

**PRESIDENT'S MESSAGE**

*Francisco Maia, PT, DPT, CCRT*

This is our last quarterly newsletter issue before CSM 2023, and I very much look forward to attending it in person once again! One of the things I miss the most is our ability to network and connect with physical therapists and students interested in the field of animal physical therapy during those events, and this year we are planning something very special. I honestly do not have all the details as I write this letter a few months before CSM, but please look for any announcements we will be sending by email with more information about our in-person Meet & Greet session at CSM where Jenny Moe, our Vice President, and I will host an event to network and talk animal physical therapy with any attendee interested in learning more about this field.

Given that CSM 2023 will take place in San Diego, I also wanted to take the opportunity to bring awareness once again to the legislative “battle” we have faced in California for over a decade for physical therapists to be able to work with animals. Karen Atlas wrote a very succinct and detailed article explaining more about that in our April 2022 newsletter, and I highly recommend reading that article if you haven't yet. Karen's work in California to help physical therapists' legal ability to work with animals has been relentless and unwavering, but she does need our help going into 2023. Folks often ask me how they can help with legislative changes for animal physical therapy, and this is exactly how every single one of you can have a tremendous impact on our fight! As you can imagine it costs money to fight legislative battles, quite a bit of money in fact, and although our SIG has worked with Karen to help secure as many funds as we can for her coalition, we could use your help! Please follow the link below to a GoFundMe page and donate and share as much and as many times as you can. No amount is small enough as every little bit helps. Additionally, sharing it with your friends on social media can help spread the word even more!

<https://gofund.me/2330cdaa>

*Thank you,  
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**PHYSICAL REHABILITATION FOR SEVERE BILATERAL FLEXOR TENDON LAXITY AND AVULSION FRACTURES IN THE CARPAL JOINTS IN A NEWBORN MINIATURE BOVINE**

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Flexor tendon laxity in ruminant farm animals is a fairly common occurrence. The cause of this is either due to a lack of selenium (in which case a shot of BO-SE® is the cure), or the way the animal is positioned in utero. In Mooney's case, she was tested for

selenium deficiency and was not deficient, therefore, it was the result of how she was positioned in utero.

History: Mooney is a miniature zebu cow who was born on March 9, 2022. I acquired Mooney from a breeder on March 18th when she was 9 days old and unable to stand on her own for longer than a second and unable to walk. Upon Mooney's initial examination, she had carpal hyperextension angles of +75° on the right carpal and +78° on the left carpal. She could not support her body weight at this time, and after 2 veterinary consultations both recommended euthanasia due to the severity of her laxity in combination with the bilateral avulsion fractures. The avulsion fractures were not severe, but I knew if she continued to attempt to weight bear without external support they would increase in severity.



First attempt to cast Mooney was done using air splints with vet wrap and duct tape using a cross body method to attempt to keep the splints in place and to add additional support. A picture of this method is shown below.

Although this normalized her gait pattern and allowed her to ambulate without assistance, the air splints were not strong enough to withhold the pressure her joints applied to the material and in just 2 days she had deformed the material, which caused her carpal joints to stay in hyperextension. Therefore 2 days later, with the help of Elizabeth Payumo OTR/L, CHT, we constructed thermoplastic splints that were custom molded to Mooney's legs. We opted to mold the splints into 10° of carpal flexion instead of a closed pack position of 0° flexion/extension, so that she could walk with a more normalized gait pattern and strengthen her tendons. This decision was made after observing how she ambulated with a compensatory gait pattern when she was put at 0° knee extension with the air splints. Mooney's custom thermoplastic splints are shown below:

A few days after wearing the thermoplastic splints, it was noticed that





Mooney was getting pressure wounds from the material. She was also starting to bend the thermoplast. I then made the decision to use fiberglass casting to maintain her carpal joints at 10° of knee flexion and used heavy gauze padding as a liner to prevent pressure wounds.

Other therapy techniques were held for the 2 weeks that Mooney was in her fiberglass casts. When the casts were removed 2.5 weeks later, Mooney had only +20° of bilateral carpal extension, which was over a 50° improvement from when she was first evaluated.



*Mooney in her fiberglass casts*

Once the fiberglass casts were removed, Mooney was placed back in the thermoplastic casts that were removed daily for physical therapy sessions. Physical therapy consisted of dry needling to the carpal extensor muscles every other day (due to research showing during EMG testing comparing pre and post needling, the amount of full muscle recruitment post needling was significantly greater than it was pre-needling), weight shifting using a Physio Ball, and therapeutic exercises using clicker training to get Mooney to back up, and touch a target in order to isolate various muscles for improved strengthening.

After 2 more weeks in her thermoplastic splints, Mooney was able to walk without her casts and a few days later she started running on her own. At the time she had +5° of carpal extension on the left and 0° of carpal extension on her right when standing in neutral stance.

Therapy was discontinued at that time as it was thought Mooney would finish rehabbing herself simply by weight bearing and ambulating with proper angulation and without compensation.

Mooney is now 100% recovered and has been since the end of April. She not only has maintained the gains she made, but has improved her angulation to normal and you could never tell that she couldn't walk at the beginning of her life!

In summary, I am thankful for the help of my co-workers in casting Mooney, as well as their input. If I had to do it all again, I would have started Mooney out with serial casting with the fiberglass instead of working with the less restrictive material first. Although the latest research in humans is gravitating away from braces for prolonged periods and even at all, they absolutely still have a time and a place. Not knowing anything about cows, especially



miniature ones, I had no idea how severe Mooney's hyperextension was at initial examination. The only vet protocols I could find on splinting had ones for 20° hyperextension and Mooney's was close to 80°. I believe any newborn ruminant born with more than 50° carpal hyperextension needs to receive custom fiberglass casting for at least a week. Overall, I am very pleased with the outcome considering she had a less than 5% chance of survival given to her by several vets. The real game changer I believe that allowed me to cast Mooney in the best way possible was through the advice of physical therapist, Laurie Edge Hughes, who told me to stop thinking about the fractures and trying to stabilize them, and focus on the tendons first because those were worse. It was for this reason I decided to try casting Mooney in slight carpal flexion, and this I believe was key in her making a full recovery. Current casting protocol for this condition suggests to put them in 0° extension (or neutral) which I believe would have created a compensatory gait pattern for Mooney due to the necessary carpal flexion that needs to occur during ambulation.

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