

President's Message

Kirk Peck, PT, PhD, CSCS, CCRT, CERP

CSM 2019 - Washington, DC

Get ready for an explosion of excitement, education, and collegiality at CSM 2019 to be held at the downtown convention center, Washington, DC, January 23-26. The ARSIG is already gearing up for another fun year of programming following the annual "ARSIG Member Meeting." As a friendly reminder, the membership meeting is open to all licensed practitioners and students alike who currently treat or are interested in getting involved in the practice of animal rehabilitation and wellness.

The topic for the two-hour ARSIG programming is entitled, *Manual Therapy for Equine and Canine Clients: Different Species, Same Concepts!* The idea is to demonstrate through use of video and narration from a panel of experts the similarities and differences encountered when performing manual therapy techniques on horses and dogs in comparison to the human counterpart. Of note, the original title I wanted to use for the programming was, "What... You Can Really Do That to a Horse and a Dog? Manual Therapy Interventions to Restore Functional Movement in the Equine and Canine Client," but unfortunately the ScholarOne submission site has restrictions on the number of characters authors can use for program titles. Personally I thought the original title was more indicative of content the program we will actually cover so now you at least have a taste of what the future will bring if you can join the gathering at CSM.

APTA House of Delegates: RC 26-18

During the 2018 APTA House of Delegates (HOD) held in Orlando, Florida, RC 26-18 was moved for debate, and ultimately passed with a unanimous vote. This particular RC is important for the practice of animal rehabilitation in that it provides a much needed update in reference to two prior APTA position statements. RC 26-18 can now be used for political advocacy and educational purposes, especially when addressing questions about physical therapists establishing working relationships to enhance animal practice. The final language of RC 26-18 reads as follows:

RC 26-18 AMEND: VETERINARIANS: COLLABORATIVE RELATIONSHIPS (HOD P06-03-23-20)

COLLABORATIVE RELATIONSHIPS BETWEEN PHYSICAL THERAPISTS AND VETERINARIANS

"The American Physical Therapy Association supports the collaborative relationships of physical therapists and veterinarians and the evolution of specialized practice by physical therapists who are addressing the rehabilitation needs of animals. Where allowable by state law and regulation, and consistent with a physical therapist's knowledge and skills, physical therapists may establish collaborative, collegial relationships with veterinarians for the purposes of providing professional consultation and expertise in movement impairment, fitness, and conditioning for animals."

Implicit Value of Research & Expertise

Not long ago I was conversing with a physician who specializes

in interventional radiology, and who now works in obstetrics and gynecology. I informed my colleague that I happen to work with two physical therapy women's health experts at my institution. In response the physician immediately inquired, "Are these faculty of yours published? You can only claim expertise if their names are found in the literature?" His question immediately intrigued my interest in something often left unspoken...the perception of expertise in the medical professions is largely hinged on the volume and quality scientific discovery regardless of discipline. It is never enough to just claim you are an expert in a medical discipline; you must possess some level of validation that the expertise is warranted. A brief lesson from a significant landmark event in medical history may best illustrate my point.

In 1543 one of the greatest medical books in history was published, "De humani corporis fabrica libri septem," by Andreas Vesalius. The title itself is Latin for, "On the fabric of the human body in seven books." It was, and still is, a literal masterpiece on many levels. Vesalius, for the first time in history, created an inaugural publication on anatomy based on actual human dissection. Prior to his teachings at the University of Padua, Italy, the "Bible" of anatomy as taught for over 1400 years was based largely from animal dissections as performed by Claudius Galen (129-210 AD), from Pergamon. Although Vesalius would later be accused of dissecting a human body thought to still be alive, and subsequently sent to the Holy Land as part of repentance by the Catholic Church, his publication was so impactful that it rendered him an everlasting title in history as, "The Father of Anatomy." But, as they often say, the story does not end there.

Had a different and now famous individual from the Renaissance period taken the time to locate a printing press for the pleasure of disseminating his own miraculous drawings on the human body based on actual dissections, the Father of Anatomy would not bear the name Vesalius, but rather medical historians would have branded the name Leonardo Da Vinci. Vesalius was born in 1514 and was only 5 years old when Da Vinci died in 1519, but for unknown reasons, Leonardo never published his now famous artwork on the human form. Instead of enlightening society with some of the most accurate renditions of the human body ever created on canvas, Da Vinci's art lied dormant for over 200 years prior to bearing witness to the public eye.

To put things in context for the present day, much like Vesalius did in the 16th century, the profession of physical therapy must actively strive to create and disseminate discoverable knowledge in the science of animal rehabilitation if physical therapists are to truly earn a reputation as experts in the field. Yes, the profession certainly has its share of highly competent practitioners who advance clinical practice on a daily basis, but without the dissemination of research to substantiate interventions and outcomes, the profession will flounder, and others who are willing to labor in the work of scholarship will take their rightful place in history.

Contributory Acknowledgment

In this edition of *OPTP*, Amy Rogato, PT, DPT, CCRT, has presented a fantastic plan of care for an Italian Greyhound diagnosed with an unusual case of aortic thromboembolism. The

article provides in-depth perspectives on how to progress a long-term plan of physical rehabilitation with successful outcomes.

“What!! ... Of course I’m big enough to basket dive for my own toys”



“Luna” The Fearless Chorkie
Photo Courtesy of Kirk Peck

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International Vet Rehab Symposium

Stevan Allen, PT, CCRT
Vice President ARSIG

The ARSIG was a major sponsor for the 10th International Association of Veterinary Rehabilitation and Physical Therapy (IAVRPT), held in Knoxville, Tennessee from July 30-August 3, 2018. Over 200 physical therapist, veterinarians, and veterinary technicians attended representing over 20 different countries including, Japan, England, South Africa, Italy, Romania, Brazil, Norway, Sweden, Croatia, and the United States. The IAVRPT follows an Olympic format, meeting in the United States every 4 years, and staggers every 2 years outside of the United States. The 4 previous meetings were in Vienna; Corvallis, Oregon; Sweden; and most recently, Knoxville, TN. The symposium offered a great opportunity to share rehabilitation knowledge with physical therapists and veterinarians from around the world.

There were two educational tracks, one for Canine and one for Equine. Some of the programming included:

Canine Track:

- Dry needling and trigger points
- Kinesiotaping
- How to train the neuro-musculoskeletal system for proprioception; motor control; and muscle, skeletal, and joint strength
- Core conditioning of the canine athlete
- Acupuncture for the sports medicine and rehabilitation patient

Equine Track:

- Therapeutic exercises – how to design the best exercise protocol – short and long term, preventive training
- Horse & rider interaction and its effect on sport performance
- Adaptation of cardiovascular tissue to different training regimens
- Poor performance due to metabolic conditions
- Training the neuromuscular system for strength and proprioception – from juvenile to aged equine athletes

Keynote speakers included:

Kevin Wilk, PT – Rehabilitation of the elite athlete (human) and how we can use those concepts in the canine/equine athlete.

Barry Switzer – two-time coach of the NCAA football champions with Oklahoma University. Coach of the Super Bowl football champions, Dallas Cowboys. Coach Switzer discussed forming the elite athletic team. In addition, Coach Switzer has established a state of the art training facility for canine search and rescue teams—the non-profit GROUND ZERO in Oklahoma.

The 11th IAVRPT meeting will be hosted in either London or Cape Town, South Africa in two years.



Lin McGonagle on left (Past ARSIG President) posing with a Physical Therapist from England at the Academy of Orthopaedic Physical Therapy booth.

Therapeutic Treatment for a Thromboembolism—“Riley”

Amy Rogato, PT, DPT, CCRT
Tampa Bay Animal Hospitals

Riley is a 4-year-old Italian Greyhound who was diagnosed through abdominal ultrasound with aortic thromboembolism approximately 2 cm in length just proximal to the trifurcation that resulted in acute non-ambulatory paraparesis. Previous medical history includes inflammatory bowel disease and immune mediated hemolytic anemia. At initial presentation to veterinary emergency services on 1/27/18, Riley had questionable motor activity in the hind limbs, no appreciable pain on spinal palpation, and his bilateral hind limbs were palpably cold with absent pulses. He was medically managed with blood thinners.

Riley presented for initial rehabilitation consult on 2/1/18 with the following findings:

Body Condition: anorexia with Body Condition Score of 3/9.

Gait: unable to ambulate, paraparesis of bilateral hind limbs.

Functional transitions: sternal to sit: required moderate assistance. Sit-to-stand: unable, required dependent assist. Sitting balance: poor, required moderate assist to maintain sitting position with dependent assist to position hind limbs in square sitting.

Passive Range of Motion: bilateral hind limbs flaccid, range of motion (ROM) normal for all joints, digits of right hind limb were

hard and fixed in a neutral position due to metabolite build-up from poor perfusion.

Palpation: no appreciable tenderness or pain to palpation of spine, front or hind limbs.

Neuro: unable to elicit flexor withdrawal of bilateral hind limbs, conscious proprioception absent bilateral hind limbs, unable to elicit patellar tendon reflexes bilateral hind limbs. Demonstrated trace and inconsistent hip flexion left>right when attempting to reposition himself. Deep pain difficult to assess, however appeared present left>right hind limb.

Other: Right hind limb cool to the touch and swollen compared to left hind limb.

Treatment

After discussion with the rDVM and family of the benefits and potential risks of therapeutic laser use, the rDVM and family agreed to therapeutic laser treatments. The first treatment used 3.98J/cm² directed at abdominal aorta bifurcation from both right and left sides, followed by 3.98J/cm² to bilateral: lumbar spine, coxofemoral joint, and lateral and medial thigh (in attempt to decrease inflammation and improve blood flow into distal limbs). Effleurage was performed to the right hind limb to decrease edema. Petrissage was performed to the right hind limb toes and left hind limb. Bicycling was performed to bilateral pelvic limbs x15 repetitions. Hip extension passive ROM with 5-second hold, was performed for 10 repetitions. Grade 1-2 joint compressions were applied to the tarsus and stifle bilaterally for increasing proprioceptive input. Neurodevelopmental sequencing sidelying to sternal to sitting with moderate assist for balance and dependent assist for placement of hind limbs. Assisted standing with placement of hind limbs in standing position and “drag” of paw pads along the ground was used to simulate walking and for proprioceptive input for 5 repetitions each. Neuromuscular electrical nerve stimulation (NMES) was attempted to elicit muscle contraction of bicep femoris bilaterally, however a contraction was not elicited.

Assessment

Riley is a 4-year-old NM Italian Greyhound who presents approximately 1 week status post diagnosis of saddle thrombus with paraparesis and an inability to ambulate. He is on close medical watch and medication therapy at this time. Riley demonstrates inconsistent and weak active hip flexion when attempting to perform transitions, and is flaccid in the hind limbs. According to rDVM, due to rigidity of toes in the right hind limb, it is likely that he will require amputation in the future because of poor perfusion. Riley’s prognosis is guarded at this time due to his medical condition. The plan is to see the patient 2 times per week and proceed with a neurologic based treatment to improve function of hind limbs.

Goals

1. Within 2 to 4 weeks, clients will demonstrate independence in Riley’s home exercise program (HEP).
2. Riley will demonstrate an ability to independently attain and maintain a sitting position in order to eat and drink.

Home Care

Clients were instructed to provide Riley with clean, dry bedding at all times to limit urine/fecal scald and to change Riley’s position every 2 to 4 hours to decrease risk of bed sores. They were

also instructed on massage of hind limbs and low back for 5 to 10 minutes per day, bicycling of the hind limbs 15 repetitions 3 to 4 times per day, hip extension stretch with 5 to 10 second hold for a total of 1 minute 3 to 4 times per day.

Riley has been seen 2 times per week since initial rehabilitation evaluation. During the month of February, Riley began to ambulate by using front limbs and lifting his pelvic limbs off of the floor with abdominals, latissimus, hip flexors, and epaxials. Unfortunately, Riley’s right hind leg began to show signs of tissue decay, requiring coxofemoral disarticulation on 2/13/18. This exacerbated the inflexibility in the left hind limb. Riley was measured for a Walkin’ Wheels cart to improve functional independence. Through transitional interventions, Riley demonstrated an ability to perform sternal to sit independently and was able to support himself in sitting without assist. By the end of February, Riley was showing inconsistent signs of active hip extension, weak supination when cranial tibial muscle was struck with reflex hammer, and weak tarsus extension.

Treatment Interventions

Continued therapeutic laser as previously described to decrease inflammation and improve blood flow into bilateral hind limbs. After amputation surgery, therapeutic laser was used on right hind for wound healing and pain control purposes. Focus placed on improving hip extension passive ROM through hot pack, soft tissue mobilization, massage, and HEP. Neurodevelopmental sequencing sidelying to sternal to sitting, dynamic sitting balance on unstable surface (Dyna-Disc™) with and without external perturbations to the surface. The therapist trialed repeated stimulation of reflex loop of sciatic nerve, patellar tendon, and Achilles tendon of left hind limb with the reflex hammer 10 repetitions to provide neural input to assist with active muscle function recovery. Therapeutic laser changed to the following towards the end of February: chronic inflammation setting 3.99 J/cm² along sciatic nerve distribution into left hind to help facilitate neural function. Neurologic stimulation/activation techniques applied when standing in cart including quick stretch of antigravity muscles, flexor withdrawal, axial compression of hind limb, and paw “drags” at appropriate phase of gait cycle (Figure 1).

During March, Riley demonstrated excellent progress in the ability to use his cart independently including advancing left hind, placing paw, and using active hip and tarsus extension to propel his cart. His conscious proprioceptive reflex in his thoracic limbs



Figure 1. Supported standing in cart with quick stretch to dorsiflexors to stimulate foot placement.

and left pelvic limb were delayed but intact. Flexibility limitation of the left hind negatively impacted his success in the cart due to decreased ability to reach the floor. By the end of March, Riley was able to ambulate for short distances of 4 to 6 feet without his cart; however, he would consistently knuckle on left hind. As his activity level and motivation for ambulation increased, he demonstrated signs of decreased excursion of superficial digital flexor and deep digital flexor which exacerbated knuckling.

Treatment Interventions for March

Continued therapeutic laser use was administered to address chronic inflammation. The modality setting was 3.99J/cm² and applied along sciatic nerve distribution into the left hind to help facilitate neural function. Also used therapeutic laser on muscle contracture setting applied to hamstrings, superficial and deep digital flexors, and gastroc muscle bellies, 3.99J/cm² to help improve muscle flexibility. A continued focus was on improving hip extension passive ROM and muscle flexibility through applying a hot pack, using soft tissue mobilization, massage, and administering a HEP. Neurodevelopmental sequencing for sitting to standing with muscular facilitation tapping of gluteals was also used. Continued repeated stimulation of reflex loop of sciatic nerve, patellar tendon, and Achilles tendon of left hind limb with reflex hammer was conducted to provide neural input to assist with active muscle function recovery. Neurologic stimulation/activation techniques applied when standing in cart including a quick stretch of antigravity muscles, flexor withdrawal, axial compression of hind limb, and paw “drags” at appropriate phase of gait cycle. Initiated walking in wheelchair for short distance (5-8ft) with manual placement of foot to avoid knuckling as necessary. Initiated NMES to left gluteals 1:3 on/off ratio x5min at 40Hz with good tetanic contraction. Initiated front paws on unstable surface to help elicit protective extension reaction of left hind and resulted in mild success. Quick dropping of supported rear end also was used to facilitate protective extension of left hind with mild success.

Riley was independent with ambulation without a cart for household distances for the month of April. He demonstrated consistent hip and tarsus extension in standing and walking to support himself. He also demonstrated improved left hind hip extension ROM without pain, improved sartorius/quadriceps flexibility without pain which improved ability to ambulate. Hamstring flexibility and SDF, DDF excursion remained limited, which continued to impact knuckling. A toe-up device from OrthoPets was recommended to improve independence during ambulation and protect dorsal foot. The toe up device greatly improved having success with ambulation for household distances and improved success with participation in exercises to increase left hind strength.

Treatment for April

Continued therapeutic laser, massage, heat therapy, and stretching to left hind muscles. Continued front paws on unstable surface with external perturbations and progressed to front feet up on unstable surface plus back foot on unstable surface with external perturbations. Elevated sit-to-stands progressed to floor sit-to-stand. Used NMES on left gluteals progressed to 1:2 on/off ratio 6 minutes at 40Hz with good tetanic contraction. Utilized transcutaneous electrical nerve stimulation x10 minutes on cranial tibial musculature for neurologic input. Side stepping was added and done in both directions that Riley was successful at for 4 steps in each direction progressing to 2 sets and did not knuckle for side

stepping; however, will knuckle for forward ambulation. Added brief 1 to 3 second front paw lifts to improve standing balance and strength of left hind. Toe up device fitted, and clients educated on wear time of short potty walks only (2-4 mins) then progress by 3 to 5 minutes every other day, pending no skin irritation. Advanced exercises with toe up device to include side stepping for increased distance, backing up 3x5 steps, sit-to-stand from ground surface x5 repetitions, and low 1" cavaletti pole stepping x4 repetitions. See Figures 2 and 3.



Figure 2. Front feet up on unstable surface with cookie stretches to improve hind limb strength and balance.

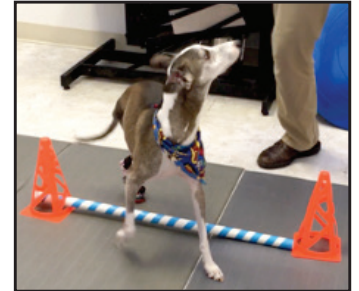


Figure 3. Cavaletti pole stepping to improve proprioception foot clearance, foot placement, and coordination.

Riley continues to be seen for rehabilitation services 2 times per week. It is unclear if CPs of left hind will return, however we are cautiously optimistic due to his progress thus far. Riley is currently independent in all functional mobility including ambulation and is at a decreased risk for foot trauma with the use of the toe-up device.

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— Sunny Rubin, MSPT, CCRT, Seattle, Washington

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IMAGING SIG

(Continued from page 565)

23, Scott Epsley, PT, Grad Cert. Sports Physio, SCS, RMSK, presented a webinar entitled, *Ultrasound-Guided Dry Needling*. This session remains available at: <https://youtu.be/p9xMvosQRfU>. Alternately, you can simply go to YouTube, search on AIUM and enter a key word or the presenter's name to locate the webinar. These sessions are extremely informative and free. You will not find better continuing education at zero cost than these sessions.

One more is scheduled in 2018 with Chuck Thigpen presenting on ultrasound assisted examination of the shoulder. Stay tuned for more details. Announcement of webinar details will occur through the SIG e-mail membership list and through the SIG's social media.

Elections

By the time this newsletter appears, the Academy of Orthopaedic Physical Therapy will be nearing its annual elections in the month of November. The Imaging SIG will have voting for two offices: President and Nominating Committee member. Ballots will be available in November.

Each position is for 3 years. Members of the Nominating Committee rotate to become the committee chairperson in the third year of the term.

RESIDENCY/FELLOWSHIP SIG

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Aggregate Residency/Fellowship Program and Applicant Data

The APTA published the 2016 and 2017 Annual Reports related to aggregate residency/fellowship program and applicant data. All annual reports (2015 through 2017) can be found on the [Residency/Fellowship Education HUB Community](#).

To evaluate these, the ORFSIG has established a work group led by Peter McMenamin, Tom Denninger, Kevin Farrell, and Joe Donnelly to evaluate low resident application volumes/ways for programs to know of potential openings in other programs to share with residents not accepted in the future.

Quality Standards

As many of you already know, programs that held accreditation, candidacy status, or were actively undergoing a candidacy review on or before December 31, 2017, must come into full compliance with the new standards by January 1, 2020.

In June, ABPTRFE published the new [Accreditation Processes and Procedures Manual](#) (www.abptrfe.org/uploadedFiles/ABPTRFEorg/For_Programs/Apply/ABPTRFEProcessesAndProceduresVersion10.0.pdf) and its related [Crosswalk document](#). To assist our members in understanding some of the changes, Kevin Farrell, Tina Hertlein, Brian Eckenrode, Frank Hofer, Molly Malloy, and Kirk Bentzen have elected to assist in the review and education regarding the new Quality Standards and Processes & Procedures. There will be more to come on this at upcoming meetings.

Standardized Application Date/Sharing Applicants Work Group

Stephan Kareha, Misha Bradford, Aaron Keil, and Eric Magrum are leading a group developing a survey to evaluate if there is a group of programs interested in a standardized offer date for residents.

OPTP Quarterly Submissions

ACCEPTING case reports, resident/fellowship research, etc. to be highlighted in future issues of *Orthopaedic Physical Therapy Practice*. Take this opportunity to highlight participants in your program!