

EVSA REPORT 2021

Lucy Joyce | University of Nottingham

For my EVSA week I was lucky enough to be placed with Stephen Hill FWFC and his lovely welcoming family in the beautiful Rutland countryside. I arrived with a basic understanding of hoof physiology and the role that farriers play in equine welfare, but I did not anticipate how much valuable knowledge that there would be to take on over the coming week. Stephen and his colleague Sam provided a wealth of information and experience when teaching me the basics of their trade, and throughout the week they vastly improved my understanding of how to manage horse's feet well, while being very patient when even these basics were enough to blow my mind!

On the first day I learned how to assess foot balance both visually and using a T-square, with the long handle running parallel with the flexor tendons and perpendicular T sitting across the heels to assess mediolateral balance and heel height. This was my first time using a T-square to assess balance and I found it very useful for identifying imbalances that I would not have noticed otherwise. We discussed how the only way to properly assess foot balance is to see the horse moving at a walk; by watching the joints of the limb during the flight and stance phases of each stride, the landing and loading of the medial and lateral heels of each foot, the descent of the fetlock during loading, and how the foot moved into breakover. Stephen also taught me to pick up the horse's forelimb at the cannon bone and assess medial and lateral range of movement below the carpus, as in many of the horses we looked at this corresponded to their limb flight and landing at a walk. We moved on to discuss the problems with using foot radiographs to assess foot balance, and Stephen explained the issues with using a 2-D static image to assess a 3-D dynamic structure. I appreciate the uses of foot radiography to assess pathology in individual horses, which can then enable farriers to begin to alter balance and shoeing techniques to manage any pathologies present. However, I now understand the frustrations with radiography as a tool to assess foot balance via joint spacing and alignment of the bony column, when the images can be so easily influenced by weight bearing (as an example, heavily sedating a horse to safely take foot radiographs could result in a base-wide stance which is not representative of how the horse would normally weight bear through the foot), and centering and beam angle inaccuracies can have significant impacts on the appearance of limb straightness.

Throughout my week with Stephen, I picked up a lot of feet and started to learn more about assessing shoeing and good fit. We went through the basics of looking at the centre of articulation, dividing the foot into thirds ($1/3^{\text{rd}}$ of the shoe should be beyond the tip of the frog, and $2/3^{\text{rd}}$ of the shoe should be behind it), and assessing the heel support provided by the shoe. Once Stephen explained to me that nails should always be placed into the white line of the foot where the non-sensitive laminae lie, I began to see how shoes should be shaped for the horse's foot and how to assess this by looking at both the position of the nails and the position of the shoe in relation to individual limb



My attempt at nailing on a shoe

loading of each horse. Stephen's preference was to hot shoe for his clients, and this was to enable him to bend and shape the steel shoes more accurately to fit individual feet more precisely. I noticed that asymmetries between sets of feet seemed to occur more frequently than I had expected, and this led to talking about Stephen's FWCF thesis during which he found that horses with asymmetric feet were more likely to sustain SDFT injuries in the limb with the smaller foot. This highlighted to me the importance of treating feet and limbs as individual structures rather than as a pair and made me realize the importance of assessing foot balance, symmetry, and size in relation to long term soundness during pre-purchase examinations and lameness workups in the veterinary field.

The following day we put the foot balance lessons into practice when Stephen had to reshoe an eventer that had a high lateral heel and was landing laterally first in front. We watched the horse walk both before and after shoeing to see the difference that shoeing to restore mediolateral balance would make; prior to shoeing the horse was landing on the lateral heel first, with the fetlock descending over the medial heel rather than through the centre of the heel bulbs and showing a wobble during the stance phase of each stride on one forelimb. The horse was shod with concave steel shoes with pins to improve traction on hard surfaces and stud holes to provide extra grip on slippery surfaces, and once it had been trimmed and shod, I could see that the feet were now balanced, especially when using a T-square to compare the heel heights. The most satisfying part of seeing this horse was watching it walk after shoeing, because achieving mediolateral balance in the feet resulted in the fetlocks descending smoothly and more symmetrically between the heel bulbs, allowing the horse to move efficiently rather than wasting kinetic energy through the fetlock which would have put more strain on the soft tissues of the distal limb making injury more likely.



Trimming a chronic laminitic hoof, and then rasping it

Just as I was beginning to get my head around the theory, Stephen put my practical skills to the test and put me to work pulling shoes off horses, so that I could start to appreciate the physical effort that has to go into the job as well as having a brain full of biomechanics and hoof physiology!

Thankfully, I was only put to work on kind horses that put up with me struggling to hold feet up and coordinate my hands to knock clenches up at the same time. I particularly struggled with supporting the hindfeet on my legs to take shoes off, so I had to use a foot stand with a support strap for this, but I began to get the hang of using the buffer and hammer more easily with each shoe I pulled and initially used nail pullers to take each nail out individually



before I tried with shoe pullers. Later that day we went to visit a chronic laminitic pony that was overdue a trim and had a textbook hoof conformation with divergent growth rings, long heels, and a slipper shaped dorsal hoof wall. Stephen taught me how to use the foot trimmers to start removing the overgrown heels and bars of this pony's feet to begin to realign the hoof-pastern axis so that the pony could weight bear more comfortably on a balanced foot. After trimming, Stephen used a hoof grinder to remove a lot of the excess toe, which revealed bruising in the horn of the hooves and a laminar wedge of dead tissue confirming pedal bone rotation within the hoof capsule of the pony. I then tried the trimmers out again and



Separated laminae at the toe

rasped the toes to tidy them up, which was hard work but thankfully Stephen took over to finish the job properly. This trimming should improve the pony's comfort over time, especially when done regularly to manage the chronic changes caused by the laminitis.

Towards the end of the week, we visited an endurance Arab with an obvious conformational imbalance that Stephen needed to support through shoeing. The forelimbs had high lateral heels likely due to the horse landing outside first, and lower, collapsed medial heels that were flared. This horse also had laterally rotated knees, which caused axial swing of the limb during flight and resulted in the horse landing outside first, and the fetlock descending over the medial heel. I was able to see the issues with foot balance in this horse and understand how locomotion would be affected, which was a satisfying way to piece together the knowledge I had been picking up throughout the week. Stephen compensated for this horse's conformation by making a shoe that was thinner on the lateral side and thicker on the medial side, and placed packing material under the medial heel of the shoe on the more severely affected hoof to provide more support for the collapsed medial heel. The trimming and shoeing of this horse drastically improved the foot balance, resulting in more energy efficient locomotion and reduced risk of injury, which in this horse's case was important for good performance at endurance events.



Before and after shoeing to correct mediolateral imbalance in an endurance Arab

That afternoon we took a break from farriery because Stephen's flock of sheep were being sheared – I have not yet decided whether struggling to pull shoes from hind feet was more or less fun than chasing 30-odd sheep around on foot, but I can at least say that my week was varied! After this Stephen gave me the opportunity to take my time pulling the shoes from a well-natured hunter, while he went to do some trimming. I felt a bit more efficient at knocking up the clenches and pulling the shoes by this point in the week which was good progress from struggling to hold the feet up safely when I first started. Once Stephen had fitted the shoes to this horse, I then had a go at nailing on, making sure to nail into the white line and keep the angle of the nail correct to follow the angle of the hoof wall. I think that my hammer use requires much improvement still, but the nails did go in surely but slowly and luckily Stephen was happy with where I had placed them.

On my final day, we visited a foal with an angular limb deformity that required corrective shoeing. The foal was around 8 weeks old, so we discussed that it would have been preferable to have more time available between correction and the growth plates closing in the joints. Luckily when we arrived the deformity was less severe than it had looked in photographs, but there was a mild fetlock valgus that needed correcting with an extension shoe. Stephen explained that he preferred to avoid sedation in these cases so that he could see the foal walk up both before and

after fitting the extension to see whether enough improvement had been made. The foal was fine to restrain so Stephen rasped the affected hoof to balance it, and then I helped to apply the SuperFast adhesive to create a medial extension for this foal that would begin to correct the deformity. Once the adhesive 'shoe' had set, Stephen rasped it to create a smooth weight bearing surface, we watched the foal move with the medial extension on and saw a significant improvement in the straightness and symmetry of its movement and weight bearing.

We also visited a big yard with lots of competition horses to shoe, which meant that I had more practice at removing shoes. This really helped to improve my confidence and I was much happier pulling shoes from hind feet by the end of the morning. The fact that it took me so long to get my head around the technique I needed to use to pull shoes made me really appreciate the skill and hard work required by farriers – pulling shoes is just the first step for them! Throughout the week we also discussed the working relationships between vets, farriers, and clients, and I now appreciate how as vets we need to try to ensure good communication between ourselves, farriers, and our shared clients to ensure that the horse has the best possible outcome. I also learned about some common frustrations for farriers such as poor management of horses' feet, the problems in hooves caused by repeated wet to dry transitions, and how long shoeing cycles (over 4-6 weeks) make it very difficult to make consistent improvements to horse's hooves with shoeing. I will take these considerations forwards with me into my future career when assessing horses with foot complaints; especially the relationship between foot balance and the stage that the horse is at in the shoeing cycle. My time with Stephen and Sam taught me the basic farriery skills and knowledge I will need in an equine career and has also equipped me with an awareness of how important it is to work with farriers to discuss cases and achieve the best outcome possible for horses, in order to prioritize welfare which should always be the priority of both professions.



Stephen kindly sent me on my way with hoof knives, shoe pullers, a buffer, and a nylon hammer, so that I can pull shoes and manage common veterinary problems like abscesses