



**AOPT**  **SIG**

ACADEMY OF ORTHOPAEDIC PHYSICAL THERAPY, APTA

**FOOT & ANKLE**



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## Foot & Ankle SIG News & Updates

- We hope you enjoyed CSM 2021
- Thanks to everyone for joining the FA SIG membership meeting
- Welcome to our new research chair, Abbis Jaffri
- It is getting close to time to submit education session proposals for CSM 2022 – reach out to Jeff Houck with any questions

Recognition and thanks to the task force that is working hard to develop the first foot and ankle fellowship specialty area of practice. On December 5, 2019 we submitted our formal Declaration of Intent letter to the American Board of Physical Therapy Residency and Fellowship Education (ABPTRFE) for review. We were approved in early 2020 and began the pilot survey development. We completed the pilot survey during the remainder of 2020. We are finalizing the results from the pilot survey and submitting this to ABPTRFE in early 2021. This will pave the way for the final step of distributing the final practice analysis survey in mid-2021. Please join FASIG in thanking the entire group for their efforts and expertise.

### Practice Analysis Coordinators:

Kris Porter

Marcey Keefer-Hutchinson

Christopher Neville – FASIG president

### Project Consultant:

Edward Mulligan

### Task-force members:

Dave Sinacore, Stephen Paulseth, Michael Cibulka, Nancy Shipe, Robert Klingman, Josh Bailey, Eric Folmar, Robert Siglar, Megan Peach, Steve Pettineo, Steve Reischl, Targan Kumar Jain



## Member Spotlight Featuring Chris Neville, PT, PhD

**Where are you originally from?**

Syracuse, NY

**What type of setting do you work in?**

Academic

**What sparked your interest in the foot and ankle?**

I treated patients with neuro and orthopedic conditions and always found an interest in assessing and treating the lower extremity. I became focused on the foot and ankle during my PhD studies because the biomechanics and the models were just being developed. It was a unique area to study and great patient populations that we didn't know much about.

**What is your current research interest?**

I have a few interests that span some diverse areas. I continue to investigate foot and ankle function but have recently focused on patients following Concussion Injury and older adults with balance impairment.

**How did you become involved in research/academics?**

In clinical practice, I always had a keen interest in understanding how things worked and why they worked. I returned to research and academics so I could spend more time thinking about and working on those questions.

**What other activities/hobbies do you enjoy outside of physical therapy?**

Fishing, hiking, and skiing in the winter

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FA SIG Updates

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Member Spotlight –  
Chris Neville, PT, PhD

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CSM - Foot and  
Ankle Recap

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Citation Blast – What's  
new in Foot and Ankle  
Intervention

- Shon Kuhn, SPT

## CSM – Foot and Ankle Recap

Every year, APTA's Combined Sections Meeting (CSM) brings together some of the greatest minds in the physical therapy world to one place to share a wealth of knowledge covering a wide spectrum of our profession. Although this year brings a very different CSM that moved to a virtual platform, the wealth of information at our disposal has not changed. In fact, with the ability to view poster sessions and platform presentations asynchronously, one might argue that this year's CSM may be even more robust (and sometimes overwhelming) than that of years past.

Here is a highlight of what CSM has to offer in the realm of the foot and ankle. In "From Walking to Running: What Can Your Foot and Your Shoe do for You?" Dr. Shane McClinton and colleagues presented on ways to optimize foot structure and function as well as footwear features that may help treat or prevent injury, diving into both the minimalist and maximalist shoe crazes.

In "Coping with a Bad Breakup: The Clinical Management of Foot and Ankle Fractures," Dr. Stephanie Albin and colleagues explain the most common deficits, the normal and expected abnormal biomechanics, as well as how to identify and manage the most common complications following foot and ankle fractures.

Foot and ankle interest is also well-represented in poster and platform presentations. As an example, Dr. Lee Bland reported in his poster presentation that despite the first MTP joint being most commonly affected, the lateral ankle should also be considered as a potential site for gout development. Dr. Caleigh O'Brien and Dr. Dan Sieczkiewicz use a case study to explain the use of telemedicine to differentially diagnose foot drop despite limited examination findings. Platforms covering chronic ankle instability to Achilles tendinopathy to diabetic foot considerations all continue to be available for viewing, with asynchronous Q&A options to reach out to presenters.

These are just a few of the exciting and interesting topics on the foot and ankle. All poster and platform presentations are available to view until March 31<sup>st</sup>, so make sure to check them out today! It is my hope that everyone has a great virtual CSM and that we can all meet in person next year!

- Stephen Cabebe, SPT

## Citation Blast – What’s New in Foot and Ankle Intervention?

1. Lyu BJ, Lee CL, Chang WD, Chang NJ. Effects of Vibration Rolling with and without Dynamic Muscle Contraction on Ankle Range of Motion, Proprioception, Muscle Strength and Agility in Young Adults: A Crossover Study. *Int J Environ Res Public Health*. 2020;17(1):354. Published 2020 Jan 4.

This study aims to explore the possible benefits of vibration rolling as a self myofascial release on exercise performance in the foot and ankle. The study compares a combination of vibration rolling with dynamic muscle contraction (DVR), vibration rolling (VR) alone, and static stretching on range of motion, proprioception, muscle strength, and agility at the ankle in young adults. The study includes 20 active adults without musculoskeletal disorders who engaged in three sessions, each utilizing a different warm-up technique, with 48 hours between sessions. The study indicates significant improvements in the VR and DVR groups compared to the static stretching group. The DVR group significantly improved ankle dorsiflexion compared to the two other groups. All groups improved ankle range of motion, but only the VR and DVR groups improved muscle strength and agility. These findings may indicate the use of vibration rolling alone or in combination with dynamic muscle contraction to improve performance in the foot and ankle.

2. Choi J, Cynn J, Yi C, Yoon T, Baik S. Effect of isometric hip abduction on foot and ankle muscle activity and medial longitudinal arch during short-foot exercise in individuals with pes planus. *Journal of Sport Rehabilitation*. 2021;30(3):368-374.

This study explores the regional interdependence of hip joint stability and rearfoot mechanics. Individuals with pes planus demonstrate abductor hallucis weakness, for which, tibialis anterior may actively compensate. The study compares isometric hip abduction on muscle activity in abductor hallucis, peroneus longus, and gluteus medius. Additionally, the medial longitudinal arch angle was measured in both sitting and standing. Thirty-two individuals with pes planus participated in short foot exercises combined with isometric hip abduction. The study shows increased abductor hallucis muscle activity and decreased tibialis anterior activity when isometric hip abduction was included in short foot exercises. These findings indicate that isometric hip abduction may be an effective method for reducing compensatory tibialis anterior activity and increasing abductor hallucis activity during exercise for those with pes planus.

3. Christensen M, Zellers JA, Kjaer IL, Silbernagel KG, Rathleff MS. Resistance exercises in early functional rehabilitation for Achilles tendon ruptures are poorly described: a scoping review. *J Orthop Sports Phys Ther*. 2020;50(12):652-726.

This review aims to describe resistance exercise prescription in the first 8 weeks after Achilles tendon rupture and to assess the reporting of exercise descriptions. The studies included reported the use of resistance exercises during the initial immobilization phase of Achilles tendon rupture rehabilitation.

The researchers used the Consensus on Exercise Reporting Template (CERT) and the Toigo and Boutellier exercise descriptor framework. Although many exercise interventions included resistive ankle plantar flexion exercises, studies did not include adequate description or parameters of exercises. Therefore, further research is necessary to explore best practices for early exercise intervention after Achilles tendon rupture.

4. Lately PJ, Eisenhuth J, McKay MJ, Hiller CE, Sureshkumar P, Nightingale EJ, Burna J. Feasibility of the Archercise biofeedback device to strengthen foot musculature. *Journal of Foot and Ankle Research*. 2020; 13:43.

This article explores the efficacy of a novel medical device, named the “Archercise,” to provide accurate and effective real-time biofeedback to patients with foot muscle weakness. The Archercise consists of an inflatable bladder similar to those used for biofeedback in the lumbar and cervical spine for stabilization exercises. The study included 30 adults ages 23-68 years old, who each performed four foot-specific exercises on the Archercise sensor. Outcomes measured include magnitude of arch lowering and endurance of arch elevation. The researchers used one-way repeated measures ANOVA with pairwise comparisons between the two trials of each exercise. Participants also reported subjective comments on a survey and the feedback was reported thematically. The study concludes that the Archercise is a feasible biofeedback device to aid in optimal performance of foot doming exercises in healthy participants.

5. Farris DJ, Birch J, Kelly L. Foot stiffening during the push-off phase of human walking is linked to active muscle contraction, and not the windlass mechanism. *J R Soc Interface*. 2020;17(168):20200208.

Previous literature attributed foot stiffening during push-off phase of gait to be a result of the windlass mechanism, though this study challenges that paradigm. The researchers applied controlled loading to human feet in vivo and studied foot function during push-off in gait. The researchers found that the windlass mechanism, tensioning the plantar aponeurosis via great toe extension, could not explain the observed contact forces and push-off effort. The researchers concluded that intrinsic plantar flexors were also contributing to the tension developed on the plantar aspect of the foot. Therefore, the active muscle contraction is believed to be the primary source of rigidity in the human foot, rather than passive mechanisms, during gait.

- Madi Engel, SPT