

# OREGON INSTITUTE OF TECHNOLOGY / OREGON HEALTH & SCIENCE UNIVERSITY DOCTOR OF PHYSICAL THERAPY

Connecting OIT / OHSU Physical Therapy alumni, students, faculty, clinicians, and community

[OIT.EDU/ACADEMICS/DEGREES/DOCTOR-OF-PHYSICAL-THERAPY](https://oit.edu/academics/degrees/doctor-of-physical-therapy)



1st Quarter  
2026



Left: APTA Oregon Annual Conference with Adjunct Faculty and Cohort 2026 - **Moises Angulo** SPT; **Brian Wilkinson** PT, DPT, DHSc, CHT, CLT; **Reilly Combs** SPT; **Jesus Egoavil** SPT; **Claire Strong** SPT. Center: Adjunct Faculty **Amy Wells** PT, DPT, GCS, CCS take Cohort 2027 through the Shuttle Test during PT 700. Right: **Grace Bruschi** SPT Cohort 2026 instructs OHSU Nursing students in safe patient handling and bed mobility.

## A Message from the Program Director

As we transition into the Spring term, Oregon Institute of Technology is approaching a historic milestone: **the graduation of our first-ever doctoral students!** On June 13, 2026, our Physical Therapy faculty will have the distinct honor of hooding our inaugural Cohort 2026 as they walk across the graduation stage to become our program's very first alumni. This event marks the beginning of an exciting annual tradition where we will celebrate the departure of one skilled group of graduates in mid-June, only to welcome a brand-new cohort to campus just one week later.

In addition to preparing our inaugural cohort for their final rotations, our faculty has been working tirelessly toward **achieving full accreditation**. Following the completion of a comprehensive self-study in December, we hosted the accreditation team for a productive on-campus visit in mid-March. We now look forward with anticipation to receiving the final accreditation news in late fall 2026.

Beyond these administrative milestones, February 2026 was a standout month for **academic excellence and research**. Our program was well-represented on both the state and national stages:

- Seven faculty members contributed to five distinct presentations at the **American Physical Therapy Association's Combined Sections Meeting** in Anaheim, California.
- Six of our third-year students, supported by four faculty mentors, presented two capstone projects at the **Annual Oregon Physical Therapy Conference**.

I would like to extend my heartfelt congratulations to the dedicated students and faculty whose research is actively improving the health and functional outcomes for patients and the broader community.

I hope you enjoy reading about the recent OIT/OHSU DPT news! Please check out our current call for research participants included in this issue. As our program continues to grow, we remain committed to **positively impacting physical therapy in Southern Oregon**.

**Marybeth Grant-Beuttler, PT, PhD, PCS**

**Program Director, Interim Department Chair Doctor of Physical Therapy Program**

## What's New

Faculty in the Community:  
Service and Education

Building Toward CAPTE  
Accreditation This Year

Students Present at  
APTA Oregon 2026  
Annual Conference

Oregon Tech Faculty  
Present at APTA CSM 2026



Community Members Build Strength & Confidence with Cohort 2028

# Student News



Top Left: (left to right) **Connor Cary** SPT, Ryan Wilson, PT, DPT (CI) at St Anthony's Outpatient. Top Center: **Katie Mull** SPT at SW Portland Therapeutic Associates (CI Megan Hobbs, PT, DPT not pictured). Top Right: (left to right) Sean LaRue, PT, DPT (CI), **Samantha Lipsker** SPT at Bethany Therapeutic Associates. Bottom: (left to right) Caleb Rauch, PT, DPT, **Rory Schedler** SPT at Therapeutic Associates Oregon City (CI Matthew Rogers, PT DPT, OCS not pictured)



**Cohort 2027** completed their first full-time clinical education experiences in Fall 2025, marking an important milestone in their transition from classroom learning to patient care. Students worked alongside experienced clinical instructors, applying foundational examination and treatment skills while developing confidence, professionalism, and clinical reasoning. We are grateful to our many clinical partners who generously mentor our students and help prepare the next generation of physical therapists serving communities across the region.

## Cohort 2027 Capstone Course Series Begins

Eight student capstone projects are underway this term, with groups moving from planning into active implementation. Across projects, students are conducting structured literature reviews, building study binders and protocols, refining survey tools in Qualtrics, and preparing presentations to share progress and next steps. Several teams are working through IRB processes (including external review requirements), completing required trainings, and troubleshooting technology needs such as device setup and software installation. Other groups are developing recruitment materials and outreach plans with community clinics and partners. Overall, students are gaining hands-on experience with real-world research timelines—balancing ethics approvals, logistics, and data readiness—while building skills in collaboration, organization, and professional communication.

### Volunteers Needed for Low Back Pain Research Study

Adults with low back pain are being recruited for a two-visit, on-campus research study, examining a non-invasive brain stimulation technique on pain and muscle control. Participation is voluntary. For more information, contact **Katie Mull** at [katie.mull@oit.edu](mailto:katie.mull@oit.edu).



# Student News - Continued

## Cohort 2026 Capstone Updates



**Oregon TECH**  
Oregon Institute of Technology

### Balance and Beyond: Evaluating the Effects of the Better Bones and Balance® (BBB) Program on Balance in Community-Dwelling Older Adults

Mackenzie Wilkinson, SPT\*; Jesus Egoavil, SPT; Claire Strong, SPT;  
Anne Davenport, PT, DPT, GCS; Marybeth Grant-Beuttler, PT, PhD, PCS



**Oregon TECH**  
Oregon Institute of Technology

Doctor of Physical Therapy Department, Oregon Institute of Technology / Oregon Health and Science University, Klamath Falls, OR

#### INTRODUCTION

- 1 in 4 older adults reports falling every year.
- Falls are the leading cause of fatal and non-fatal injuries among older adults.
- Better Bones and Balance® (BBB) is a low-cost community program designed to reduce fall and fracture risk.

#### PURPOSE/HYPOTHESIS

- **Aim:** Objectively evaluate the BBB program's impact on balance and fall risk in rural older adults using validated pre- and post-measures.
- **Hypothesis:** Participation would lead to significant improvements in validated measures of balance (miniBEST, Bertec SOT), fall risk (5TSTS, FSST), and balance confidence (ABC Scale).

#### METHODS

- **Design:** Prospective pre-post intervention
- **Subjects:** n = 9 community-dwelling older adults (mean age 77.7 ± 6.16)
- **Test/Measures:**
  - **Balance:** miniBEST and Bertec SOT
  - **Fall Risk:** 5TSTS and FSST
  - **Confidence:** ABC Scale
- **Procedure:** Participants attended BBB classes twice weekly for 8 weeks.
- **Statistical Analysis:**
  - Wilcoxon signed-rank tests used for miniBEST, ABC, and SOT scores; risk-categorization used for 5TSTS and FSST.



Figure 1. Participant completing the Bertec SOT.

#### RESULTS

Table 1. Demographic Data on Participants (n = 9)

Description	N	Percentage
Age		
65-70	1	11
71-80	4	44.5
81-90	4	44.5
Gender		
Male	0	0
Female	9	100

Table 2. Summary of Results

Measure	Statistical Finding	Magnitude of Improvement (Cohen's d)
MiniBEST Test	Highly Significant (p=0.009)	Extremely Large (d=2.22)
ABC Score	Significant (p=0.030)	Very Large (d=1.72)
5TSTS Score	Highly Significant (p=0.008)	Extremely Large (d=2.27)
FSST Score	Significant (p=0.039)	Very Large (d=1.61)
Bertec SOT (n = 8*)	Close Call (p=0.059)	Very Large (d=1.56)

\*1 participant was excluded from the final Bertec analysis due to repeated falls and safety-related test discontinuation during Condition 4.



Figure 4. Data revealing the detailed change in Sensory Analysis Ratio Scores from the Bertec SOT.



Figure 2. Participant completing a portion of the miniBEST during an evaluation day.



Figure 3. Participant completing the FSST during an evaluation day.

- **Balance:** miniBEST and ABC showed significant improvements.
- **Risk Reduction:** 80% (4 of 5) of high-risk participants improved to below-risk on 5TSTS; 75% (3 of 4) improved on FSST.
- **Sensory Organization Test:** Composite scores trended toward improvement, were not statistically significant.

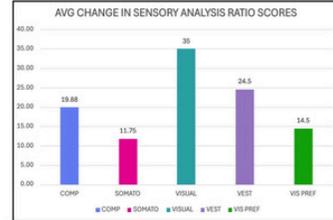


Figure 5. Data demonstrating the average positive change in Sensory Analysis Ratio Scores from the Bertec SOT.

#### DISCUSSION

- **Hypothesis:** Accepted for balance (miniBEST), balance confidence (ABC Scale), and fall risk. (5TSTS, FSST). Rejected for Bertec SOT (p=0.059)
- **Curriculum Efficacy:** The BBB program alone (without weighted vests) is sufficient to improve dynamic stability and fall risk.
- **Limitations:** The small cohort limits statistical power for SOT sensory integration changes. Standard BBB may not explicitly target visual motion hypersensitivity or complex sensory conflict. Final data was limited to female participants, potentially impacting generalizability to all older adults.

#### CONCLUSION

- **Key Takeaway:** BBB is a cost-effective, structured intervention for rural areas, bridging the gap between clinical PT and long-term independence for at-risk and high-functioning older adults.
- **Referral Pathway:** PTs can confidently refer patients to BBB as a post-discharge plan to maintain functional independence.
- **Future Research:** Scale sample sizes to clarify SOT results and evaluate long-term balance retention (6–12 months).

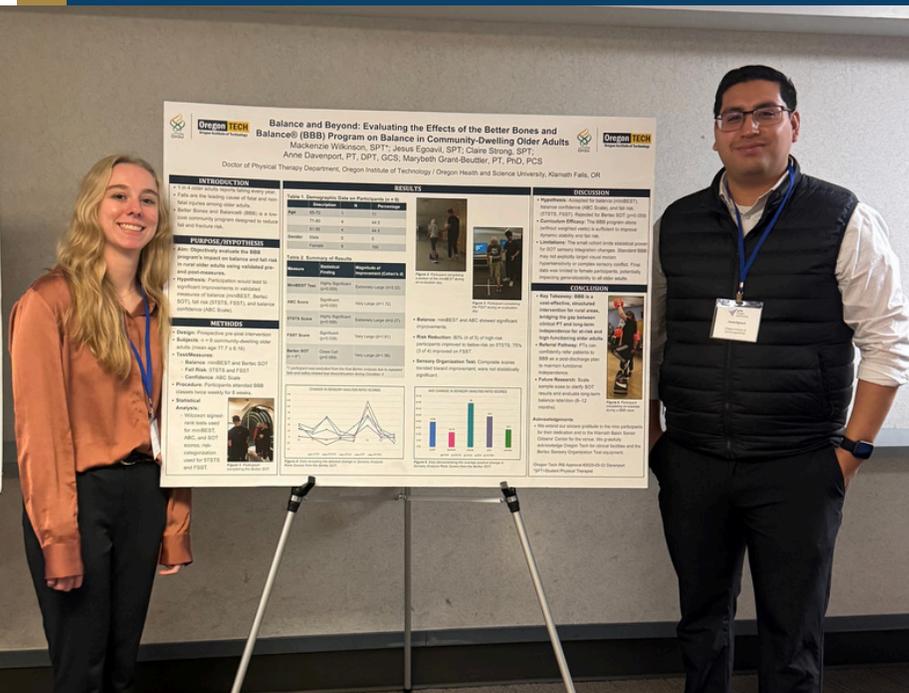


Figure 6. Participant completing an exercise during a BBB class.

#### Acknowledgements

- We extend our sincere gratitude to the nine participants for their dedication and to the Klamath Basin Senior Citizens' Center for the venue. We gratefully acknowledge Oregon Tech for clinical facilities and the Bertec Sensory Organization Test equipment.

Oregon Tech IRB Approval #2025-05-02 Davenport  
\*SPT=Student Physical Therapist



Claire Strong, SPT Cohort 2026 (pictured left, on left) and Jesus Egoavil, SPT Cohort 2026 (pictured left, on right) presented their capstone research poster, "Balance and Beyond: Evaluating the Effects of the Better Bones and Balance® Program on Balance in Community-Dwelling Older Adults," at the APTA Oregon Annual Conference (poster pictured above). Mackenzie Wilkinson, SPT Cohort 2026, a co-investigator on the project, is not pictured. The research was mentored by Anne Davenport, PT, DPT, GCS, and Marybeth GrantBeuttler, PT, PhD, PCS. The study will continue with Connor Cary and Kayla Grove (Cohort 2027), who will expand recruitment and carry the project forward this summer.

# Student News - Continued

## Cohort 2026 Capstone Updates

**Moises Angulo**, SPT Cohort 2026 (pictured left, on left) and **Reilly Combs**, SPT Cohort 2026 (pictured right) presented their capstone research poster, "Risk Assessment and Outcomes of Lateral Ankle Sprains in a Collegiate Soccer Population," at the APTA Oregon Annual Conference (poster pictured below). **Alex Lindsey**, SPT Cohort 2026, a co-investigator on the project, is not pictured. The study examined potential risk factors for lateral ankle sprains among Oregon Tech soccer athletes competing in the Cascade Collegiate Conference. Research mentors for the project were **Ron Rea**, PT, DSc, COMPT, and **Jacki Brechter**, PT, DPT, PhD.



\*A PDF of the poster below can be made available upon request. Please email [anne.davenport@oit.edu](mailto:anne.davenport@oit.edu)



### Risk Assessment and Outcomes of Lateral Ankle Sprains in a Collegiate Soccer Population

Combs R, SPT, Angulo M SPT, Lindsey A, SPT, Brechter JH, PT, DPT, PhD, Rea R, PT, DSc, COMPT  
 Doctor of Physical Therapy Program,  
 Oregon Institute of Technology, Klamath Falls, OR

**Introduction**

- Prevalence & Risk: With over 24M U.S. players, soccer sees significant injury rates. Lateral Ankle Sprains (LAS) are the most common, accounting for 15-20% of all soccer injuries (rising to 35.6% when including all ankle trauma).
- Fatigue Factor: Fatigue significantly delays muscle reaction time, leading to higher injury rates in the second half of play.
- The 72-hour Window: Physiological recovery (e.g., clearing creatine kinase) takes up to 72 hours. Fatigue compounds when matches are played in close succession.
- The Problem: The Cascade Collegiate Conference (CCC) schedules back-to-back games (Friday/Saturday), forcing athletes to compete well within the critical 72-hour recovery window.
- Research Gap: No existing studies have examined the correlation between this specific back-to-back scheduling and LAS incidence in NCAA, DII, or DIII populations.
- Purpose: To determine the effect of the CCC schedule on LAS rates among male and female soccer players at Oregon Tech.

**Purpose/Hypothesis:**  
 In non-elite male and female soccer players from Oregon Tech competing in the NAIA/Cascade Collegiate Conference, does playing back-to-back soccer games increase the incidence of lateral ankle sprains?

**Methods**

**Subject**

- Participants: 27 Oregon Tech soccer players (25 males 18-22yo, two females 18yo) who provided informed consent. Participants were to be excluded if they chose not to participate at any time or quit the team.

**Tests/Measures**

- Y-Balance Test (Figure 1): Scoring below 80.0% in the composite reach.
- Dominant Foot (Figure 2): Weight Bearing Lunges Test difference between legs  $\geq 2.5$ cm.
- Hip Adduction to Body Mass Ratio (Figure 3): Hip abduction strength to body weight ratio below 33.8%.
- Subjective questions: Previous ankle injury? Did fatigue contribute to your ankle injury? and Number of ankle injuries within the last 12 months? (All were also seen predictors of lateral ankle sprains).

**Procedure**

- Design: Prospective cohort study (Fall 2025 CCC season).
- Data Collection Period: Data was collected throughout the Fall 2025 Cascade Collegiate Conference (CCC) season (Aug 4 - Nov 1, 2025).
- Procedure: All game-related ankle injuries recorded, back-to-back LAS cases tracked by game, half, and cumulative minutes.
- Data Security: Athletes de-identified via numeric codes; injury data stored in password-protected files, master key kept in a separate locked location.

**Statistical Analysis**

- Injury Frequency: Chi-square tests and logistic regression compared while sprain rates across time periods.
- Group Comparisons: ANOVA assessed YBT-LQ scores, dominant foot asymmetry, and hip strength ratios between injured and non-injured participants (Figure 4).
- Risk & Correlation: Poisson logistic regressions evaluated measures against LAS risk. Pearson Correlation Coefficients compared WBLT results to Y-balance reaches—specifically anterior reach differences (Figure 5) and individual limb reach (Figures 6 & 7).

**Season Outcome**

- 186 hours of total time played between players,
- Of players who played at least 1 minute, they averaged 676 minutes across the season (Minutes per player Table 1)
- No LAS occurred during any games. One LAS occurred during practice.

Total minutes	0	1-499	500 - 999	1,000- 1,499	1,500+
# of players	6	9	6	5	1

Table 1. Minutes played per player



Figure 4. Injury classifications of our collegiate players

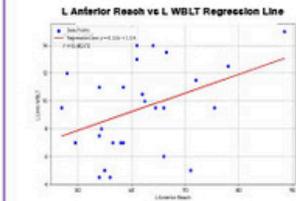


Figure 6:  $r = 0.4670$   
 $p = 0.1609$  (16.09%)  
 $p = 0.0350$

**Results**

- No Increased Risk: Data failed to support the hypothesis that back-to-back CCC schedules increase LAS incidence; the null hypothesis stands.
- Zero In-Season Injuries: No lateral ankle sprains were recorded during the competitive season under testing parameters.
- Strength as a Buffer: OIT athletes showed significantly higher hip abduction strength than average, likely offering protective benefits.
- Persistent Risk Factors: Despite strength gains, 85% (23/27) remain "at risk" due to poor ankle mobility and balance scores.

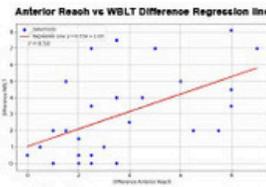


Figure 8:  $r = 0.5520$   
 $p = 0.2025$  (20.25%)  
 $p = 0.0043$

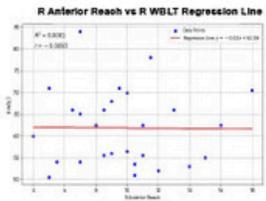


Figure 7:  $r = -0.0090$   
 $p = 0.0001$   
 $p = 0.063$

**Discussion/Conclusions**

- Despite our hypothesis, back-to-back games did not increase lateral ankle sprain (LAS) incidence during this study. This outcome is likely attributed to the study's small sample size and two primary factors:
- Protective Strength: Participants exhibited hip abduction strength significantly higher than literature averages, potentially neutralizing other injury risks.
- Low Exposure: Average playtime (11.29 hours/player) was considerably lower than previous literature benchmarks, reducing the statistical likelihood of injury.

**Literature Comparison**

- Y-Balance Test (YBT): Results were consistent with established soccer population norms.
- Hip Abduction Strength: Results were inconsistent; our cohort was significantly stronger than previously researched populations.
- WBLT: Inconclusive due to insufficient statistical data in the primary reference.

**Future Research**

- To build on these findings, future studies should:
- Refine Subjective Screening: Use detailed injury timelines to better correlate post-trauma with current performance.
- Expand Demographics: Increase female participation to see if protective strength thresholds are universal across genders.

**Clinical Relevance**

**Strength as a protective mechanism**

- Due to strength potentially being a protective buffer, clinicians should track and improve hip abduction strength above the 33.8% of body weight threshold for athletes playing soccer competitively.
- Previous studies have indicated that weightbearing lunge testing and YBT are indicated for use in injury prediction methods. OIT's soccer athletes showed excellent scores/performances in these tests. The athletes may benefit from VBS ROM and dynamic balance interventions to improve dynamic control and VBS ROM to reduce LAS risk.

**Preventive Strategic Planning**

- Proactive Pre-season Screening: Athletes would benefit significantly from structured musculoskeletal evaluations prior to the season to identify specific physical deficits that may predispose them to injury.
- Integrated Coaching Strategies: Results identifying high-risk athletes should be shared with the coaching staff to facilitate the integration of targeted interventions—such as "brace pop" drills or modified VBS routines—ensuring players meet protective physical thresholds before the schedule becomes congested.

**Acknowledgements**

We gratefully acknowledge the faculty of the Doctor of Physical Therapy program from OIT/CDSU for their invaluable guidance and mentorship throughout this research project. We also extend our sincere thanks to the student-athletes for their time and participation.

**References**

- Orange CBA, Vandertilly M. Play 1: Reducing Injuries in Soccer (Football): an Umbrella Review of Best Evidence Across the Epidemiological Framework for Prevention. *Sports Med Open*. 2020;6(1):45. Published 2020 Sep 21. doi:10.1080/24747053.2021.1912414
- Peterson C, Reilly M, Spangler P, Simon P, Tug S. Analysis of Injury Incidence in Male Professional Adult and Elite Youth Soccer Players: A Systematic Review. *J Athl Train*. 2016;51(5):410-424. doi:10.4085/JAT.150515
- Martin RL, Davenport TE, Fraser JJ, et al. Ankle Stability and Movement Control Impairments: Lateral Ankle Ligament Sprains. *Review*. 2021. *J Orthop Sports Phys Ther*. 2021;51(4):CPG-CPG20. doi:10.2196/jospt.2021.51.0302
- de Noronha M, Lay EK, Myles MR, Maitland-Green O, Haines GS. Ankle Sprain Risk Higher Occurrence During the Later Parts of Matches: Systematic Review With Meta-Analysis. *J Sport Rehabil*. 2019;28(4):373-382. doi:10.1177/2017-0279
- Atkinson-Huey, Sharon PJ, Dwyer T, et al. The Identification of Risk Factors for Ankle Sprains Sustained during Netball Participation. *Phys Ther Sport*. 2013;23(3):35. doi:10.1016/j.ptsp.2016.06.009

# Faculty News

## APTA Combined Sections Meeting 2026

### Differences in Motor Characteristics between Idiopathic Toe Walkers with and without Potential Developmental Coordination Disorder (Poster)

**Breanne Fletcher-Hardy**, PT, DPT (pictured left), **Richard Beuttler** (not pictured), Rahul Soangra (not pictured) and **Marybeth Grant-Beuttler**, PT, PhD (pictured left)

**Purpose/Hypothesis:** Large variability in motor assessments has been reported in children with Idiopathic Toe Walking (ITW). No studies have examined potential comorbidity between ITW and Developmental Coordination Disorder (DCD) with motor characteristics. Aims: 1) examine if a comorbidity of DCD could account for variability in gross motor skills and gait in ITW and 2) explore motor differences between ITW, ITW + potential DCD, and typically developing peers.

**Number of Subjects:** Forty-two subjects (4-16 yo) diagnosed with ITW were recruited with 42 age and gender matched controls.

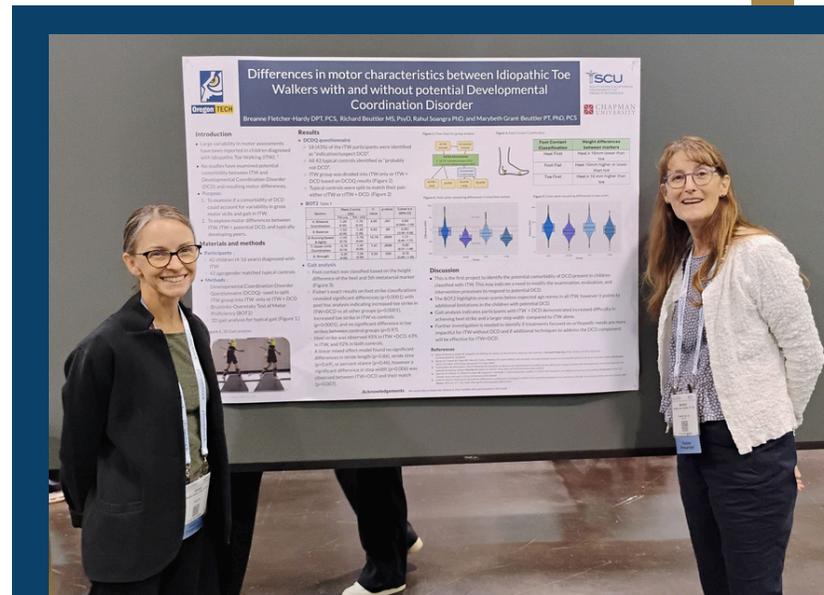
**Materials and Methods:** The Developmental Coordination Disorder Questionnaire (DCDQ-07) was used to determine risk for DCD. The Bruininks-Oseretsky Test of Motor Proficiency(2) (BOT2) sections 4,5,6,7, and 8 were used to evaluate motor delays. Parents reported the estimated time their child toe walked. 3D Motion capture was used to analyze lower extremity motion during gait for all participants.

**Results:** Using the DCDQ-07, 18 (43%) ITW participants and zero controls were classified "suspect DCD". All subsequent analyses split the 84 participants into 4 groups ITW+DCD ("suspect DCD") and ITW ("probably not") with the controls split into either cITW+DCD or cITW. BOT2 norms revealed delays in both ITW groups with no children in the ITW+DCD group above the 50th percentile in sections 4,6,7,8. Significant differences were observed in section 6 ( $p < 0.001$ ), section 7 ( $p < 0.01$ ), and section 8 ( $p = 0.026$ ). Parent report of time spent toe walking was not significantly different between the ITW groups ( $p = 0.29$ ).

Foot contact was classified based on the height difference of the heel and 5th metatarsal marker. Less than 10mm difference was labeled flat foot, metatarsal height of  $>10\text{mm}$  was labeled heel strike, and heel height of  $>10\text{mm}$  was labeled toe strike. Fisher's exact results on foot strike classifications revealed significant differences ( $p < 0.0001$ ) with post hoc analysis indicating increased toe strike in ITW+DCD and all other groups ( $p < 0.0001$ ), increased toe strike in ITW and controls ( $p < 0.0001$ ), and no significant difference in toe strikes in control groups ( $p = 0.97$ ). Heel strike was observed 45% in ITW +DCD, 63% in ITW, and 92% in both controls. A linear mixed effect model found no significant differences in stride length ( $p = 0.86$ ), stride time ( $p = 0.69$ ), or percent stance ( $p = 0.46$ ), however a significant difference in step width ( $p = 0.006$ ) was observed between ITW+DCD and their match ( $p = 0.007$ ).

**Conclusions:** This is the first study to explain variability in ITW through examination of a comorbidity of DCD and may help highlight limitations driven by toe walking vs coordination. ITW+DCD utilized significantly more toe first contact than controls and ITW. Parent surveys were used to classify children as DCD; however, this is a standard clinical practice to initiate diagnosis. The Hawthorne effect may have impacted the gait patterns during testing.

**Clinical Relevance:** The distinction between toe walking and coordination may guide intervention strategies. The BOT2 was not sufficient to differentiate between ITW with and without DCD.

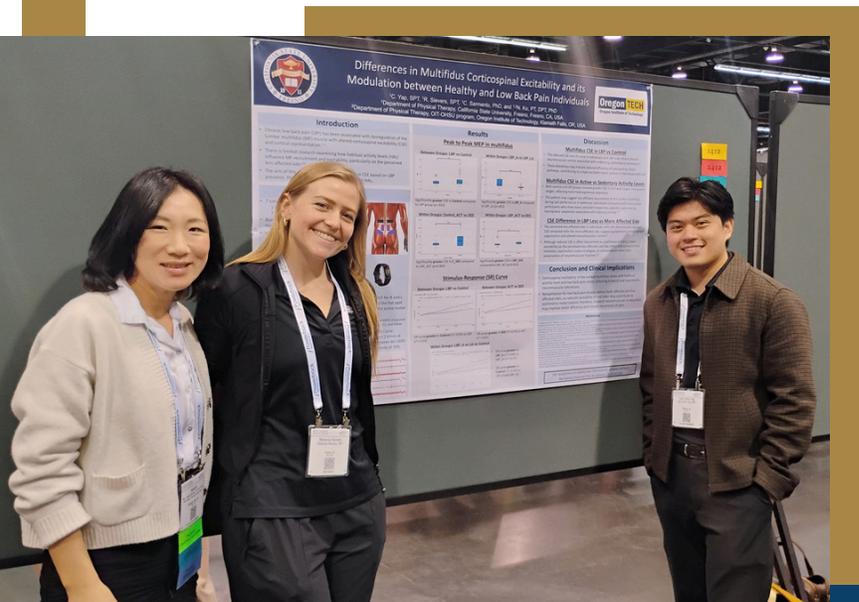


### **Differences in Multifidus Corticospinal Excitability and Its Modulation between Healthy and Low Back Pain Individuals (Poster)**

Cian Carlo Yap, SPT California State University DPT (pictured right), Rebecca Sievers, SPT California State University DPT (pictured center), Caio V. M. Sarmiento, PT, PhD (not pictured) and **Na-hyeon Ko**, PT, DPT, PhD (pictured left)

**Purpose/Hypothesis:** Chronic low back pain (LBP) is associated with dysregulation of the lumbar multifidus (MF) muscle with altered corticospinal excitability (CSE) and reorganizational mapping in the motor cortex (MI). Limited research has explored how habitual activity levels (HAL) might impact MF recruitment and its excitability in the lessaffected side, considering bilateral cortical projections to MF. Therefore, this study aims to determine the MF CSE differences between sides: affected vs. lessaffected in LBP (LBP\_A vs LBP\_LA) and dominant vs nondominant in control (C\_D vs C\_ND), and across activity levels, active vs sedentary (ACT vs SED). We hypothesize significant decreased MF CSE in LBP\_LA, and MF CSE differences in HAL.

**Number of Subjects:** Seven adults have been recruited (LBP:3, control:4)



**Materials and Methods:** Transcranial magnetic stimulation (TMS) and a double cone coil were used to measure peak to peak (P2P) motor-evoked-potentials (MEP) and stimulus-response (SR) curve in multifidus. Participants maintained 20% of their MF maximum voluntary isometric contraction in a seated position with live visual EMG feedback. P2P MEPs were collected at 120% active motor threshold (AMT) for 10 trials per each side, and MEPs for SR curve were collected for 5 trials each at the intensities from 80-140% in 10% increments. Participants' HAL (ACT vs. SED) were determined by FitBit data collected for a week.

**Results:** Out of 7 participants (4 male, 3 female, age  $22 \pm 2$  yrs), 3 reported LBP and 4 reported no LBP. P2P MEP. Findings was significantly lower in LBP\_LA ( $p < 0.001$ ) compared to LBP\_A. No significant differences were found ( $p = 0.06$ ) between C\_D and C\_ND. When compared LBP to C\_D, both LBP\_A ( $p = 0.01$ ) and LBP\_LA ( $p < 0.001$ ) were significantly lowered than C\_D. When categorized by their HAL, ACT group had significantly lowered MEPs than SED group ( $p = 0.001$ ); both LBP\_ACT ( $p = 0.012$ ) and C\_ACT ( $p = 0.002$ ) showed significantly lowered MEPs, compared to their SED groups. SR curve. The slopes of SR curves were flatter in LBP than C. LBP\_LA was flatter than LBP\_A. Across the groups, SED group had greater slopes than ACT group.

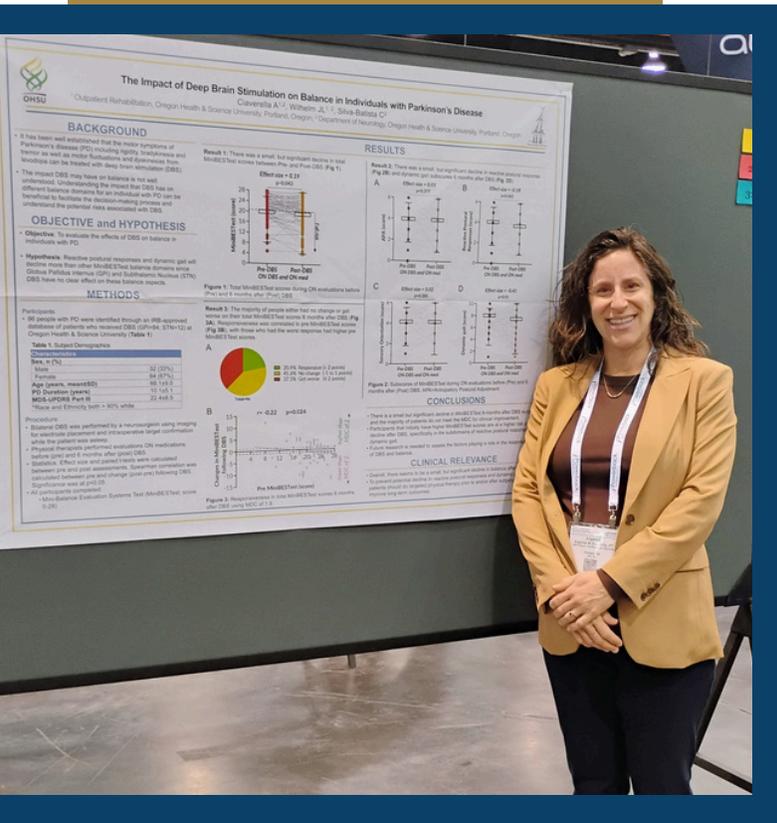
**Conclusions:** Findings suggest unilateral LBP may alter CSE on the lessaffected side with a significant decrease, indicating possible secondary neuropathological changes. In sedentary people, increase CSE may reflect inefficient motor control in sitting. Flatter slopes of the SR curve in LBP may indicate reduced capacity to recruit MF with increasing stimulation intensity. Conversely, steeper SR slopes observed in SED participants may suggest excessive muscle recruitment due to inadequate motor control. These findings highlight potential neurophysiological changes in MF CSE associated with HAL and the presence of LBP.

**Clinical Relevance:** Preliminary findings suggest that effective LBP treatment should address both affected and lessaffected sides as negative neuroplasticity in lessaffected side may contribute to secondary injury. Additionally, physical therapist should consider patients' habitual activity level and progressively increase it to promote neural adaptation of MF during various postural control activities to help to prevent the secondary injuries.

## The Impact of Deep Brain Stimulation on Balance in Individuals with Parkinson's Disease (Poster)

**Angelina M. Ciavarella, PT**, (pictured above) Jennifer Louise Wilhelm, PT, DPT and Carla Silva-Batista

**Purpose/Hypothesis:** It has been well established that the motor symptoms of Parkinson's disease (PD) including rigidity, bradykinesia and tremor as well as motor fluctuations and dyskinesias from levodopa can be treated with deep brain stimulation (DBS). The impact DBS may have on balance is not well understood. Understanding the impact that DBS has on balance for an individual with Parkinson's disease can be beneficial to facilitate the decision-making process and understand the potential risks associated with DBS. The purpose of this retrospective study is to evaluate the effects of DBS on balance in individuals with PD. We hypothesize that there will be a decline in balance scores post-operative for DBS, and that the reactive balance and dynamic gait domains of the MiniBEST will demonstrate more decline compared to the other balance domains.



**Number of Subjects:** 97 people with PD (age 65.6±8.8; 32F; years since diagnosis 9.8±5.2) were identified through an IRB-approved database of patients who received DBS in either GPi (n=85) or STN (n=12) targets sites at Oregon Health and Science University using imaging for electrode placement and intraoperative target confirmation.

**Materials and Methods:** United Parkinson's Disease Rating Scale Motor Subscale (UPDRS-III) and the MiniBEST assessments were performed ON medication in physical therapy both pre- and at least 6 months post-operatively. Subjects were excluded if there was >1 year between pre- and post-operative evaluations to minimize the effect of disease progression. Effect size (Cohen's d), and Spearman correlation were used.

**Results:** Patients had baseline UPDRS-III 22.2±8.1 and the average time between pre and post visits was 0.53±0.15 years. MiniBEST scores declined after DBS surgery (pre: 21.9±4.6, post: 21.0±5.6, ES=-0.19, p=0.04), although results were mixed with 9.8% of participants having improved by MDC of 3.4 and 19.7% worsening by more than 3.4 points. Higher MiniBEST scores at baseline were negatively associated with changes in balance after DBS (r=-0.22, p=0.02). Subdomains of reactive balance and dynamic gait demonstrated significant declines (reactive ES=-0.18, p=0.023; gait ES=-0.41, p<0.01), while anticipatory postural adjustments (APA) and sensory orientation demonstrated no significant change (APA ES=-0.01, p=0.48; sensory ES=-0.02, p=0.45).

**Conclusions:** Although there is a small but significant decline in MiniBEST 6-months after DBS surgery, the majority of patients do not meet the MDC for clinical improvement or worsening. Participants that initially have higher MiniBEST scores are at a higher risk of decline after DBS, specifically in the subdomains of reactive stepping and dynamic gait. More research is needed to assess the factors playing in the responsiveness of DBS and balance.

**Clinical Relevance:** Overall, there seems to be a small, but significant decline in balance after DBS for approximately 20% of individuals undergoing DBS. To prevent potential decline in reactive stepping and dynamic gait, patients should do targeted physical therapy prior to surgery to improve long-term outcomes.

## Building a Respiratory Muscle Strength Training Pathway: Interdisciplinary Insights and Implementation Challenges through Data. (Platform Presentation)

Wesley B. McGeachy, PT, DPT

**Purpose:** To describe a multi-year interdisciplinary effort to establish a formal respiratory muscle strength training (RMST) pathway in an academic medical center, and to present supporting survey findings on staff training, clinical experience, and leadership perceptions.

**Description:** RMST offers a low-cost, evidence-based strategy to promote respiratory recovery and reduce hospital stays, making it a multidisciplinary opportunity across physical therapy, occupational therapy, and speech-language pathology in acute care. This process improvement began in 2019 when an interdisciplinary team identified the lack of RMST equipment, pathways, clinical ownership, and formal training in a large academic hospital. With departmental support, PTs, OTs, and SLPs formed a committee to justify stocking devices, develop policies, and create education tools and Epic dot phrases. SLP training began completed; PT and OT training is actively scheduled. Initial implementation focused on neuroscience and medical ICU units, with expansion now to cardiac and general ICU settings. To guide education and role development, a survey was distributed to clinicians across academic medical centers. Questions focused on RMST education, training, current use, documentation, ownership, and data collection.

**Summary of Use:** Survey responses (n=105) revealed broad variability in training and experience, with participants representing multiple academic medical centers. PTs reported significantly higher functional RMST experience than non-PTs (68.3% vs. 48.3%,  $p = 0.011$ ), supporting their potential leadership in functionally integrated care. Additionally, 56.8% of all respondents reported no prior formal RMST training, highlighting widespread educational gaps. While PTs demonstrated greater functional RMST experience, there were no significant differences across disciplines in experience with device-based or targeted interventions ( $p > 0.68$ ). This finding supported a collaborative implementation

strategy, reinforcing the feasibility of interdisciplinary training and shared access to RMST devices. These data directly informed internal planning efforts—reinforcing the need for formal, interdisciplinary training and highlighting key considerations in developing a scalable pathway. The results continue to shape resource development, training priorities, and phased implementation.

**Importance to Members:** For APTA members practicing in acute care, this project demonstrates a replicable pathway to introduce RMST despite financial and logistical barriers. While questions of role clarity, training scope, and device access remain, RMST aligns with value-based care and can enhance patient outcomes in medically complex populations. PTs are well-positioned to lead collaborative efforts with interdisciplinary teams to standardize screening, education, and intervention for RMST within hospital systems.



## Exploration of Clinical Empathy, As Measured By Jefferson Scale of Empathy, in Physical Therapy Practice

**Anne Carlin Zymkowitz, PT** (pictured right)

**Purpose/Hypothesis:** The purpose of this quantitative descriptive study is to explore clinical empathy levels among practicing physical therapists across multiple settings and practice specialties, using the Jefferson Scale of Empathy for Health Professionals (JSE-HP).

**Null Hypothesis 1** There will be no significant variability in JSE-HP scores for physical therapists.

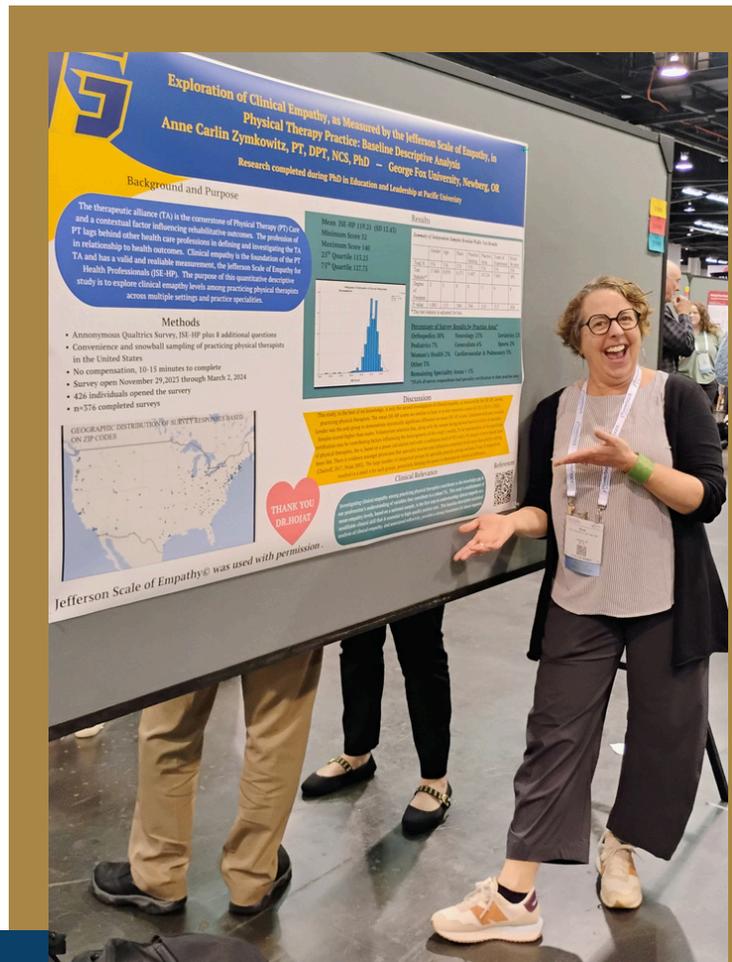
**Null Hypothesis 2** The distribution mean of total JSE-HP scores will be the same across years of clinical practice.

**Null Hypothesis 3** The distribution mean of total JSE-HP scores will be the same across areas of PT practice.

**Null Hypothesis 4** The distribution mean of total JSE-HP scores will be the same across areas of PT practice setting.

**Null Hypothesis 5** The distribution mean of total JSE-HP scores will be the same regardless of provider characteristics.

**Number of Subjects:** 376



**Materials and Methods:** The Clinical Empathy in PT Care survey, created with Qualtrics XM software, begins with an informed consent and adheres to the JSE-HP utilization requirements. The study used convenience and snowball sampling to recruit English speaking, practicing physical therapists willing to take the survey. The variability of JSE-HP scores was explored via descriptive statistics and provider characteristics, practice areas and settings investigated via Kruskal-Wallis and Mann Whitney U test.

**Results:** This study achieved the intended purpose of exploring clinical empathy levels among practicing physical therapists across multiple practice settings and specialty areas. The mean JSE scores of 119.2 (SD ±12.4) is similar to the results found by the only other study involving practicing therapists. This study failed to reject null hypothesis one, two, three, and four. It did reject null hypothesis five; there is a statistically significant difference in JSE-HP scores for the provider characteristic of gender. There was no significant difference for the remaining provider characteristics that were assessed.

**Conclusions:** The therapeutic alliance (TA) is the cornerstone of PT care and a contextual factor influencing rehabilitative outcomes. Clinical empathy is the foundation of the TA in PT. The JSE-HP is a valid and reliable measurement tool of clinical empathy that can, and should, be utilized to improve our understanding of this valuable construct. This study contributes to the sparse existing research on clinical empathy in the PT profession by providing mean empathy levels based on a national sample of practicing therapists across practice settings and specialty areas.

**Clinical Relevance:** The profession of PT lags behind other health care professions in defining and investigating the TA in relationship to health outcomes. This knowledge gap exists simultaneously with a pressing health care need to investigate and to increase understanding of contextual factors to reveal opportunities to reduce health disparities in PT care. There is an urgency to defining and examining the TA for optimal and equitable PT functional outcomes. Clinical empathy is the foundation of the PT TA and has a valid and reliable measurement, the JSE-HP. This research study provides a strong foundation and robust recommendations for future inquires.

# Community Outreach

Cohort 2028 and Cohort 2026 students participated in the Better Bones and Balance® program as part of an Integrated Clinical Experience this Winter term. Through this experience, students worked with community-dwelling older adults participating in the evidence-informed exercise program designed to improve strength, balance, and mobility and to reduce fall risk. Under faculty supervision, DPT students assisted with progressing and modifying exercises, providing cueing and safety support, and engaging participants in progressive balance and strengthening activities.

The program's initial and final assessment days were conducted through an interprofessional collaboration with Klamath Community College Nursing, where nursing students assisted with participant registration, paperwork, and vital sign collection. Additional support was provided by the Sky Lakes Wellness Center, whose staff conducted body composition analyses for participants.

*We extend our sincerest gratitude to the Klamath Basin Senior Citizens' Center for hosting and supporting this ongoing community program, and to the faculty and students at Klamath Community College and the staff at Sky Lakes Wellness Center for their collaboration in making these interprofessional health promotion experiences possible.*



Klamath Community College nursing students assist with participant registration and paperwork during the Better Bones and Balance® initial evaluation day, helping welcome community members and support the interprofessional assessment process.



1. Initial Assessment Day, students waiting for participants to arrive. **Matthew Seth Chin** SPT 2028, **Reilly Combs** SPT 2026, **Cooper Bales** SPT 2028, **Roxanne Black** SPT 2028, **Matthew Tran** SPT 2028, **Hayden Stubbs** SPT 2028, **Carsen French** SPT 2028. 2. **Roxanne** guides a participant through squat exercises paired with coordination activities. 3. Faculty member **Anne Davenport** demonstrates balance training activities for participants. 4. **Hayden Stubbs** SPT 2028 modifies exercises to seated options to match participant ability and promote safe participation. 5. **Carsen** assists a participant during endurance and gait training activities.



## Community Outreach - continued

**Wesley McGeachy** PT, DPT (pictured center right), Assistant Professor based at OHSU in Portland, engaged with high school students from the Klamath area, Madras, and Woodburn at a recent OnTrack OHSU Career Fair. Students learned about the educational pathways to becoming a physical therapist, the diverse patient populations PTs serve, and details about the new Oregon Tech / OHSU Doctor of Physical Therapy program in Klamath Falls. The fair (top right) featured numerous healthcare-focused booths representing professions across the field, including plastic surgery, pharmacy, physician assistant studies, animal-assisted therapy, and radiation medicine.



On February 4, **Amy Wells** (not pictured), PT, DPT, Assistant Professor based at OHSU in Portland, presented for Mended Hearts, a national peer support organization for individuals living with cardiovascular disease. Her session focused on exercise for individuals with heart failure and included both a lecture and an interactive group discussion. Participants learned about the benefits of exercise, safety considerations, symptom monitoring, and practical strategies to build confidence with physical activity. The discussion also provided an opportunity for participants to share their experiences, ask questions, and connect exercise principles to their daily lives.

This outreach opportunity highlighted the important role physical therapists play in patient education and chronic disease management beyond the clinical setting and reflects the DPT program's ongoing commitment to community engagement.



Students and Faculty assisted with organizing and improving the Assistive Equipment Closet at the Klamath Basin Senior Citizens' Center. This space houses donated mobility and daily living equipment that can be loaned to community members in need. During the project, students sorted and inspected equipment, reorganized the storage area, and built new shelving to improve accessibility and organization. These efforts help ensure that equipment remains safe, easy to locate, and ready to support community members in maintaining independence and mobility. Pictured bottom right, from left to right: **Jesus Egoavil** SPT Cohort 2028, **Bri Eichelkraut** SPT 2027, Faculty **Ron Rea**, and Faculty **Anne Davenport**.

The Klamath Basin Senior Citizens' Center supports older adults across our community through programs such as the Assistive Equipment Closet, Meals on Wheels, exercise and wellness classes, and many other services that promote independence and connection.

Community members interested in donating equipment, making financial contributions, or volunteering—whether with the Assistive Equipment Closet, delivering Meals on Wheels, supporting exercise programs, or assisting with other activities—are warmly welcomed.

**To learn more: [klamathseniorcenter.com](http://klamathseniorcenter.com)  
2045 Arthur St | 541-883-7171**

We are grateful for the Center's continued partnership in supporting community wellness and student learning.



# Active Learning in Action



During the Fall, **Cohort 2027** participated in a hybrid Medical Improv workshop (#1) facilitated by Faculty **Anne Davenport** and Director of Clinical Education **Ashley Iliff** as part of their Pre-Clinical Internship Preparation Boot Camp, building skills in communication, adaptability, and presence that support effective patient and team interactions. Through guided exercises, students practiced responding to uncertainty, listening actively, and collaborating with others in real time—skills that translate directly to clinical environments.

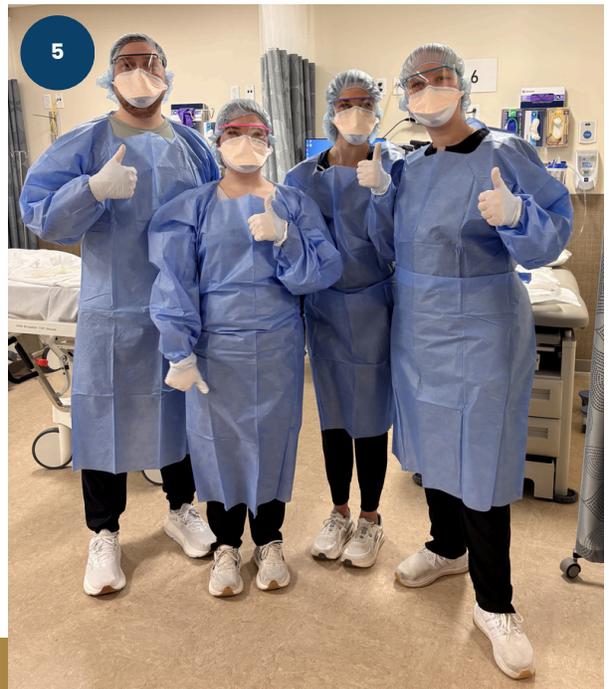
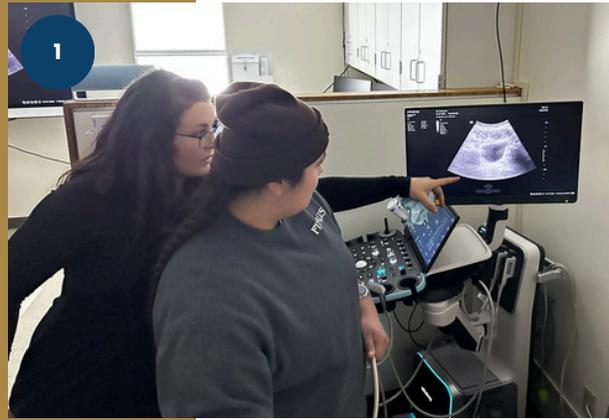
Meanwhile, **Cohort 2026** students stepped into teaching roles through PT 770 Leadership and Professional Development, taught by **Anne Davenport**. During a collaborative training day with the OHSU School of Nursing, and with support from **Ashley Iliff**, DPT students instructed nursing students in safe patient handling and mobility, assistive device fitting, and appropriate guarding techniques while strengthening their own leadership, clinical reasoning, and interprofessional communication skills. (#2, #3, #4, #5).



# Active Learning in Action – Continued

Students engaged in several immersive learning experiences across the curriculum. In PT 779 Special Topics (#1), coordinated by **Ashley Iliff, Cohort 2026** explored bladder function and pelvic floor musculature through an ultrasound demonstration led by adjunct faculty member **Anneke Griffith** (left). We extend our thanks to the Medical Imaging Department for facilitating this hands-on learning experience.

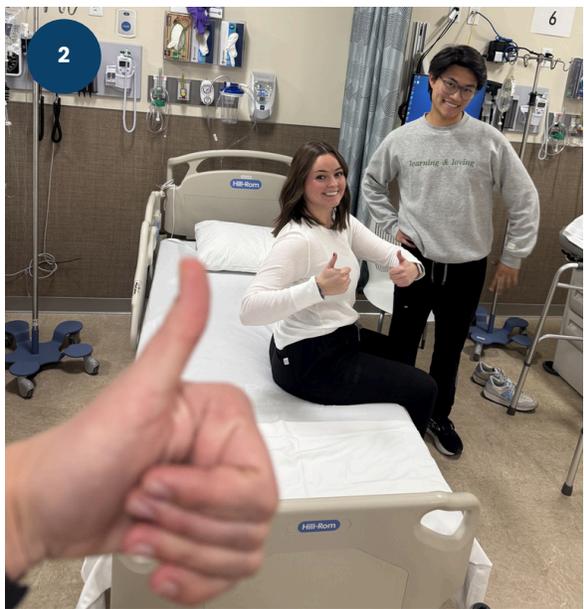
Students strengthened cardiopulmonary assessment and intervention skills in PT 700 Management of Cardiovascular and Pulmonary Dysfunction with **Amy Wells, Bri Eichelkraut** (left), SPT 2027, conducts the Bruce Test with **Connor Cary** (right), SPT 2027 (#2); Cohort 2027 practice the Two-Minute Step Test (#3). Additional experiences included a ventilator demonstration day (#4), with thanks to Respiratory Therapy for providing equipment support, and a simulation scenario with **Cooper Brown** (left), SPT 2027, and **Rory Schedler** (right), SPT 2027, mobilizing a standardized patient portrayed by **Anne Davenport** (center) (#5). **Cohort 2027** also participated in a PPE training day at the OHSU Simulation Center in PT 740 Acute Care (#6), course taught by **Wesley McGeachy, Heather Higgins-Honek, and Anne Davenport**.



# Active Learning in Action - Continued



- 1. Students wrap up a day in the OHSU Simulation Center with faculty **Heather Higgins-Honek** during PT 740 Acute Care.
- 2. **Anna Nelson** SPT 2027 during the PT 740 Introduction to Lines, Tubes, Devices, and Airways lab.
- 3. **Matthew Seth Chin** SPT 2028, assists **Claire Strong** SPT 2026, with gait training and door navigation.
- 4. (Left to right) **Kayla Grove**, **Anna Nelson**, and **Lan Le**, SPTs Cohort 2027, enjoying a moment during the PT 740 simulation lab.
- 5. Students completing the PT 625 Community Access assignment.



Students in PT 625 participated in an Assistive Technology Professional (ATP) lab day which provided hands-on opportunities to explore complex mobility devices, seating and positioning considerations. This session encouraged students to connect classroom concepts with real-world equipment used in clinical practice. A special thank you to Norco's Complex Mobility Department in Bend, Oregon, and Invacare for their support in making this hands-on learning experience possible.



Top: Cohort 2027 meets with faculty member **Brian Wilkinson** the evening before his PT 705 Management of Integumentary Dysfunction intensive lab. Right: (Left to right) Faculty member **Anne Davenport**, Family Member RayAnne Schedler, **Rory Schedler** SPT 2027, and **Katie Mull** SPT 2027 celebrate a 2nd place finish in the Fall Library Puzzle Competition.

Left: Another 2nd place finish in the Winter Library Puzzle Competition, with **Sophie Bishop** SPT 2027 (far right) stepping in for Katie .



### DOES YOUR CHILD WALK ON THEIR TOES? RESEARCH OPPORTUNITY

Are you and your child interested in participating in research to develop a new intervention for Idiopathic Toe Walking?

This study requires:

- ~ 2 hours' time
- You and your child to each complete a survey
- You and your child will receive a demonstration of a new intervention device

Your child must:

- Be 4 to 21 years old;
- Able to follow 2-3 step directions;
- Have no other diagnosis which explains the toe walking;
- Parent and child must be English speaking to complete required survey.

**If you are interested, contact  
Dr. Marybeth Grant-Beuttler  
949-554-5529  
marybeth.grantbeuttl@oit.edu  
\*\*Flexible Appointments\*\***

## Upcoming Events

**April 3, 2026: Core Faculty Retreat**

**June 13: Cohort 2026 Graduates!**

**June 22, 2026: Welcome Cohort 2029!**

*For more details regarding upcoming academic calendar events, please visit  
[www.oit.edu/registrar/calendars](http://www.oit.edu/registrar/calendars)*

[OIT.EDU/ACADEMICS/DEGREES/DOCTOR-OF-PHYSICAL-THERAPY](http://OIT.EDU/ACADEMICS/DEGREES/DOCTOR-OF-PHYSICAL-THERAPY)

Contact: [dpt@oit.edu](mailto:dpt@oit.edu)