

## Balance and Falls SIG Spring Newsletter 2018



This is an exciting year that includes our first poster awards. This newsletter edition celebrates the work of many of our SIG members and leaders. We start with several cases from my educational Neuro Balance Clinic. Hina Garg is then highlighted for the EBP community balance program she leads.

Next, we congratulate and provide a brief synopsis for the five winners of the 2018 CSM ANPT Balance and Falls Poster Contest. The **Innovation** category winner is a proof of concept study using pupilometry to identify

difficulty level of postural control tasks that was done by a team from the University of Kansas. The **Scientific Merit** winner pilots a vibrotactile orthotic for equal limb weight retraining done by a team from U of North Texas. The **Clinical Utility** winner explores using the Brief-BEST for assessment and intervention in subacute stroke, and was done by a team from Shepherd Medical Center & U Penn. The

**Case Study** awarded poster from the Brooks Institute detailed use of deep brain stimulation to reduce gait speed and increase balance in P, and the **Interprofessional Health Policy** winner from Northeastern examined the attitudes and beliefs of community elderly participating in a falls prevention program.



The newsletter ends with a reminder and call for entries for the Falls Prevention Coalition #IP\_FallPrev and National Falls Prevention and Awareness Day #NFPAD using APTA communities and social media! We'll spotlight some of the best activities in the Fall/Winter newsletter. **Julie Schwertfeger, ANPT Balance and Falls SIG Chair**

Pictured above are SIG officers Espy, Reinthal, Bhatt, and Schwertfeger the 2018 CSM Myelin Melter.

## The Educational Balance Clinic at Rosalind Franklin University

By Julie Schwertfeger, PT, DPT, MBA, CBIST

Experiential service learning may not get any better for the educator, student and community client than our neurologic educational clinics at RFUMS! Continually improving student learning in the balance clinic at the end of the first year of the DPT Program is a labor of love for me. People with a neurologic impairment are seen for a total of ten hours for evidence-based assessment, treatment, patient education, and progression to meet SMART goals. The students gain hands-on experience with lots of feedback and guidance from licensed PT faculty. Documentation skills are honed on an actual episode of care, and note revisions get graded along with an end of clinic "clinical rounds report" to the class. Students create a voice-over PowerPoint in which they provide salient patient education that ties the client needs with neuroanatomy or neurophysiology. Perhaps most important are the lessons students get regarding vital sign and dose response monitoring, medication side effects and interactions that increase the risk of falls. Clients show improved balance outcomes, and the classroom is a lab that includes learning from clients and community members. Below are brief stories from two of our clinic clients Bruce and Susan.

### Case #1, Team Bruce:



Pictured: Front-Rachel, Erin, Bruce, Chris, Michelle, Olivia; Back row- Blaine, Julie

Bruce has a longstanding SCI, and travels and drives regularly for work. His student team performed ISNSCI assessment and tests to address his concerns of 1) cardiovascular endurance and power to ascend the steep ramp into his van, 2) functional balance, and 3) right hand intrinsic strength and function.

Feedback from our participant, Bruce: *"I think the Balance Clinic is great for both the students and the participants. All of us have been through therapy before and we can tell the students what we have done before, then they can research what additional things we can do to maintain/increase strength/mobility, etc. Every patient is different, and every*

*different opinion can help the patient improve/maintain/their condition. I love the clinics!"*

Feedback from Erin (previously a student and now a PT instructor): *"I remember being in the students' shoes not long ago. I was nervous yet eager to begin working with individuals with balance deficits. Now being a facilitator, I see what an amazing opportunity the Balance Clinic at RFUMS is for both the students and the individuals working to improve their balance. Students are able to develop the skills they will use as future clinicians, while eagerly listening and caring for those in need. The "patients" are so open to treatment and thankful for the students' creativity and devotion to helping them. I love being able to come back and help the students thrive on their proficiencies and watch their growth over a 5-week period. When I was a RFUMS student I had the opportunity to work with Bruce. He left such an impact on my experience at the balance clinic and I was so thrilled to see that he comes back every year to give the students the opportunity to learn, while he continues to focus on his balance and being the strongest version of himself!"*

## Case #2, Team Susan:



Pictured: Colby, Jessilyn, Susan, Sarah, and Pat

Susan offered to come in for neurological assessment lab. Her severe balance deficits included oscillopsia, near complete vestibular system loss, and severe proprioceptive deficits. Identifying that her sensory system and remaining proprioceptive systems were opportunity areas to tap, these students incorporated kinesthetic cues and a weighted vest in her plan of care. The effect on her gait, stair climbing, and general demeanor was dramatic. Here is Susan with her student clinician team.

Feedback from Jessilyn, student clinician: *"With Susan we also worked on gait training and gave her a small based quad cane in order to give her systems more external feedback as well as extra input for stability when she was walking. We noticed this really helped her the most. We also gave her general strengthening exercises to allow her to have a stronger base to catch herself when she did move outside of her BOS or felt like she was falling over. Although, Susan is already competent in community ambulation and navigating her way around her house, giving Susan these skills has allowed her to become even more independent and confident with ADLs and ambulation."* – Jessilyn Gibas, student clinician

Feedback from our participant Susan: *"Perhaps most important are the lessons students get learning from clients who have lived with their impairment for some time already."*

## An Evidence Based Community Falls Prevention Program: Stepping On

By Hina Garg, PT, MS, PhD



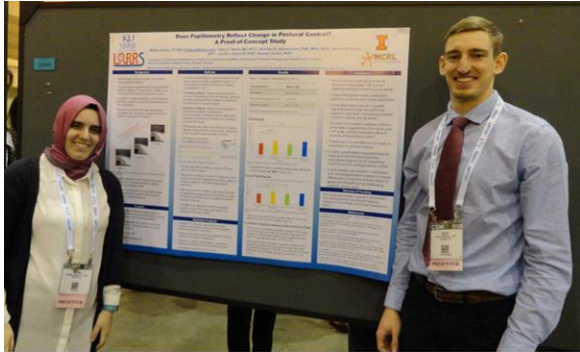
There are multiple evidence-based practice fall prevention programs supported by the National Council of Aging. One such program is **Stepping On**, which is a multifaceted falls-prevention program for community-residing elderly. It is comprised of highly participative sessions over the course of 7 weeks. It provides education as well building confidence in the management of health behaviors allowing elderly adults to maintain an active lifestyle while reducing their risk of falling. Content includes strength/balance exercises and medication review/management as well as information on 1) falls and risk, 2) safe footwear and walking, 3) vision and falls, 4) home and community safety, 5) bone health, and 6) coping after a fall. Due to her experience in balance and fall prevention, Hina Garg, PT, MS, PhD, a trained Stepping On leader, teaches and coordinates this healthy aging program, which she thoroughly enjoys.

## CSM 2018 Neuro Balance and Falls Poster Winners

### 1st place Innovation Award

Kahya M, Akinwuntan A, Williams K, Devos H.

#### **Does Task-Evoked Pupillary Response Reflect Change in Postural Control? A Proof-of-Concept Study.**

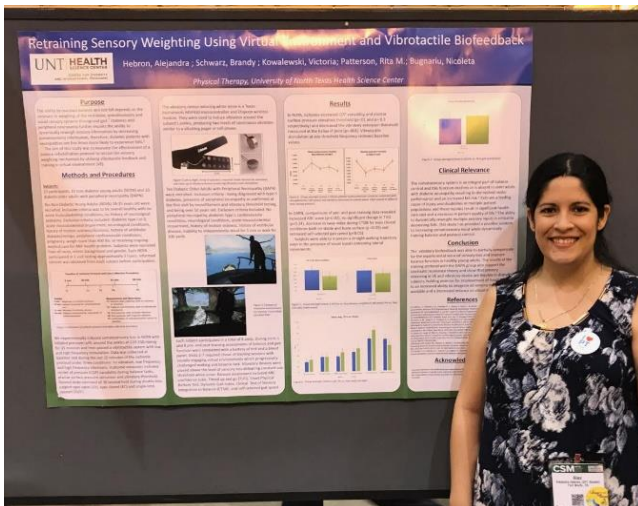


Pictured: Melike Kahya (PT, MS, PhD student in Rehabilitation Science Program at the University of Kansas Medical Center) and Kevin Williams (DPT student at the University of Kansas Medical Center), presenting their winning poster in CSM 2018.

In their study, the team investigated the amount of cognitive effort, indexed by pupillary response, during challenging postural control tasks in healthy young adults. They found that visual deprivation resulted in greater cognitive effort than the additional cognitive load when maintaining postural control in healthy young adults. They concluded that pupillary response may potentially be used as a real-time and objective neurophysiological tool for assessing cognitive effort during postural control.

### 1st place Scientific Merit

Hebron A., Schwarz B., Kowalewski V., Patterson., Bugnariu N.



#### **Retraining Sensory Weighting Using Virtual Environment and Vibrotactile Biofeedback**

*Pictured: Alejandra Hebron senior DPT student U. of North Texas Health Science Center) at her winning CSM 2018 poster. The poster won the Scientific Merit Award from the Balance & Falls SIG.*

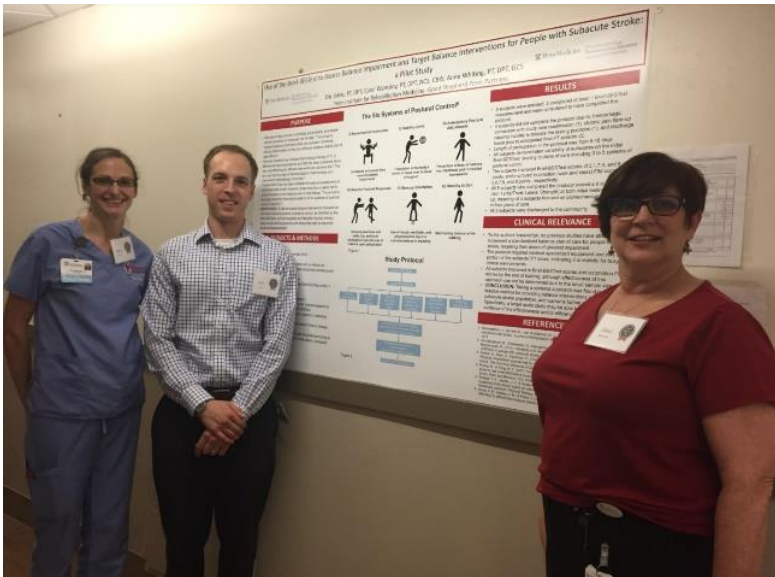
*In this study this team investigated the effect of vibratory input around the ankles of adults with diabetic peripheral neuropathy combined with virtual environment balance training. Improvements were measured following 8 week*

*training as measured on CTSIB, TUG, ABC, gait speed, and DGI.*

## 1st place for Clinical Utility

Johns E, Wamsley CA, Whiting AC.

### Use of the Brief-BEST to Assess Balance Impairment and Target Balance Interventions for People with Subacute Stroke: A Pilot Study.



*"I have long had an interest in interventions-related research. This area is an opportunity for growth in our profession. I noticed in my first couple years of clinical practice that some very skilled and hardworking clinicians around me didn't always use balance outcome measures. One reason for this was that they already knew their patient was at a falls risk, due to falls history, gait deviations, etc.; they didn't need a numerical score to tell them so. So I became interested in how balance related outcome measures could inform clinical practice in other useful*

*ways. And as a member of the stroke team at my facility, when I reviewed balance literature in an effort to provide the best clinical care to this population, it quickly became apparent to me that little has been proven in regards to the most effective balance interventions. When I read a few papers on the BESTest, the study took shape from there. When it came time to make a poster, first for our in-house research day, then later for CSM, I wanted to emphasize the conceptual aspects of our study in a visually descriptive way.*

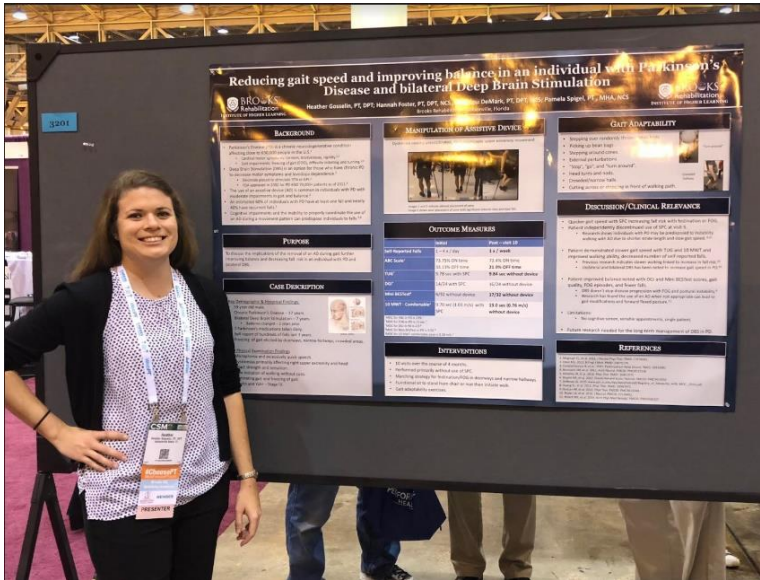
*Doing this research project as a newer PT has taught me so much about the research process. Developing an IRB proposal, navigating logistical and regulatory hurdles in a busy clinical environment (all 3 researchers on this project are full time clinicians), ensuring consistency and reproducibility in the procedures, and managing a project across a few years' time were all areas in which I learned a lot. This project wouldn't have happened without my collaborators, Anne Whiting and Carol Wamsley, and our research coordinator, Jen Dekerlegand. "*

*-Erik Johns*

## 1<sup>st</sup> place Case Study

Gosselin H, Foster H, Spigel P, DeMark L.

### Reducing gait speed and improving balance in an individual with Parkinson's Disease and bilateral Deep Brain Stimulation.



*As for the team and the case, I initially worked the patient and was somewhat baffled having an individual with Parkinson's who could move so quickly, still have festinating gait and freezes with frequent falls while using a single point cane, to a more normative gait pattern and speed without an assistive device and slower gait speed. Dr. Pam Spigel is the residency coordinator with Brooks and provided great mentorship with*

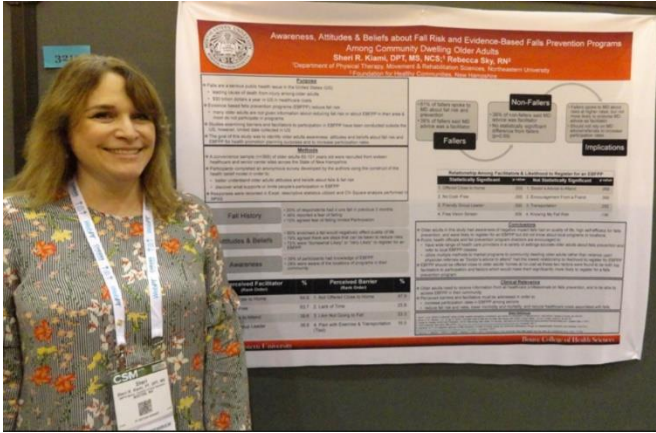
*the patient as I struggled a little bit with his presentation as we tend to describe individuals with Parkinson's Disease having slow, small amplitude movements and providing assistive devices to improve their balance/stability. Like any patient, we assessed the impairments and addressed them as we saw fit. For this individual, dynamic balance and gait adaptability without the assistive device was utilized to improve postural control, stepping reactions, righting reactions, and eliciting situations to make the patient break out of festinations and freezes. The literature has supported this type of activity for PD and worked well for this patient. Additionally, taking the cane away decreased the patient's speed. Dr. Lou DeMark and Dr. Hannah Foster allowed me to bounce ideas about my treatment plan and assisted with organization and editing of the information to present on this case. The biggest takeaways I wanted to come from this case was the unique presentation of this patient with PD with excessive, quick gait speed with frequent falls forward while using a single point cane and that it is ok to slow someone down (even with Parkinson's) and the possible need to step back and determine if an assistive device is appropriate.*

## 1<sup>st</sup> Place Interprofessional Health Service Policy

Kiami SR, Sky R.

### Awareness, Attitudes & Beliefs about Fall Risk and Evidence-Based

### Falls Prevention Programs Among Community Dwelling Older Adults.



*Respondents varied in age from 60 to 101 years of age. Survey respondents are considered at risk of a fall if they indicated they experienced a fall in the past 3 months, or have some level of fear associated with falling, or their concern for falling has interfered with normal social activities with family, friends, neighbors, or groups during the last 4 weeks, or indicated that others*

*might feel they are at risk for a fall. The results may suggest that asking people questions about their perceived risk of a falling, how detrimental a fall could be to them, and potential benefits of action is a good tool to motivate people to register for programs. It is imperative that effective falls prevention programs be offered to older adults living in the community to prevent injuries and accidental death from falls, promote independence, and decrease health service use and costs. Successful falls prevention programs need to address factors affecting participation and compliance. This data can be used by NH Falls Risk Reduction Task Force, organizations implementing evidence-based falls prevention programs, and other interested in increasing rates of participation and adherence to falls prevention programs.*

## Help Spread Awareness and Reduce Falls: Publicize Your Balance and Falls Activities on APTA Communities and Social Media

**#IP\_FallPrev and #NFPAD**

September 23 (the first day of Fall) is **National Fall Prevention and Awareness Day**.

Here is your official call to action! We need your activities and entries for the Falls Prevention Coalition #IP\_FallPrev and National Falls Prevention and Awareness Day #NFPAD using APTA communities and social media to grow awareness and participation on evidence-based balance & fall reduction programs!

We'll spotlight some of the best activities in the Fall/Winter newsletter.