

VESTIBULAR REHABILITATION SIG

APTA & Academy of Neurologic Physical Therapy

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VESTIBULAR REHABILITATION

Message from the Chair

Anne K. Galgon, PT, PhD, NCS
Vestibular Rehab SIG Chair

Hello Vestibular Rehabilitation Special Interest Group (VR SIG) Members,

One of the VR SIG's initiatives this past year was to promote membership. I hope that you have seen our membership promotions on social media, **Facebook and Twitter**. I want to thank Emma Van Sickle, our student representative and a DPT student from University of Pittsburgh, who created the membership value graphics for this campaign. She is working with ANPT staff and our Social Media Committee to get the word out about the benefits of membership. She also attended the National Student Conclave as a VR SIG representative and was able to discuss the benefit of membership and service to the ANPT and the VR SIG with future physical therapists. Engaging young therapists and students, such as Emma, continues to bring innovation and energy to our group.

The results of this effort may be evident in the 240 new or returning members that were added to our roster in 2019. Currently, 1549 individuals are benefiting from receiving weekly contacts through our **Abstract of the Week** with current research emailed directly to them and are the first to get news and updates on available resources. Our resources continued to be a strong reason for membership. In this message I have described the resources in bold and provided links to our **website**. In the past some resources have been underutilized by members, therefore, my purpose is to remind you of the continued SIG efforts to add value to your membership.

VESTIBULAR REHABILITATION SIG OFFICERS

CHAIR	ANNE K. GALGON, PT, PHD, NCS GALGONANNE56@GMAIL.COM
CHAIR ELECT	RACHEL WELLONS, PT, DPT, NCS RTROMM@LSUHSC.EDU
VICE CHAIR	CARRIE HOPPE, PT, PHD, NCS, OCS CWH27@PITT.EDU
SECRETARY	CHUCK PLISHKA, PT, DPT, NCS CHUCKDPT@ME.COM
NOMINATING COMMITTEE	LINDA D'SILVA, PT, PHD LINDA.DSILVA@ROCKHURST.EDU RYAN SCHROCK, PT, DPT, NCS SCHROCKDOC@YAHOO.COM SARA OXBOROUGH, MS, PT SARA@STOPDIZZINESS.COM
NEWSLETTER EDITORS	JASMINE EDWARDS, PT, DPT, NCS JJACKSONDPT@GMAIL.COM DEBBIE STRUIKSMA, PT, NCS DSTRUIKSMA77@AOL.COM
SIG PRACTICE LIASON	ANNA DEJOYA, PT, DSC, NCS ANNA.DEJOYA@MEMORIALHERMMANN.ORG
WEB COORDINATOR	MICHELLE GUTIERREZ, PT, DSC MGUTIERREZ28@UTEP.EDU
PODCAST COORDINATOR	MAUREEN CLANCY, PT, DPT MCLANCY1076@GMAIL.COM
SOCIAL MEDIA COORDINATOR	APRIL HODGE, PT APRILLAX@YAHOO.COM
ABSTRACT OF THE WEEK COORDINATOR	SARA OXBOROUGH, MS, PT SARA@STOPDIZZINESS.COM
ONLINE EDUCATION COORDINATOR	RACHEL WELLONS, PT, DPT, NCS RTROMM@LSUHSC.EDU
REIMBURSEMENT ADVOCACY COORDINATOR	LISA DRANSFIELD, PT, DPT, NCS MLD661@SBCGLOBAL.NET
PATIENT/PHYSICIAN FACT SHEET COORDINATOR	LISA HEUSEL-GILLIG, PT, DPT, NCS LISA.HEUSEL-GILLIG@EMORYHEALTHCARE.ORG
INTERNATIONAL RELATIONS COORDINATOR	CHUCK PLISHKA, PT, DPT, NCS CHUCKDPT@ME.COM
NEW MEMBER WELCOME COMMITTEE	MICHAELA BUNDY, PT, DPT MBUNDY@HEALTH.USF.EDU



Message from the Chair cont.

This year we completed a facelift and update of all of our patient **Fact Sheets**. If you have not looked at them recently, here is the link, <http://www.neuropt.org/special-interest-groups/vestibular-rehabilitation/patient-education-fact-sheets>. Many thanks to Lisa Heusel-Gillig, who organized and personally worked to get the fact sheets to an appropriate reading level for any patient. Our next efforts will be to give the Physician Fact Sheets a new facelift and retranslate the fact sheets into other languages. We are currently working in collaboration with the International Vestibular Rehabilitation Group, led by Chuck Plishka, to get the translations done. Facts Sheets will be a shared resource between ANPT SIG and the international group.

Our prolific podcast team produced **11 new podcasts** this year. With Maureen Clancy leading this energetic group, they facilitated discussions with experts in vestibular rehabilitation, neurology, otolaryngology and optometry. If you have not listened recently, you are probably missing out on a great educational opportunity. <https://www.blogtalkradio.com/aptavestibularsig>

We also launched our **first online course** on the ANPT Synapse Educational Center. “Differential Diagnosis and Management of Vestibular Migraines and Meniere’s Disease” was created by Rachel Wellons, Lexi Miles and April Hodges. The Vestibular Hypofunction Dissemination Group, led by Sara McDowell, has a course in production, and Jen Nash and Sara Oxborough have put forward a proposal to create an Introductory Vestibular Rehabilitation online course. Members benefit by being able to take these courses at a reduced cost. <https://www.anptsynapsecenter.com/public/page-courses/>

With the help of Laura Morris, ANPT Communications Director, we updated our **Vestibular Rehabilitation Provider Map**. The map is now user friendly and links directly to provider locations. Members are the only vestibular rehabilitation providers on the map. The map has been a great resource to me as many individuals contact me seeking vestibular trained therapists. However, it is only good if it is accurate and has more options for patients seeking services. I would like to encourage all members to look at the map and see if your contact information is correct or if you need to be added. It would be great to see all 1549 members listed on the provider map. Pam Dunlap, who manages the map, is very responsive to make changes or add therapists to the map. <http://www.neuropt.org/special-interest-groups/vestibular-rehabilitation/map-of-vestibular-rehabilitation-providers>

Save the Date! The VR SIG is also excited to announce the second **International Conference for Vestibular Rehabilitation (ICVR 2021)** will take place in Minneapolis, Minnesota on August 14-16, 2021. After the great success of the first conference last year, we want to thank the ANPT Board for supporting this conference as a reoccurring event. The ICVR 2021 will have a larger venue so more members can attend. This conference will directly follow the inaugural ANPT Conference allowing members to get the benefit of both educational experiences in one trip. Further information on the conference will be posted at <http://www.neuropt.org/special-interest-groups/vestibular-rehabilitation/ICVR2021> as the conference develops.



Message from the Chair cont.

The last and most important benefit of membership is the connections you make with other members. Our mission is to provide a **forum** for ANPT members with a common interest in the promotion of health, wellness, optimal function, and quality of life for individuals with vestibular disorders. <http://www.neuropt.org/special-interest-groups/vestibular-rehabilitation> A forum is a meeting or medium where ideas are exchanged. The SIG welcomes your ideas, input and feedback at any time. Your input and needs should be shaping the future direction of the VR SIG. One of the best places to exchange your ideas is at various SIG activities at the Combined Sections Meeting (CSM 2020). These will include the Vertigo-go Dinner on Thursday night, Myelin Melter Table on Friday night, Vestibular Rehabilitation Poster Session Thursday afternoon, and our Saturday morning VR SIG Breakfast Business Meeting.

This issue of the **newsletter** will be previewing the Vestibular programming and events at CSM 2020 which will be held in Denver in February. Our reimbursement guru, Lisa Dransfield, also provides billing recommendations for instrumented vestibular testing. The VR SIG biannual newsletter has always worked to provide updated relevant information about the SIG activities and vestibular clinical practice, and resources to the membership. Moving forward the editors, Debbie Struiksma and Jasmine Edwards, hope to reshape this publication to emphasize the sharing of clinical expertise, experiences, and research that will further benefit our members. The editors have begun to solicit articles including case studies, research, and literature reviews and several members have offered to write articles. Creating these editions requires contributions from members to write articles and to review articles. We feel that the newsletter can be another forum for members to present and exchange ideas.

Lastly, I would like to welcome new leadership to our group, Rachel Wellens, Chair elect, and Carrie Hoppes, Vice Chair. Along with her responsibilities of overseeing the Abstract of the Week, Sara Oxborough has joined the nominating committee. As I wind down my 10-year tenure as VR SIG Vice Chair and then Chair, I am fortunate to have great members who have stepped up to move the SIG into the next decade.

Hope to see you all in Denver! We will be mile high, but hopefully not too dizzy!

**FOR MORE INFORMATION GO TO:
[HTTP://WWW.NEUROPT.ORG/GO/SPECIAL-INTEREST-
GROUPS/VESTIBULAR-REHABILITATION](http://www.neuropt.org/go/special-interest-groups/vestibular-rehabilitation)**

Coding Challenge: Can Physical Therapists bill for instrumented tests of Vestibular and Balance function?

By: Lisa Dransfield, PT, DPT, MA

The Vestibular Rehabilitation SIG has received inquiries about physical therapists performing and charging for instrumented testing for vestibular patients; in particular, Computerized Dynamic Posturography, video Head Impulse Test (vHIT), and vestibular function testing typically associated with audiology. One must keep in mind that CPT codes are not discipline or specialty specific. However, local payer policy, in conjunction with the state's Practice Act, are the major determinants of whether a particular code is paid or not. There may also be differences depending on the practice setting. In a physician owned or hospital based physical therapy practice, Computerized Dynamic Posturography and vestibular function testing, such as VNG, and VEMP, can be performed by the physical therapist acting as a technician, if ordered, interpreted and billed by a physician. A physical therapist in an outpatient privately owned setting may not be able to order or bill for those tests with those codes.

If physical therapists perform instrumented testing in their practices to aid in evaluating function, the Physical Performance Test or Measurement code, 97750, is a good alternative. An example would be performing a vHIT, which measures the function of the VOR. This code cannot be used on the same day as Evaluation or Re-evaluation, and is a direct one-on-one code, of 15- minute increments. A written report is also necessary when using this code.

Perhaps the future of the PT doctoring profession will include the ability to order appropriate vestibular diagnostic testing to effectively meet the needs of our vestibular patients. This will undoubtedly improve patient outcomes, contain escalating medical costs and enhance the efficacy of the vestibular therapist as a first-contact provider for the vestibular patient.

Reference

Bell, A., Evans, W. Compliance Matters: Exploring and Expanding your CPT Code Inventory. PT in Motion. 2019. Retrieved from APTA website, Oct. 26, 2019.

Atypical BPPV: A Case Study

By: Lisa Gillig

Patient is a 75 year old woman who had a recent history of spells of vertigo when lying down and worse getting up. She also has had one episode while driving. She is very active in the community and plays pickle ball and volunteers in a group who sings and dances for individuals with Alzheimer's Disease in nursing homes. She has not been able to lean over and pick up the ball during her pickle ball games without getting dizzy and off balance. She was referred to PT for vestibular rehabilitation. **PMH:** history of chemotherapy and radiation for breast cancer

Subjective Findings:

ABC confidence is 84.1% . DHI is 48%- (31-60/100 is perceived handicap due to dizziness)

Objective Findings:

Fixation was removed with IR goggles. In left Dix Hallpike, she had no nystagmus or symptoms. In right Dix Hallpike, she had mild symptoms lying down with no nystagmus and moderate symptoms returning to sit without nystagmus. The hallpike test was repeated 4 times and the symptoms improved each time, but no nystagmus was provoked at any time.

Gait:

Patient walked at a normal pace. Preferred gait speed was 3.21 ft/sec (nl is 2.79 ft/sec). FGA was 18/30 (fall risk is <23/30). On the FGA, she had most difficulty with gait with head turns and eyes closed gait. Eyes closed gait - unable to complete with path deviations to the left.

Balance:

mCTSIB was normal on conditions 1-3, condition 4 was an average of 28/30 sec. Total score- 118/120 sec

Home Exercise Program:

- 1) Standing on a firm and compliant surface with eyes open and closed
- 2) Gait with head turns, gait with alternating eyes open and closed every 3 steps
- 3) Habituation exercises:
 - a) Lying down and sitting up in right Dix Hallpike position modified with a pillow positioned under her trunk for 3-5 repetitions, waiting in between each repetition to allow the symptoms to return to baseline, performed 1-2x daily
 - b) Trunk bends standing simulating picking up objects from the floor 3 repetitions with feet apart and knees bent 2 sets

1 week after eval:

Patient reported doing laundry and had dizziness when getting clothes out of the dryer. She had played pickle ball, but had her partner pick up the balls.

Re-testing:

- Right Dix Hallpike position: latency of 10 seconds, then upbeat right torsional nystagmus was detected with IR goggles lasting approximately 15 seconds with symptoms
- Treated for right posterior canal canalithiasis with CRT. With the second maneuver, the CRT was modified with a pillow under her trunk so that she could perform it safely and independently on her bed. She was given an illustrated handout of the modified maneuver and was instructed to perform it 1x daily at home until her next visit.

Atypical BPPV: A Case Study cont.

By: Lisa Gillig

2 weeks after eval/Discharge:

ABC 86.9% (was 84.1%), DHI 10% (was 48%), FGA 27/30 (was 18/30), Gait speed 3.7 ft/sec, eyes closed gait is 6.34 sec for 20 feet, mCTSIB 120/120 (up from 118/120). With right Dix Hallpike maneuver, she had no symptoms or nystagmus. Patient was independent with the modified CRT if the symptoms returned. She has returned to her normal activities including pickle ball. BPPV was in remission and other goals were achieved.

Discussion:

Initially, patient had no objective signs (nystagmus) of posterior canal canalithiasis, only a strong history of symptoms that suggested BPPV. Her symptoms were stronger with returning to sitting than lying down in the right Dix Hallpike position only. She did not have the classic pattern of nystagmus (upbeat torsional nystagmus on lying down, with a reversal after sitting up). She did respond to habituation of repeated Dix Hallpikes in the clinic. If the otoconia were in the short arm of the posterior canal, then the typical pattern of nystagmus would not appear. As suggested by Bela Buki, this type of BPPV can exist (BPPV Type 2). (1)

L Califano suggested that if the debris is resting on the non ampullary arm of the posterior canal, it may convert to the ampullary arm of the posterior canal. This can happen if an obstacle (i.e. a stenosis) was blocking the exit of otoconia into the utricle in the case of apogeotropic variant of posterior canal BPPV (APC). Califano hypothesized that the otoconia can fragment with the repeated hallpike maneuvers and fall into the inferior position of the posterior canal. With the otoconia in this typical resting place, the CRT can be used for the treatment successfully. (2)

This patient may have possibly moved the otoconia with the repeated Dix Hallpikes from the superior portion of the canal (non ampullary arm) to the inferior portion of the canal (ampullary arm), where the signs/symptoms of typical posterior canal BPPV presented the following week and was treated successfully with the CRT.

Take home message:

If the history and symptoms are consistent with BPPV, attempt to perform maneuvers to move the particles into a resting position that presents with the classic PC BPPV and then treat with CRT.

References:

1. Bela Buki et al. Sitting-up vertigo and trunk retropulsion in patients with benign positional vertigo but without positional nystagmus. *J Neurol Neurosurg psychiatry* 2011;82:96-104
2. L Califano et al. Anterior canal BPPV and apogeotropic posterior canal BPPV: two rare forms of vertical canalolithiasis *Otorhinolaryngologica Italica* 2014;34:189-197

Looking for more information on BPPV?

Join us at CSM in Denver, CO to hear Dr. Janet Odry Helminski, PT, PhD and Dr. Michael C Schubert, PT, PhD, FAPTA present on "Interpretation of Unusual Patterns of Nystagmus: Atypical Benign Paroxysmal Positional Vertigo" (NE-2916) on Thursday, February 13, 2020 at 11:00 AM - 1:00 PM.

Don't forget to stop by the posters from 1:00 PM to 3:00 PM on Saturday, February 15, 2020 to learn about "Implementing a Screening Process for Benign Paroxysmal Positional Vertigo in Inpatient Rehabilitation for Brain Injury" by Allison Elizabeth Miller, PT, DPT, Kerryn Michelle St Andre, PT, DPT, Katherine Ackerman, PT, DPT, Kirk D. Endersby, PT, BS and Irene Gorzelany Ward, PT, DPT.

CSM 2020 Programming

Wednesday, February 12, 2020

8:00 AM - 5:00 PM

PD-3112 Concussion-Related Vision Problems in Children: Assessment and Treatment
Mitchell Scheiman and Cindy Miles, PT, PhD

Thursday, February 13, 2020

8:00 AM - 10:00 AM

NE-1868 Anne Shumway-Cook Lectureship—A Vestibular Rehabilitation Journey
Susan L. Whitney, PT, DPT, ATC, FAPTA

HH-1937 A Balancing Act: A Discussion on the Updated Home Health Toolbox Balance and Vestibular Measures
Rachel Hannah Botkin, PT, Karen Yong, PT, MA and Belinda Beilman, PT, DPT

11:00 AM - 1:00 PM

NE-2916 Interpretation of Unusual Patterns of Nystagmus: Atypical Benign Paroxysmal Positional Vertigo
Janet Odry Helminski, PT, PhD and Michael C Schubert, PT, PhD, FAPTA

Effects of Static Postural Control Performance and Hearing Status on Athlete Dynamic Postural Control Performance

Matthew Paul Brancalone, PT, DPT, Maria Talarico, Laura Boucher and James Onate

3:00 PM - 5:00 PM

AC-2323 A Novel Vestibular Physical Therapy Program in the Emergency Department to Identify Posterior Circulation Stroke

Benjamin Thomas Bachelier, PT, Beth Pike Thorpe, PT, DPT and Jenny Brickman Terry, PT

6:30 PM - 8:30 PM

NE-4009 Academy of Neurologic Physical Therapy: Mentor Mixer

Friday, February 14, 2020

6:30 AM - 7:30 AM

NE-1506 NCS Breakfast -- NCS to Research: Implementation in the Clinic (Newly and currently certified ONLY)
Ashley N. Dennis, PT, DPT, Alicia Esposito O'Hara, Angela Marie Stolfi, PT and Katherine R. Sweet, PT

NE-1574 Residency and Fellowship Networking Breakfast: *Invitation Only* Victoria Stevens

CSM 2020 Programming cont.

Friday, February 14, 2020 cont.

8:00 AM - 10:00 AM

NE-2026 Functional Movement Disorders: It's Not in Your Head

Julie Ann Hershberg, PT, DPT, Mike T. Studer, PT, MHS, Carly Rose Lochala, PT, DPT and Chelsea Angela Duncan, PT, DPT

NE-2116 Gaze Stability and Postural Control Limitations in Multiple Sclerosis: Diagnosis, Treatment, and Future Directions

Leland E. Dibble, PT, ATC, PhD, Brian James Loyd, PT, DPT, PhD and Jeffrey R. Hebert, PT, PhD

11:00 AM - 1:00 PM

NE-2067 When Our Patients Are Using Cannabis: What Every Physical Therapist Should Know

Ellen Zambo Anderson, PT, PhD, Rhea Beth Jacobson, PT, DPT and Lori S Zucker, PT, DPT

NE-2374 Getting Published in JNPT: A Chat With the Editorial Board

Edelle Carmen Field-Fote, PT, PhD, FAPTA and George David Fulk, PT, PhD, FAPTA

Breast Cancer Survivors' Postural Sway Exceeds Expectations for Age or Vestibular Pathology: A Cross-Sectional Analysis

Elizabeth S. Hile, PT, PhD, Jonathan Day, Chia-Cheng Lin, PT, MSPT, PhD, Justin Dvorak, Kai Ding and Susan L. Whitney, PT, DPT, ATC, FAPTA

Cognitive/Motor Dual-Task Training for Individuals with Residual Symptoms after Mild TBI: Feasibility and Preliminary Findings

Margaret Weightman, PT, PhD, Teri Takehiro, PT, DPT, Christine Pocrnich, PT, Patrick Gerard Michielutti, PT, DPT, Peter C Fino and Laurie Anne King, PT, PhD

3:00 PM - 5:00 PM

NE-2133 Is Research Making You Dizzy? How to Translate the Vestibular Clinical Practice Guidelines Into Clinical Practice

Julie Kristin Tilson, PT, DPT, Sara Gaudet MacDowell, PT, Karen Skop, Linda Joan D'Silva, PT, PhD, Heidi Rebecca Roth, PT, DHS, Elizabeth Dannenbaum, Clarisa Andrea Martinez, PT, DPT and Robbin Eileen Howard, PT, DPT

Dynamic Exertion Test (EXiT): Functional Assessment to Inform Return to Play Following Sport-Related Concussion

Victoria L. Kochick, PT, DPT, Aaron Sinnott, Michael Collins and Anthony Kontos

6:30 PM - 7:30 PM

NE-3805 Academy of Neurologic Physical Therapy: Annual Meeting and Award Ceremony

7:30 PM - 9:00 PM

NE-3809 Academy of Neurologic Physical Therapy: Myelin Melter

CSM 2020 Programming cont.

Saturday, February 15, 2020

6:30 AM - 7:30 AM

NE-3819 Academy of Neurologic Physical Therapy: Special Interest Group Breakfast- Vestibular

8:00 AM - 10:00 AM

NE-2539 Standardized Task Analysis for Movement System Diagnoses: Application to Individuals With Balance Problems

Patricia Lou Scheets, PT, DPT, MHS, Kathleen M Gill-Body, PT, DPT, MS, FAPTA, Lois Deming Hedman, PT, DScPT, MS, Lori Quinn, PT, EdD, Nora Ann Riley, PT, PhD and Myla U. Quiben

CP-2178 How Chest, Pulmonary, and Vestibular Therapies Can Help Patients With Nontuberculous Mycobacteria and Bronchiectasis

Artmis D. Youssefnia, PT, David Kamelhar, Francisco C DaSilva PT and Alicia B. Pierre, PT

NE-3799 Academy of Neurologic Physical Therapy Platform 3: Vestibular and Balance Disorders/Degenerative Diseases

Thomas George George Hornby, PT, PhD

The Effects of Anxiety and Depression on Function in Persons with Vestibular Disorders

Pamela Marie Dunlap, PT, DPT, Patrick Joseph Sparto, PT, PhD, Joseph M Furman, Gregory Francis Marchetti, PT, PhD, Jeffrey P Staab, MD, Anthony Delitto, PT, PhD, FAPTA and Susan L. Whitney, PT, DPT, ATC, FAPTA

Expanding Vestibular Spatial Perception

Eric R. Anson, PT, PhD, Yoav Gimmon and Michael C Schubert, PT, PhD, FAPTA

11:00 AM - 1:00 PM

NE-2451 Update on Developing Successful Strategies to Manage Patients With Functional and Psychiatric Vestibular Disorders

Janene M. Holmberg, PT, DPT, Jeffrey P Staab, MD and Pamela M. M Dunlap

ON-1707 Cross-Collaboration to Reduce Preventable Falls: An Oncology/Geriatrics/Neurology Balance & Falls SIG Tri-Alliance Symposium

Earllaine Simpler Croarkin, PT, Jennifer Lynn Vincenzo, PT, MPH, PhD and Julie Lynn Schwertfeger, PT, DPT, MBA

3:00 PM - 5:00 PM

NE-2207 Intervention Design to Optimally Progress Perturbation-Based Balance Training: Translating Research into Clinical Practice

JJ Mowder-Tinney, PT, PhD and Taylor Elise Drake, PT, DPT

NE-2536 When Movement Is More Than Muscles: Contribution of Cognition to Function

Carolyn Grace Tassini, PT, DPT, Kimberly Miczak, PT, MSPT and Claire McGrath

CSM 2020 Programming cont.

Posters - Thursday, February 13, 2020

1:00 PM - 3:00 PM

Effectiveness of Home-Based Virtual Reality on Vestibular Rehabilitation Outcomes: A Systematic Review
Bonni Kinne, PT, Katelynn Jo Owens, SPT, Brittany Ann Rajala, SPT and Stephanie Kay Ticknor

Vestibular and Oculomotor Functions in Adults with Spastic Cerebral Palsy: A Feasibility Study
Yawen Yu, OT, PhD and Emily Ann Keshner, PT, EdD

Females Exhibit Greater Balance, Vestibular and Oculomotor Dysfunction Than Males Following Pediatric Concussion
Margot Love Gray, PT, DPT, David R Howell, PhD, ATC, Julie Wilson, Aaron Provance and Morgan Potter, SPT

Management of a Central Vestibular Disorder in an Individual with a Chronic Traumatic Brain Injury
Zachary Knox, SPT, Lauren Elaine Graham, SPT and Crystal Renee Ramsey, PT, DPT

Establishing a Vestibular Classification System: Fostering Evidence-Based Care, Quality Improvement and Research
Janene M. Holmberg, PT, DPT

Effect of Optic Flow Speeds with Concurrent Cognitive Tasks on Prefrontal and Vestibular Cortex Activity
Jennifer Marie Shaw, SPT, Brian Sylcott, Shanyue Guan, Sarah Wills, Malack AlHuman and Chia-Cheng Lin, PT, MSPT, PhD

Changes in Vestibular Ocular Motor Screen (VOMS) in Adolescents Treated with Vestibular PT after Concussion
Wendy J. Carender, PT, MPT, Melissa Elaine Grzesiak, PT, DPT, Cindy Enderle Munday, PT, MPT and Bara Alsalaheen, PT, PhD

Vestibular Habituation Promotes Postural Stability through Decreased Muscle Activation
Kwadwo Appiah-Kubi, PT, MSPT, Richard Lauer, Ryan Tierney and Geoffrey Wright

Sequential Integration of Cervical Manual Therapy and Visual-Vestibular Therapy for Concussion Symptoms: Pragmatic Retrospective Analysis
Lauren Jamie Ziaks, PT, DPT, ATC, Tessia De Mattos, SPT, Samantha Dena Vargas, PT, DPT, Chelsea F Brown and Christopher K. Wong, PT, PhD

The Prevalence and Associated Risk Factors for Falls in People with Vestibular Disorders
Linda Joan D'Silva, PT, PhD and Aqeel Mohammed Alenazi, SPT

The Treatment of Mild Traumatic Brain Injury and Traumatic Optic Neuropathy: A Case Study
April Tamar Hodge, PT, DPT

Fear-Avoidance and Lifespace in Individuals with and without Visual Vertigo
Kefah Alshebber, Carrie W. Hoppes, PT, PhD, Pamela Marie Dunlap, PT, DPT, Brooke Nicole Klatt, PT, DPT, PhD, Andrea Rosso, Patrick Joseph Sparto, PT, PhD, Joseph M Furman, Theodore Huppert and Susan L. Whitney, PT, DPT, ATC, FAPTA

CSM 2020 Programming cont.

Posters - Thursday, February 13, 2020 cont.

1:00 PM - 3:00 PM

Is There a Difference in Gaze Stability Scores between Ball Athletes, Non-Ball Athletes, and Non-Athletes?
Rosemary Josefa Smith, SPT, Natalie Albright, SPT, Lindsay Morgan Wilde, SPT, John Chesney, SPT, Hannah Grace Dorian, SPT, DPT, Jessica Elisabeth Fischetti, SPT, Rachel Ann Smith, SPT, Molly Kathryn Bishop, SPT and Jessica Lieb Cammarata, PT, DPT

Physical Therapy for Post-Concussion Syndrome Complicated By Somatization
Isabelle Marie Matejovsky, PT, DPT and Sierra Jennifer Hunt, PT, DPT

The Relationship of the Dynamic Visual Acuity Test in Healthy Individuals: Static Compared to Ambulation
John D. Heick, PT, DPT, PhD, Valerie A. Carter, PT, DPT, Tarang Kumar Jain, PT, DPT, PhD and Michelle Rumpel, SPT

Validation of the Bertec Balance Advantage Sensory Organization Test
Colin R. Grove, PT, DPT, MS, Susan L. Whitney, PT, DPT, ATC, FAPTA, Kristin E Caldera, DO, Scott J Hetzel, MS, Bryan C. Heiderscheit, PT, PhD, FAPTA and G Mark Pyle, MD

Effect of Repetitive Administration of the Bertec Balance Advantage Sensory Organization Test
Colin R. Grove, PT, DPT, MS, Susan L. Whitney, PT, DPT, ATC, FAPTA, Kristin E Caldera, DO, Scott J Hetzel, MS, Bryan C. Heiderscheit, PT, PhD, FAPTA and G Mark Pyle, MD

Gaze Stability in Youth Athletes
Amy Alexander, PT, Michelle Lynn Massingale, PT, Nicholas Hattrup and Jamie Pardini

Quantifying Treatment Fidelity during Gaze Stabilization Training
Annie Fangman, PT, Jane Saviers-Steiger, Parker Ballard, Michael C Schubert, PT, PhD, FAPTA, Leland E. Dibble, PT, ATC, PhD and Brian James Loyd, PT, DPT, PhD

Patients with Cerebellar Ataxia Reporting Gaze Instability Demonstrate Abnormal Oculomotor Patterns during Passive Head Rotation
Jennifer L. Millar, PT and Michael C Schubert, PT, PhD, FAPTA

Treatment of Non-Sports Related Concussion in Adolescents Utilizing Tissue Irritability Algorithmic Approach: A Case Series
Kelly Welsh Hardesty, PT, DPT, Zachary Everett Walston, PT, DPT, Lindsay White Walston, PT, DPT, Dale Michael Yake, PT, DPT, ATC and Tye Marr, PT

Posters – Friday, February 14, 2020

1:00 PM - 3:00 PM

Effect of Cervical and Vestibular Exercises on a Post-Concussion Disorder Patient: A Case Study
Maureen M. Clancy, PT, DPT

Prolonged Post Concussion Syndrome in an Adolescent- a Multimodal Approach Toward Recovery
Robert M. Hofschulte, PT, DPT, ATC and Purvi Shaan Vora, PT, DPT

CSM 2020 Programming cont.

Posters – Saturday, February 15, 2020

1:00 PM - 3:00 PM

Vestibular and Oculomotor Dysfunction in Children with Idiopathic Toe Walking

Erin Kaufman, PT, DPT, Nicole Marguerite Harris, PT, MPT, Nancy Beth Muir, PT, DPT and Margot Love Gray, PT, DPT

Peripheral Neuropathies and Vestibular Dysfunction. Benefits of Vestibular Screening and Exercises: A Case Series.

Iwona M. Kedzierska, PT, MSPT, MA and Laura Cialino, PT

Test-Retest Reliability of Post-Concussion Examinations in Healthy Young Adults: A Pilot Study

Gabrielle Diaz, PT, DPT, Karla Denise Easterling, PT, Tyler Luchtefeld, PT, DPT, Janet Perry Slaughter, PT, DPT, Meredith Flowers, PT, DPT, Ryan Henry McGlawn, PT, DPT, William Cody Pannell, PT, Ryan Michael Babl, PT, DPT, MS, Kimberly J. Curbow-Wilcox, PT, PhD and Jennifer C. Reneker, PT, MSPT, PhD

Measurement Properties of the Dizziness Handicap Inventory-Children and Adolescent (DHI-CA) in Children and Adolescents Post-Concussion

Devashish Tiwari, PT, DPT, PhD, Amy M. Yorke, PT, PhD, Allon Goldberg, PT, PhD, Gregory Francis Marchetti, PT, PhD and Bara Alsalaheen

The Effect of Cognitive Load on Visual Weighting and Reweighting in Healthy Young Adults

Liraz Arie, Tal Krasovsky, Moshe Aharoni, PT and Anat Vilnai Lubetzky, PT, PhD

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Allison Elizabeth Miller, PT, DPT, Kerryn Michelle St Andre, PT, DPT, Katherine Ackerman, PT, DPT, Kirk D. Endersby, PT, BS and Irene Gorzelany Ward, PT, DPT