## Combined Sections Meeting—Denver

The Imaging SIG Educational Session entitled, "Building an Imaging Alliance for Future Practice: One Voice, One Vision" was presented by James Elliott, Aaron Keil, Daniel Watson, Scott Rezac, and two physicians: Frank Crnkovich, MD (Radiologist) and Mark Slabaugh, MD (Orthopaedic Surgeon). The session focused on a vision toward future practice with collegial relationships and the potential role for physical therapists.

Beyond the Imaging SIG's programming, there were 8 other sessions over the course of the 3 days at CSM featuring imaging content. Clearly, imaging is of growing interest in the profession.

## CSM Scholarship

While at CSM, the Imaging SIG awarded the third annual winner of the Imaging SIG Scholarship for an accepted presentation. Ruth Maher and Cara Morrison were recognized for their work, "The Piriformis: Effect of Hip Position on Function and Hip Rotator Strength." More applications than ever were received by the Imaging SIG's Scholarship Workgroup, headed by Lena Volland.

Keep this scholarship in mind for yourself, a colleague, or a mentee in the future.

Watch for more information about the scholarship application becoming available again in 2020 for CSM 2021 in Orlando. Information about the scholarship is available on the Imaging SIG's web page on the AOPT website.

## APTA, AIUM, and Inteleos Alliance

APTA, the American Institute for Ultrasound in Medicine, and Intelos have announced a formal 3-way alliance to facilitate the education of physical therapists in musculoskeletal ultrasound and their eventual credentialing with the Registered in Musculoskeletal Sonography (RMSK). Much more will be known about this in the near future as details of this cooperative effort become established and publicized.

## AIUM Webinars

Webinars with AIUM are continuing through 2020.

By the time this issue appears, one additional webinar will have occurred and another is planned in the near future: "Decoding Wrist and Hand Tendon Pathology with Ultrasound Imaging" by Mohini Rawat, DPT, MS, ECS, OCS, RMSK, on Tuesday, March 3, 2020, at 1:00 PM-2:00 PM ET and "Musculoskeletal Ultrasound Detection and Longitudinal Follow-up of Muscle Contusions, Tears and Early Detection of Myositis Ossificans Traumatica (Heterotopic Ossification)" by Bruno Steiner, PT, DPT, LMT, RMSK on Tuesday, June 2, 1:00 – 2:00 pm ET.

If you have interest in a particular topic for a webinar or you are interested in presenting or collaborating for a webinar, please contact crhazl00@uky.edu.

If you missed these webinars, please recall they remain available for your viewing on AIUM's website and on their YouTube channel. These webinars are great opportunities for extremely valuable information at no personal cost.

## Strategic Plan Activities

With the revision of the AOPT Strategic Plan, all the SIGs under the purview of AOPT will also be revising their strategic plans. Once the AOPT Strategic Plan is finalized, a specific methodology with all the SIGs will subsequently follow. We need your input into this process. The Imaging SIG leadership will be reaching out to members for their input in developing a new strategic plan in revision of the one established in 2016. Details are still emerging, but a small number of web meetings is likely to be one component of the new plan formulation. More information will be coming.

## Changes in Imaging SIG Leadership

Jim Elliott, who has a long history of service with the Imaging SIG, has stepped down from the office of Vice President and will not complete the final year of his term. Jim moved to Australia a few years ago and has multiple roles to manage at the University of Sydney. All of the SIG members are certainly indebted to Jim for the breadth and depth of his service to the SIG and the profession. To fulfill the final year of that term, Marie Corkery has been appointed. She will, in effect, fill that role of SIG Education Chair until after CSM 2021 in Orlando.

Mohini Rawat has assumed the Nominating Committee Chair subsequent to CSM in Denver. Megan Poll's term as Committee Chair has ended in the rotating sequence of that committee's structure. The new at-large committee member from the election in November 2019 is Lynn McKinnis, who joins Kimiko Yamada as the other committee member.

The November elections this year will be for Vice President and Nominating Committee, both with 3-year terms. If you are interested in one of those positions, you can let that be known to any of the Nominating Committee members; and they will also be seeking others who may be interested beginning in late summer and early autumn. The slate of candidates will be announced in October.

The Imaging SIG is appreciative of Megan and Jim for their generous service to the Imaging SIG for many years of effort.

## Input on AOPT Clinical Practice Guidelines

In future AOPT Clinical Practice Guidelines, the Imaging SIG will offer content recommendations and reviews of the draft guidelines with specific reference to imaging relative to patient management decisions. While discussed at CSM in Denver, details of the process and the interaction between the AOPT CPG Editors and the Imaging SIG is still being determined.

## The Emergence of Ultrasound as an Important Tool in Physical Therapist Practice in the United States

Ultrasound (US) as an imaging modality in care of patients with musculoskeletal (MSK) conditions is growing in its use within the United States. Widely used in several European countries for many years, the value of US imaging is becoming more appreciated across physical therapist practice domestically. This expanded growth in physical therapist practice is expected to continue, perhaps at an accelerated rate in the near future. Toward

this, the American Physical Therapy Association (APTA), the American Institute for Ultrasound in Medicine (AIUM), and Inteleos (the largest organization for practitioner credentialing with US) have announced a formal 3-way alliance toward educating physical therapists in US and facilitating their qualification for the Registered for Musculoskeletal Sonography (RMSK) credential. This is a remarkable development with these external entities of outstanding professional stature recognizing physical therapists as expert users of US, worthy of the efforts of their associations. The common goal of these organizations is ultimately to have many more physical therapists as expert users of US in care of patients with MSK disorders.

In early 2019, Jackie Whittaker and colleagues published an excellent manuscript descriptive of physical therapists' use of ultrasound: Whittaker JL, Ellis R, Hodges PW, et al. Imaging with Ultrasound in Physical Therapy: What is the PT's Scope of Practice? A Competency-based Educational Model and Training Recommendations in the *British Journal of Sports Medicine* 2019;53:1447-1453. They described 4 domains of use within physical therapist practice for US: Research, Rehabilitative, Interventional, and Diagnostic. For the Research category of US, they specifically cite using US for measurements, exploration of muscle and soft tissue structure and function, and developing and evaluating screening tools and interventions. Interventional US is that in which imaging is used to guide percutaneous procedures such as dry needling. Rehabilitative US is more familiar to many in the United States with expanded use in recent years for evaluating muscle and soft tissue structure and function, including biofeedback to enhance muscle performance. Less familiar and growing rapidly is Diagnostic US. In this domain, US is used to augment the clinical examination to reveal particular structures of interest and perhaps even visualize dynamic testing in the clinical examination.

In an effort to aide others in understanding the utility of diagnostic US, 4 physical therapists, all with the RMSK credential, were asked about their experiences with US imaging as examples of the value of US in clinical practice as well as their experiences in earning the RMSK. In some of these examples, practitioner use of US bridges across more than one domain of use.

Daniel Staats, DPT, OCS, MTC, Cert. SMT, Cert DN, RMSK, of Staats Physical Therapy in Brick Township, New Jersey offers this in reference to use of US and earning his RMSK: "Ever since obtaining the RMSK certification, I feel my evaluations are more thorough and complete. The RMSK credential offers the opportunity to have confidence in eliminating uncertainty when conducting evaluations involving the health of soft tissue. When faced with the question of determining either a tendon tear vs. tendinosis vs. bursitis, I am able to decipher with greater confidence due to the aid of the US. With having this information available to me, I feel as though I am able to prescribe treatment interventions to my patients with greater specificity. By knowing the stage of healing the tissue is in, I can then advance patient protocols with greater confidence of effectiveness. As a clinical case example, a patient may present with impingement signs and pain with external rotation. The US images, however, demonstrate a homogeneous, hyperechoic supraspinatus tendon of normal thickness (<6mm). Therefore, I would be more inclined to advance this patient with less hesitation. On the flip side, a patient may present with 4+/5 strength throughout, good active range of motion, and no pain with special testing. The US images, however, demonstrate a full thickness tear of the supraspinatus. In this scenario, I would be more careful with advancing this patient's protocol due to the findings provided by US imaging. US can provide the clinician with an accurate vital assessment of the integrity of the soft tissue fibers."

Staats continues "Objective measurements are an essential component to the practice of physical therapy. US imaging has the ability to provide numerous objective measurements that aid in classifying dysfunction and assist in measuring progress. Through the measurements of tendon girth, nerve girth, joint spacing, bursa size, along with many others, we are able to more confidently identify nerve dysfunction, tendon dysfunction, and even joint pathology. US imaging also has the ability to demonstrate real objective progress."

"In 2018, I was evaluating a female, age 47, with calcific tendinosis of the supraspinatus using US imaging. I found a large calcific deposit measuring 14mm2. The patient presented with typical impingement-like symptoms. I forwarded the evaluation with the images to her referring orthopedist. The Orthopedist suggested arthroscopic debridement to remove the deposit. The patient sought to avoid surgery and elected to first try conservative care through physical therapy. After two months of physical therapy, the patient's function was successfully restored and pain was a 0/10. At discharge, US imaging was performed and to my pleasant surprise the calcific deposit had actually shrunk by 50% to 7mm. I could see the confidence in my patient when she saw the before and after images. This is one of many examples how US imaging influences my practice as a PT."

Nancy Talbott, PT, PhD, Professor at the University of Cincinnati provides her perspective in use of US as a faculty member at an educational program. "As a full-time faculty member, the addition of credentialing in musculoskeletal US has been of significant benefit to me in the research area. The potential to directly visualize structures in real time using a safe, relatively inexpensive and simple research technique led me to US imaging. Over time we have investigated scapular muscle activation patterns in individuals with and without shoulder impairments, have published reliability methodologies for measuring dynamic muscle changes and intraarticular movements of the shoulder, and have researched translational movements of the fingers and shoulder during manual therapy. We have compared special tests, looked at the effects of positioning on muscle activation and have reported on the use of US biofeedback on scapular muscle thickness. We continue to investigate the reliability and validity of examination techniques and to determine effects of common manual techniques."

"While I initially used US almost exclusively for research, we now integrate additional US learning activities into DPT classes. Historically, the US examination emphasizing joint pathology has been part of the curriculum but over time the use of US in the classroom has been expanded. US is demonstrated during anatomy lectures, when palpations of bony landmarks are mastered and as examination techniques such as shoulder special tests are performed. It is also presented as a potential form of biofeedback for use with patients who are challenged with abnormal activation patterns. We have found that one of the most effective uses of US as a teaching tool has occurred during labs in which students are learning to assess joint play and to perform various grades of mobilization. Visualization of the movement while changing positioning and force provides very effective feedback for students and seems to serve as a connection between what they are feeling and what they are doing."

"As a full-time faculty member, qualifying for the credentialing exam did take time. There were no sonographers in my location that specialized in US imaging although a few physicians were beginning to utilize US to guide injections. I found AIUM to be an excellent resource. Attending their conferences, listening to information at their community meetings and accessing their resources was an ideal starting point. Hands-on imaging courses are more difficult to find than some other types of continuing education and attending those that are available is always a priority for me. Completing all of the scans needed for the certification may also have taken me more time than is traditional as there is no faculty practice at my institution. By approaching an orthopedic clinic interested in US imaging, I was able to complete the scans needed."

Greg Fritz, PT, DPT, RMSK, a very early adopter of US in PT practice and owner of clinics near the Seattle area, has a specialized interest in US: "Prior to the RMSK credential being available, I had already purchased every textbook and video that contained MSK point of care US education and had attended the leading MSK US venues of training. I was also provided a hand-me-down US unit to "play" with. So, long before there was even a way of demonstrating competency in MSK US, I was looking for a way to identify how well I compared with the standard of practice in imaging. In 2012, when the RMSK was first offered, I could easily document several hundred exams that I had performed and documented the findings in my clinical notes. At that time, we had to also document 30 hours of continuing education in MSK training."

"Because I am partial to the way I obtained my certification, I strongly prefer the candidate to have been motivated by personal passion in learning. Having said that, I recommend borrowing a scanner from an imaging colleague or buying a used unit through an on-line merchant and bringing home a bottle of gel along with an excellent anatomy application on a personal tablet or standby anatomy text from school and "goop up" your family and friends for some sloppy good time of learning. I still remember the shock I had when I imaged a growth plate on my son's fibula and freaked out for a short bit wondering how this kid could jump and run with his glaring fracture! Practice and more practice are what separate the passionate from the 'want-to-do-that-too' mind-set clinicians."

On how earning his RMSK impacted my clinical practice, Greg says "I must first clarify that I practiced with MSK US as an adjunct to my clinical practice for many years prior to the evolution of the RMSK certification. So, I do not think it fair to specifically state that the RMSK impacted my practice at all. However, I cannot deny that in my small-town medical community, where radiologists and orthopedic surgeons were expressing, amongst themselves, frustration of my using this tool, I am certain that with the RMSK certification came a notable reduction in the grounds for their bewilderment."

"If I were to single out what the use of imaging US has improved in my clinical practice, I would have to say that its primary effect has been on my professional confidence and credibility. Showing a frustrated, hurting athlete the healing partial-tear of his rotator cuff, works wonders in obtaining continued participation and compliance with activity restrictions. Confidently putting an acute ankle sprain right back on the court because you have just cleared all the structures that you just witnessed being strained under full bodyweight, is unprecedented."

"As a private practice owner, I would be remiss to not platform the marketing value that MSK US has provided me. There is a clear advantage to having the only clinic in the community that has ability to watch a joint move, verify fracture healing, assure that the hardware is NOT 'out of place' or the repair did not 'pull apart,' or to reassure the patient that they are getting longer, successful pubococcygeus contractions."

On how using MSK US made a difference in his clinical practice, Greg specifically cites a few examples in patient care:

"Knowing that the shoulder weakness and blade pain was NOT from a rotator cuff lesion helped me focus my treatment on the cervical spine and the patient avoided the cost of a shoulder MRI.

"I helped triage an emergency MSK assessment sent from the local occupational medicine clinic of a worker who slipped on the ice and was having quad cramping with knee extension. Radiographs deemed a fracture unlikely. MSKUS found full-thickness vastus tendon group tear with retraction (oddly, the rectus femoris fibers were spared).

"I confidently returned to full weight-bearing a patient with a tibial fracture by serial monitoring of the fracture zone callus responses.

"We supported continued compliance with conservative joint loading in a patient with a bone marrow concentrate stem cell injection with serial imaging of the articular cartilage dimension and seeing it improve and grow. The difference may have been only .2 mm but it made the patient feel their $5000 was worth it.

"I sent a patient being seen for cardiac rehabilitation to the neurosurgeon after the patient asked, "What is this bump on my wrist?" In the past I may have said "Whack it with a book," but this was a neuroma and I saw the superficial radial nerve was profoundly enlarged.

"I watched a patient working on spinal deep core training grow the external oblique to transversus abdominis ratio (RUSI ratio) from 50% to 80%! We use this as a milestone to advance to another phase of rehabilitation."

Mohini Rawat, DPT, MS, CMP, RMSK, ECS, OCS, a New York-based clinician and teacher of US imaging to PTs, recommends to those interested "There are live hands-on courses available in MSK US training. I would recommend not restricting the search to courses for PT only but attend courses which are open to anyone interested in learning MSK US. Some of these courses are taught by MDs and most of the audience are MDs but they are open to anyone interested, including PTs."

She also says "Earning the RMSK brings recognition and demonstrates your competence to peers, patients and also to insurance carriers. Like any other professional credential, it proves that you are a dedicated professional, committed to adhere with the practice standards. It also has meaning to patients to know that there is a body regulating the practice standards."

As for how US use has affected her clinical practice, Mohini states "US has been a game changer for me and how I practice my specialty. I am a clinician as well as an educator. I work in a unique setting where I am mostly involved in diagnostic aspect of the practice using my board certifications, ECS, OCS and RMSK. Adding US testing to my electrophysiological examination and other orthopedic cases has provided me with in-depth understanding of pathophysiology as well as the structural perspective of the problem. It has significantly impacted the management and clinical decision-making."

Mohini further says "I teach musculoskeletal US in continuing education courses and also serve as fellowship director in muscu-

*(Continued on page 118)*