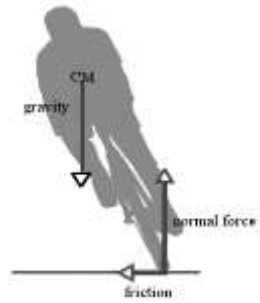
Balance & Falls SIG Newsletter 2018

Welcome and Overview



https://van.physics.illinois.edu/qa/list 1

Balancing in the face of uncertainty challenges each of us as we live out the day. We think about challenges threatening our clients with neurologic impairments even as we navigate our own. The complexity and ubiquitous nature of balance dysfunction and of reducing falls requires insight and discipline from a broad range of perspectives tailored to individual needs; this is why #IP_FallPrev was founded and why the BF SIG website provides resource links and evidence based resources on fall risk evaluation and intervention to assist you in this important work. In this newsletter, BFSIG feedback to the USPTF on their draft guideline update are reviewed, and Balance and Falls Clinician and Student Spotlights are provided. The newsletter also lists the ANPT balance and falls posters that we will be judging for awards of scientific merit, clinical relevance, and innovation. Thanks for joining us in the shared aim of improving balance and preventing falls! *- Julie Schwertfeger, ANPT Balance and Falls SIG Chair*

Member Survey Results

Survey results from over 150 members were tabulated. You told us that you want EBP falls prevention patient information that can be printed and explained easily in the clinic. You also want quickly accessible EBP updates to identify fall risk and to prevent falls.

http://www.comoshambhala.com/singapore/i

ANPT Balance and Falls SIG 2017-18 Year in Review

- Updated webpage, adding member requested balance and fall resource links.
- Established the Interprofessional Fall Prevention Coalition to steward effort in shared aims of falls prevention. It includes ANPT and Geriatric BF SIGs, AOTA, ACRM, and NCOA. It uses #IP_FallPrev and #FallsFree
- Initiated a social media campaign review of NCOA resources for fall prevention and intervention.
- Created CSM 2018 Poster Award for ANPT balance and falls content.
- Communicated updates to our Neuro SIG liaison, Aimee Perron.
- Promoted ANPT BFSIG aims at the APTA NEXT Conference and the American Congress of Rehabilitation Medicine (ACRM). A cross-cutting symposium on balance and falls screening that discusses stroke and cancer population considerations of the guideline is in development
- Provided recommendations and feedback to the USPTF on draft guideline update (summarized below).

2017 Draft Fall Intervention Guideline Update from the US Prevention Task Force (USPTF)

http://www.dailymail.co.uk/news/article- 1

The draft recommendations update: 1) Reinforced the level B evidence recommendation that at risk, community dwelling adults receive exercise to prevent falls; 2) Gave level C recommendations for elective screening of falls based upon "the balance of benefits and harms based on the circumstances of prior falls, presence of comorbid medical conditions, and the patient's values and preferences"; and 3) Gave level D recommendations against Vitamin D supplement for fall prevention in this population.

Summary of ANPT BFSIG Comments to USPTF on Draft Update

We concur with the draft recommendations, given the broad focus of the document, which bundles many types of therapy/exercise/interventions. We fully support the recommendation to use brief risk assessments that examine physical function with a review of other key factors known to increase fall risk. We applaud the recommendation to determine whether screening is warranted based upon individual patient parameters and needs.

The general nature of the recommendations emphasizes the need for well-designed research that targets falls in community dwelling older adults. There is critical need to develop, fund, and complete research in physical therapy to: identify and validate predictive measures to identify fall risk; identify measures that discriminate the older adults who will most benefit from a specific falls prevention intervention; and identify what kind of exercise intervention is best for a given individual.

The BFSIG offered two items for future consideration: 1) Using physical therapy as an alternative, or as a means, to reduce long term opioid medication usage, thereby decreasing preventable falls in community dwelling older adults;[1,2] and 2) Tailoring patient teach-back and behavior change measures to improve gaps in client understanding of fall risk factors as well as providing a means to mitigate their fall risk.[3]

References:

1. Krebs, E., Paudel, M., Taylor, B., Bauer, D., Fink, H., Lane, N., & ... Ensrud, K. E. (2016). Association of Opioids with Falls, Fractures, and Physical Performance among Older Men with Persistent Musculoskeletal Pain. JGIM: Journal of General Internal Medicine, 31(5), 463-469. doi:10.1007/s11606-015-3579-9
2. Patricia, Z., Ming-Chih, K., Karayannis, N. V., Smuck, M., Zheng, P., & Kao, M. (2017). Stagnant Physical Therapy Referral Rates Alongside Rising Opioid Prescription Rates in Patients with Low Back Pain in the United States 1997-2010. Spine (03622436), 42(9), 670-674. doi:10.1097/BRS.0000000000001875
3. Frank J, Coviak C, Healy T, Belza B, Casado B. Addressing Fidelity in Evidence-Based Health Promotion Programs for Older Adults. Journal of Applied Gerontology [serial online]. February 2008; 27(1):4. Available from: Complementary Index, Ipswich, MA. Accessed October 19, 2017.

Call for Nominations

The BF SIG Nominating Committee is looking for persons willing to serve a three-year term as secretary and nominating committee member. If you are interested in getting involved in a leadership position and would like to run for an office, please complete the online form at http://www.neuropt.org/members/nomination-forms-2018.

We are also looking for someone to serve as our Social Media Coordinator.

If you have questions about any of the positions, please contact one of the members of the Nominating Committee: Tanvi Bhatt at tbhatt6@uic.edu, Evan Papa at evan.papa@unthsc.edu, or Hina Garg at hgarg@rmuohp.edu. Deadline for submission: March 15, 2018.

Clinician Spotlight

Mike Studer, PT, MHS, NCS, CEEAA, CWT, CSST
President, Northwest Rehabilitation Associates Inc.

"I see balance as an integrated function within the movement system. Balance is a unique function that adapts its formulary or equation according to the interplay of variables that are changing within the movement system due to aging, musculoskeletal injury, cardiac resources, and neurologic impairment; but also due to variables of task demands, perceived capabilities, and awareness of risk/benefit. As a therapist of 27 years, I have evolved and yet still not "arrived" in my understanding of this interplay, yet I have become more increasingly aware of the untapped potential, left on the table after many patient-therapist interactions due to incomplete program design and a failure to appreciate personal characteristics. Merely understanding how much a person is willing to be challenged, creating systematic successful experiences, and engaging in person/environment-specific practice - can make all of the difference in patient engagement, compliance, intensity, and ultimately outcomes, by any definition of the word.

I am thrilled, on a daily basis, to show a patient that is working to relearn how to balance that they can succeed in a task more complex, demanding, or intense...than their own real world is likely to expect of them. I cannot envision a time in my life that this will be anything less than thrilling to experience, from the perspective of the therapist, and...eventually, a patient myself."

Student Spotlight

Lakshmi Kannan, PT
Graduate Student (Masters in Rehabilitation Sciences),
University of Illinois at Chicago

My interest lies in understanding role of cognition on locomotor-balance control and exploring novel dual-task interventions as an alternate form therapy to reduce cognitive-motor interference and hence fall-risk during functional tasks such as walking in the healthy aging population and people with neurological impairments.

Currently, I am completing my thesis that focuses on examining efficacy of a novel Cognitive Motor Training (CMT) program among community dwelling chronic stroke survivors, using an off-the-self virtual reality platform and custom designed computerized cognitive tasks and is funded by a pilot grant awarded to my advisor Dr. Tanvi Bhatt by the Midwest Roybal Center for Health Promotion and Translation. As an extension to the same topic, I look forward in identifying the effect of trial order during such dual-task performances and whether altering the trial order would result in any cognitive or/and motor performance outcome among the same population. Apart from dual-task training, I will be working to evaluate differences between reactive and proactive responses among stroke survivors after a high intensity, tailored conventional balance training intervention. My long-term goal lies in translating such clinical based research to home-based exercise programs that would help such individuals to ambulate safely in the community based environment. I am enthusiastic, persistent to achieve this goal as a service to the physically and cognitively challenged population for independent living.

Apart from my thesis work, I am also working with Dr. Bhatt as a research coordinator on a NIH funded grant examining effects reactive perturbation training to reduce environmental fall risk among community-dwelling ambulatory stroke survivors.

I will begin my doctoral training to advance my academic endeavors in Fall 2018, after graduating my Master's degree in Summer 2018.

Meet your SIG leadership

Dr. Schwertfeger (*Chair)* is a recognized leader in advocacy and service for patient centered care and the physical therapy profession. Julie was awarded the 2015 Federal Government Affairs Leadership Award, and the 2016 IPTA Babette Sanders Leadership and Service Award. Currently, she directs the evidence based neurologic balance clinic for Rosalind Franklin University of Medicine and Science DPT program, where she also teaches neurologic clinical practice concepts in the DPT, pharmacy, and interprofessional program tracks. Her practice and research focuses on optimizing participation for adults with neurologic conditions of stroke, brain injury, and age related chronic impairments. She enjoys concerts, hiking, and forging ahead on her PhD coursework.

Dr. Espy (*Vice Chair)*, PT, PhD is Associate Professor in the Physical Therapy Program at Cleveland State University. Debbie currently teaches in the areas of kinesiology and Adult Neurological Dysfunction and Neuro-motor Interventions. Her current lines of research include fall biomechanics and fall resistance training; the use of video gaming as a therapeutic exercise and balance training modality; novel uses of sensor technology in motion feedback; and optimizing the dosage of balance training for fall prevention. Towards the goal of optimizing the dosage of balance training, she has developed a scale to gauge the intensity component of balance activities [Espy D, Reinthal A, and Meisel S. Intensity of Balance Task, as Measured by the Rate of Perceived Stability, is Independent of Physical Exertion as Measured by Heart Rate. J Nov Physiother 2017, May. 7:3].

Dr. Reinthal (*Secretary*) has a PhD in neuroscience and practiced physical therapy in a variety of settings before taking a faculty position at Cleveland State University in 1997, where she is currently an Associate Professor. Ann teaches primarily in the area of neurologic rehabilitation. Her research interests are in the areas of motor control and learning, especially as these relate to developing clinical methods to facilitate more effective and cost-efficient motor practice. She is especially interested in integrating the use of less expensive technologies into rehabilitation for neurologically impaired populations. Her work includes using various commercial video gaming technologies in balance training. She is also investigating the use of harness systems and moving this training out of the lab and into a community garden setting.

Dr. Bhatt *(Nominating Committee Chair)* is an Associate Professor with the Physical Therapy in the University of Illinois at Chicago. Tanvi is the director of the Cognitive, Motor and Balance Rehabilitation Laboratory and co-director of the Clinical Gait and Motion Analysis laboratory. Dr. Bhatt's research interest and expertise is in field of adaptive perturbation training for fall prevention. Her research involves investigating neuromechanical basis of balance recovery from external perturbations such as slips and trips and subsequently designing intervention paradigms for reducing fall-risk in healthy and pathological populations. Her research interest and focus also lays in examining effects of alternative cognitive and motor therapies (including virtual reality gaming and dance therapy) for improving impairment, function and participation in community-dwelling people with neurological disorders with an emphasis on stroke survivors. Dr. Bhatt has nearly 50 peer-reviewed publications and has been extramurally funded since 2011. Currently she is the principle investigator of two NIH R01 grants pertaining to perturbation training for fall-risk prevention and recipient of the UIC's *Rising Star Researcher of the Year*. Dr. Bhatt's currently coordinates the Adult Neuromuscular Dysfunction course within the DPT program and teaches in areas related to biomechanics, motor control and rehabilitation sciences within the MS program. She is also the program coordinator for the MS in Rehabilitation Sciences program housed within the PT department.

Dr. Papa *(Nominating Committee)* is Assistant Professor and Assistant Program Director at the Idaho State University Meridian Health Science Center. Evan's practice and research interests include postural control and gait initiation in neurologically impaired populations, with specific emphasis on reducing falls in persons with Parkinson's disease. He is a past recipient of the APTA Traveling Research Fellows award from the Section on Research, and was selected for an Emerging Leader award by the APTA in 2017. He enjoys camping, hiking, and playing sports with his wife and four children.

Dr. Garg *(Nominating Committee)* is currently Assistant Professor at Rocky Mountain University of Health Professions, whose research interests include factors affecting postural control and fall-risk in people with MS and other chronic neurodegenerative conditions. Hina's research focus includes investigating factors such as, the vestibular contributions, spasticity, and cognitive-motor interference. Personally, she enjoys outdoor activities, cooking and exploring new cities. Hina received first prize for her poster presentation in clinical research category at the 2017 Annual Roseman University research symposium. Title: Adaptations in gaze and postural stability in people with Multiple Sclerosis.

Neurology Balance & Falls SIG Poster Presentations CSM 2018

Posters may be viewed during Exhibit Hall hours Saturday, February 24; authors available from 1-3:00 pm.

3188 **Retraining Sensory Weighting Using Virtual Environment and Vibrotactile Biofeedback** *Hebron A, Schwarz B, Kowalewski V, Patterson R, Bugnariu N*

3189 **A preliminary investigation on the neural correlates of human dual-task walking** *Newton A, Nyangani I, Vanasse RL, Palm K, Goh H*

3190 **Does Hands-on Guarding Influence Performance on the Functional Gait Assessment?** *Robinson BS, Shaw JL, Himes MK, Daniel T, Mosley G, Holland L, Kraft CM, Mulcahey R*

3191 **Validity of the NeuroCom VSR™ Balance System** *Robinson BS, Himes MK, Shaw JL, Jung TJ, Brad KJ*

3192 **Improving Balance through Virtual Reality and Physical Therapy Integration** *Esguerra BS, Johnson KM*

3193 **Backward walking speed shows potential to serve as an indicator of mobility impairments in community-dwelling stroke survivors** *Balasubramanian C, Clark DJ, Hawkins KA, Alqahtani F, Fox EJ*

3194 **Getting BIG in the Community: An LSVT BIG pilot program** *Odeh CE, Baker M, Nahlik B, Epperson KF*

3195 **Exercise Based Intervention for Adults with Parkinson's Disease to Improve Functional Outcome Measures in Ambulation and Balance** *Voltmer C*

3196 **The Use of a Wearable Sensory Prosthesis to Improve Gait and Balance in a Patient with Peripheral Neuropathy** *Wrisley D, McLean G, Oddsson L*

3197 **Predicting Future Falls in Community-Dwelling Older Adults using the Berg Balance Scale** *Skornyakov E, Cleary KK*

3198 **Suitability of a narrowing beam walking task to assess balance in acute incomplete spinal cord injury: a case report** *Catlin E, Kahn JH, Gordon KE, Sawers A*

3199 **Use of the Brief-BESTest to Assess Balance Impairment and Target Balance Interventions for People with Subacute Stroke: a Pilot Study** *Johns E, Wamsley CA, Whiting AC*

3200 **How visual background field link to the postural control strategy in the virtual reality environment** *Conner J, DeSandre J, Dreyer J, Eggers C, Huskins H, Shaw K, Park E*

3201 **Reducing gait speed and improving balance in an individual with Parkinson's Disease and bilateral Deep Brain Stimulation** *Gosselin H, Foster H, Spigel P, DeMark L*

3202 **Test-Retest Reliability and Minimal Detectable Change for Measures of Gait and Balance in Adults with Cerebral Palsy** *Levin I, Lewek M, Giuliani CA, Faldowski RA, Thorpe DE*

3203 **The Effects on Balance and Gait in the Advanced Elderly following Aerobic Training on the Alter-G Treadmill** *Brewer JF, Harris R, Hamilton J, Vause J, Villarreal A*

3204 **Relevance of Each Item on the Activities-specific Balance Confidence Scale to Adults Living in Urban Environments** *Gurley JM, Hujsak BD, Battista D, Gonsalves-Sabola E, Tam S*

3205 **Locomotor training in the rehabilitation of a patient with paraplegia after West Nile virus infection: a case study** *Unger J, Jervis Rademeyer H, Furlan JC, Pujol C, Dawe J, Musselman KE*

3206 **Relationship of Functional Reach Test scores to falls in Special Olympics athletes** *Thomas J, O'Neal S, Varnado KE*

3207 **Minimal Detectable Change for Gait Initiation in Individuals with Parkinson's Disease** *Gann K, Nkwocha G, Papa EV*

3208 **Using the Tinetti to Predict Falls in Older Adults: a 12-month Prospective Study** *Skornyakov E, Cleary KK*

3209 **Visually induced fall prompts a greater center of pressure shift in older adults as compared to young adults during walking: Preliminary study.** *Ma L, Reimann H, Fettrow T, Thompson ED, Jeka J*

3210 **Does Task-Evoked Pupillary Response Reflect Change in Postural Control? A Proof-of-Concept Study** *Kahya M, Akinwuntan A, Williams K, Devos H*

3211 **The Effects of Recruitment of Jaw Musculature on Dynamic Postural Control** *Taylor M, Chung T, De Lima R, Mitterling A, Ugharadar N, Woitte JL*

3212 **Measuring Limits of Stability: Evidence of Concurrent and Construct Validity between the Protokinetics Zeno Walkway and the Bertec Force Plate** *Berg-Poppe PJ, Tao H, Sternhagen J, Johnson C, Cesar GM*

3213 **Computerized Dynamic Posturography Comparing the Bertec Balance Advantage™ and Neurocom Smart Balance Master® in Assessing Postural Stability in Healthy Adults** *Trueblood PR, Bentley C, Rivera MJ, Wubenhorst N*

3214 **How do you rehabilitate balance when vision, sensation, and vestibular systems are impaired? A case study** *Reoli R, Wood JM*

3215 **Awareness, Attitudes & Beliefs about Fall Risk and Evidence-Based Falls Prevention Programs Among Community Dwelling Older Adults** *Kiami SR, Sky R*

3216 **Accuracy of bedside examination for balance impairments: Finding the best screening assessments as an alternative to Berg Balance Scale.** *Xia Y, Thompson R, Bhatti DE, Hellman A, McKune J, Suing K, Schmaderer L, Torres-Russotto D, Siu K*

3217 **Determining the Validity of the "4 Meter Walk Test" iOS Application in Measuring Comfortable and Fast Gait Speed** *Fell DW, Wall JC, Allen S, Corley J, Jeziorski H, Whitted S*