, Haussler AM, Earhart GM. Brain Sci. 2025 Jul 31;15(8):820.

Association Between Real-World Actigraphy and Poststroke Motor Recovery. Lohse KR, Miller AE, Bland MD, Lee JM, Lang CE. Stroke. 2025 Aug;56(8):2079-2090.

Characteristics of responders to interventions for Parkinson disease: a scoping systematic review. Baudendistel ST, Earhart GM. Neurodegener Dis Manag. 2025 Aug;15(4):173-186.

Spinal movement impairments in people with acute low back pain. Krueger KO, Lanier VM, Duncan RP, van Dillen LR. Musculoskelet Sci Pract. 2025 Aug;78:103344.

Building Capacity for Knowledge Translation in Rehabilitation: The Academy of Neurologic Physical Therapy's Knowledge Translation Summit. Moore JL, Romney WM, Crowner B, Hornby TG, Graham ID. J Neurol Phys Ther. 2025 Aug 13.

Pathophysiology of voluntary motor commands at the level of the spinal motoneuron in patients with multiple sclerosis. McPherson LM, Lohse KR, Simon SM, Beauchamp JA, Negro F, Naismith RT, Cross AH. medRxiv [Preprint]. 2025 Aug 13.

Is Acromial Morphology Different in Patients with Eccentric Glenohumeral Osteoarthritis? Kahan LG, Lawrence RL, Keener JD, Aleem A, Zmistowski BM. J Shoulder Elbow Surg. 2025 Aug 25.

Ablation of UCP-1+ cells impacts FAP dynamics in muscle regeneration. Parson JC, Meyer GA. Am J Physiol Cell Physiol. 2025 Sep 1;329(3):C754-C767.

A Neurosurgeon's Guide to Mobile Health Application Development With a Case Study for Cervical Myelopathy. Singh P, Chen E, Steel B, et al. Neurosurgery. 2025 Sep 9.

Intramuscular adipose tissue: from progenitor to pathology. Jones HG, Kopinke D, Meyer GA. Am J Physiol Cell Physiol. 2025 Sep 15.

Can predictive and functional methods locate the dysplastic hip joint center? Harris MD, Behrman EC, Lohse KR, Shepherd MC, MacWilliams BA, Mannen EM. Gait Posture. 2025 Sep 19.

Stroke and motor outcomes are associated with regional and age-specific changes in cortical activity. Albertson AJ, Landsness EC, Eisfelder M, Young BM, Judge B, Brier MR, Euler MJ, Cramer SC, Lee JM, Lohse KR. Exp Physiol. 2025 Sep 24.

Site-1 protease is a negative regulator of sarcolipin promoter activity. Sharma I, Kelly MO, Hanners K, Shin ES, Mousa MG, Ek S, Meyer GA, Brookheart RT. Commun Biol. 2025 Sep 24;8(1):1351.

Congratulations Class of 2025

WashU Medicine

Program in Physical Therapy

MSC 8502-66-1101 • 4444 Forest Park Blvd., Suite 1101 • St. Louis, MO 63108
Phone: (314) 286-1400 • **Fax:** (314) 286-1410 • **Web:** pt.washu.edu

Connect with Us: @WashUMedPT @WashUMedPT WashU Medicine Physical Therapy