Photographing Your Work As A Farrier: Help Or Hindrance?

Consider perspective when photographing equine feet — and when you evaluate this work later

By Martin Kenny, CJF, APF

With the advancement in smartphone camera quality, farriers are taking more and more photographs of our work. For the most part, documenting our work is a good thing for many reasons. One of the most important of these reasons is for the analysis of the trimmings and shoeings we perform.

However, it seems at times that these photographs may lead us to question what we see — or what other observers say that we should see. In many cases, there may be a good reason for that.

What we see from various points of view, such as typical standing or crouching position, can be very different from what we "should" observe. First, it's not possible to correctly see the angles that concern us as farriers from that perspective. For example, have you ever rested your camera or smartphone on the floor, shot a photo, looked at the results and then, when reexamining the foot, thought, "How'd I miss that?" It is all a matter of perspective. Perspective not only is critical when comparing your work to what you think you see in the moment, but also to how you attempt to compare it on your next visit or even comparing the foot you started with months or years ago to what you're working with today.

By showing my work, I will give you several considerations to make sure your photography benefits your work, rather than hurts it.

The Basics On Where To Begin

Here's the first question to consider. Did you set the limb and foot up exactly the same? **Figures 1a and 1b** are the same horse, on the same day. Should I as the farrier try to compare these two photos? Bias aside, I think this is a nice job for sure, but can you insert any honest data to back it up if the need arises later? The two feet are not loading the same in both photos and not in alignment with each other in either. Also the angle of the camera is different in both. Again, can we truly rely on these photos to provide the input necessary when gathering for future needs?

To begin, we need to be certain that the surface is as level as possible, the foot is clean and use a backdrop to make it easier to focus on what we want to see.

Figure 2 shows the most common view, what we think of as a "lateral view." The angle of the camera is not parallel to the ground. It is not pointed directly perpendicular to the axis of the foot, nor is it pointed at the center of rotation. All these things will alter what we think we see by more than we've considered.

Again, a background is a must. You also will need good lighting, which may require using a flash. **Figure 3** shows the results from poor lighting.

You should eliminate excessive backlighting, which can be overcome with a proper background. This can wash out your results and hide detail. As you can see in **Figure 3**, no amount of additional preparation will overcome the effects of excessive light coming from behind and poor light level directed at your subject.

I find that using a consistent self-marking system is one key to repeatable photos. Also provide a background that will not reflect light from your flash. For proper documentation and archiving of results, you must be able to identify what you are looking at.

I take both lateral and medial views of my work, so I have a block that shows which side I'm looking at without guessing **(Figures 4a-4d)**. By using these keys, I never have to wager on which foot it is (left or right). The quick work that you perform by using this system will save you time later during analysis.


Figure 1a

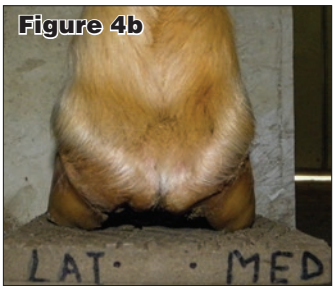

Figure 1b

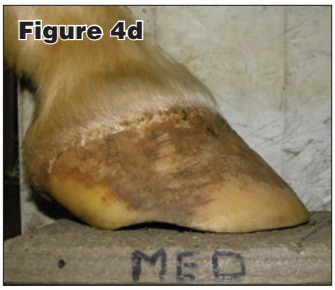

Figure 2

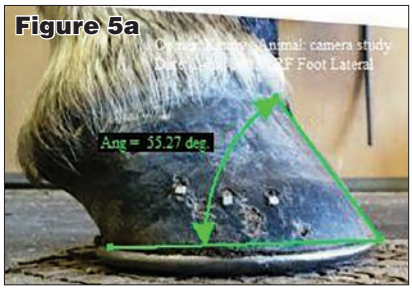

Figure 3

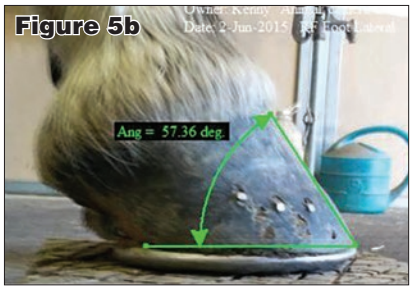
FARRIER TAKEAWAYS

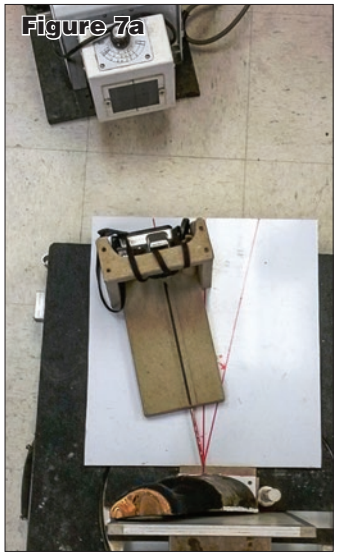
- Even slight changes in the camera angles can distort what we think we see.
- Some keys for getting the best result for photographing a foot is by shooting with proper lighting, a background and level surface.
- Acquire consistent and accurate data from equine foot photography by using a system to repeat the conditions each time.

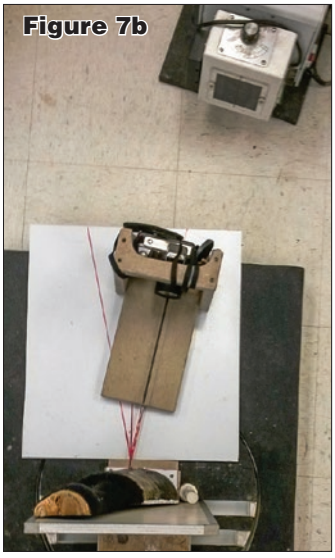












Also, make sure you identify and shoot on a level spot so you can duplicate your shot when you return.

If we understand that observing the same foot at different angles can alter our perspective of that foot, would it seem reasonable to expect the same results from the different angles we take photos? Examine **Figures 5a and 5b** to see the difference in perceived dorsal wall angles? With just a slight adjusting the camera's angle, the angular measurement changed by more than 2 degrees!

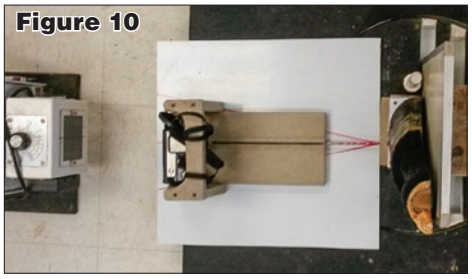
Measuring The Difference

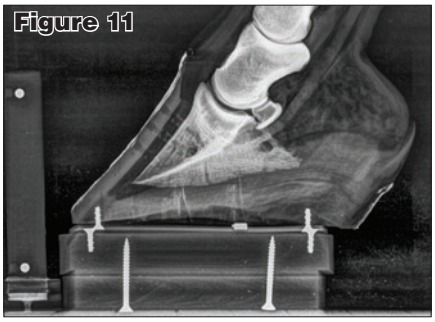
Along with the help of Chesapeake, Va., veterinarian Tookie Myers, I created a study to look at how different angles and combinations of these can affect what we may perceive about horse feet to be true, when in reality may not be so.

We captured photographs and X-rays of a cadaver foot after establishing consistent settings for true level horizontal lateral (90 degrees to center axis, and at center of articulation). At the dorsal position of the subject, we placed a calibration device **(Figure 6)** to allow the Metron Hoof software to properly calibrate linear measurements. We instructed the program that there were 9 cm between the dotted lines on the calibration device, as well as the metal spheres that were inside, that would show up on the X-rays. The Metron program used those calibrations to make calculations to determine linear measurements to collect data of the work. We duplicated this while moving the camera 12 degrees caudal **(Figure 7a)** and 12 degrees cranial **(Figure 7b)** of true lateral.

Next, we duplicated those same views with the camera only, while also adding 12 degrees elevation **(Figure 8)** to the aforementioned variables. Note that the calibration device at the dorsal wall was tilted to accommodate for the elevated angle of camera from the horizontal position to ensure that the resulting data was accurate and not skewed due to non-standardization of the exposure to the calibration device.

Finally, we duplicated all of those variables and shortened the distance from the subject to the camera lens **(Figure 9)**. We also used the same set-up and took X-rays **(Figure 10)** of the true lateral, 90 degrees caudal, and 90 degrees cranial of true lateral (all true level horizontal) using the same distance from subject to the X-ray generator in each view. On this X-ray, you can see





the metal spheres embedded within the calibration device 9 cm apart just like the dotted lines show up in the photographs ahead of dorsal wall **(Figure 11)**.

Examining The Data

After gathering the data, we learned much. First, the results gave a realization of how this can affect professional interpretation. The changes that occurred could shed much light on what seems to be miscommunication between professionals; when the problem can be a matter of perspective. We also were able to see how not using a standardized methodology can easily alter our view of our own work; which we may have previously relied on photography for historical data.

The two angles that are most concentrated on from a farrier perspective would be that of the dorsal wall and the heel **(Table 1)**. To begin, let's look at those five sets of numbers using what many will refer to as a lateral view.

With the camera, we use two different focal lengths (distance from the camera lens to the subject) and two different elevations (one taken horizontal and the other taken with 12 degrees elevation from horizontal). Then finally we took three different "lateral views" using the previously mentioned variables (true lateral, 12 degrees caudal of lateral and 12 degrees cranial of lateral). This provided us with 12 different "lateral" views with the camera of the same subject matter.

Next, we took three "lateral views" with the X-ray equipment. Those would be true lateral, 12 degrees caudal and 12 degrees cranial of lateral. All three views were fully horizontal. We can see that the X-ray view never fully matches any of the true lateral views (blue) of the camera views nor does it fully match any of the caudal or cranial deviations of itself or that of the camera views.

We also can see how moving the camera 12 degrees caudal, cranial or elevating it by 12 degrees, as well as moving the camera closer to the subject can and will have significant effects on the data we are trying to rely on.

These effects occur in both the dorsal wall angle and the heel angle, but appears to be much more significant in the heel

Table 1: Comparing Dorsal Wall Angles

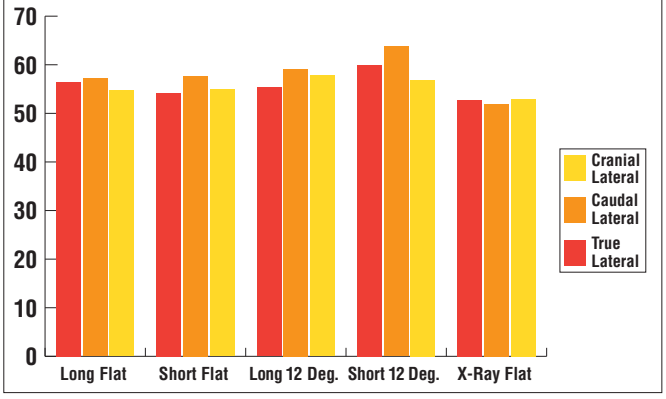
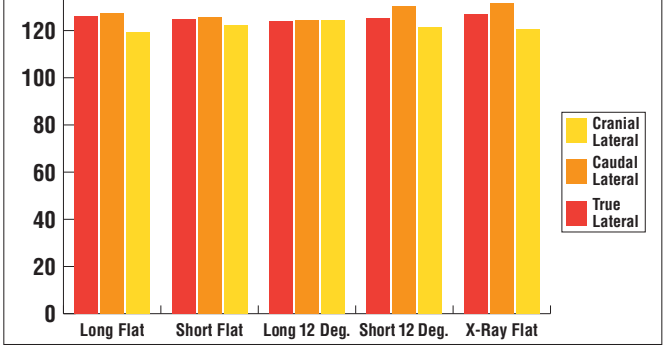


Table 2: Comparing Heel Angles



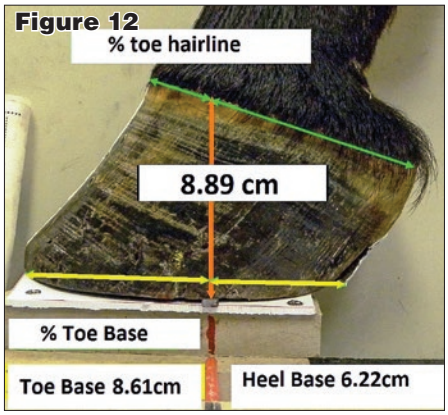


Figure 12

angle measurements **(Table 2)**.

Next, we looked at external markers of the foot with the camera. In order to keep a static standard to compare to, we placed a nail under the center of rotation at lateral wall, which was referenced to for each point of data collection **(Figure 12)**. The vertical line (in this view 8.89 cm) is what we are calling "hoof depth" and is a vertical line from the nail reference. We then looked at how much of the hairline was ahead of the depth reference line and called it "% toe hairline." We then looked at the base of the foot and took lineal distances of "toe base" and "heel base" in relation to center of rotation reference. Finally, we looked at the "% of toe base" ahead of the center of rotation.

Looking at the data in **Tables 3 and 4**, you can see how altering the position of the camera will alter your perception of what is being depicted. Also note that the combinations of the camera angles can provide significant deviations, especially in terms of what is perceived as referring to the center of rotation. This position has become recognized as a major factor in footcare, so these deviations are quite disturbing when you consider how angles change our interpretations.

When looking at actual length of "toe base" **(Table 5)** and "heel base" **(Table 6)** as well as **Table 7** we can see that once again moving the

Table 3: Comparing Depths of Hoof Capsules

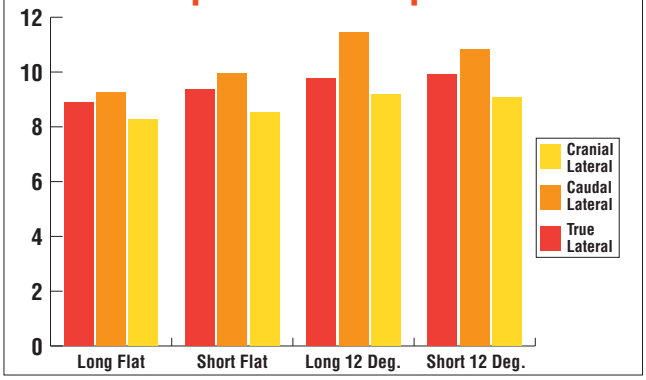
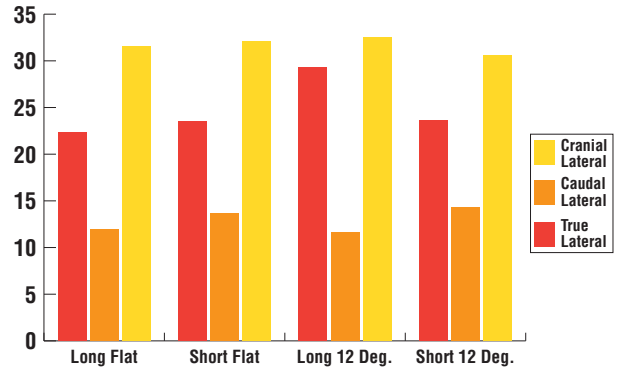
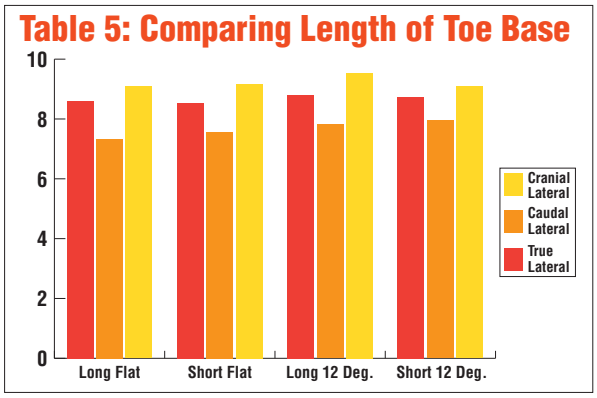
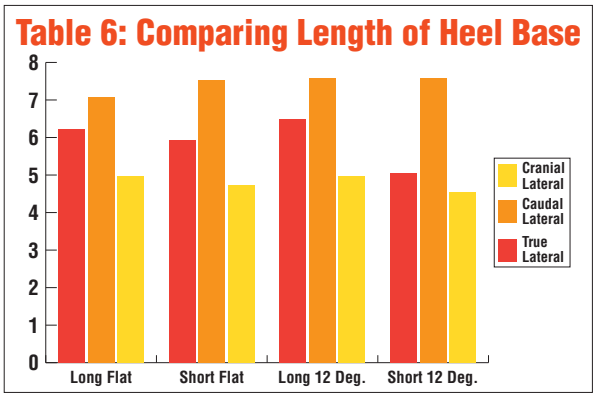
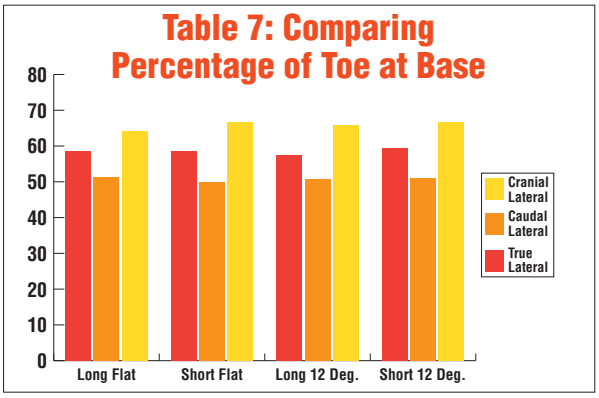


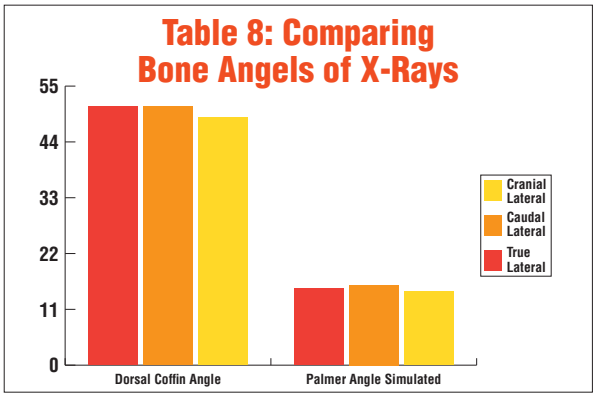
Table 4: Comparing Percentage of Toe at Hairline

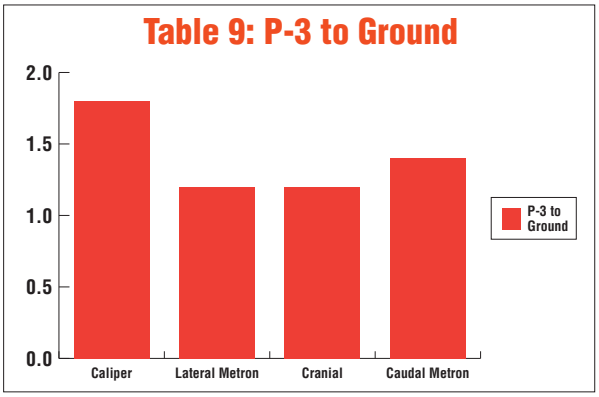


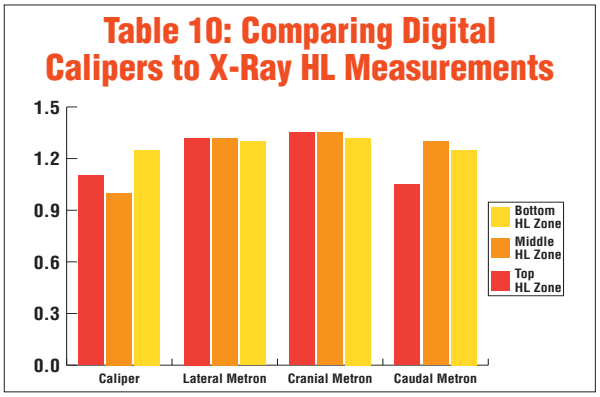












camera plays a significant role in the data we are disseminating. One thing that I have found in many footcare photographs that I view is the prevalence of those that are taken from a more cranial angle than any other angle. When we look at the data in these three charts, we can see that this angle provides us with the worst possible data to rely on for the toe region, which tends to be the area most concerned with for farrier work when working on lameness cases.

For the next area of study, we looked at the comparisons within the X-rays. First, we wanted to look at the "dorsal coffin angle" **(noted with the red line in Figure 13)** and the "simulated palmar angle" (yellow line). We wanted a consistent reference point for each end of the angle created, so we picked the tip of the wing of the coffin bone and the tip of the dorsal wall where it meets the platform it stands upon to provide our "simulated palmar angle."

While we can see in **Table 8** that both of these angles only deviate by approximately 1 to 2 degrees from both the caudal and cranial views when compared to the true lateral view. This can be significant when we are talking the amount of angle adjustments that are normally prescribed to farriers based on the podiatry X-rays taken. When we then compare the deviations within this chart, and factor into the deviations shown earlier in photography, one can understand how confusion often occurs between farrier and veterinarian.

Another number that farriers and veterinarians often focus on is the distance between the coffin bone and the ground. This size of this number can greatly affect the soundness of many horses.

We took a digital caliper and compared the actual linear measurements to that generated via the computer program **(Figure 14)**. We compared the distance from the tip of P3 to the ground surface. The inaccuracies were significant, again, considering the importance of this number **(Table 9)**.

Our final comparison was looking at the horn-lamellar zone **(Figure 15)**. We compared the X-ray generated data to that of the digital caliper and found that there was a noticeable difference there as well **(Table 10)**. Interesting enough, the differences were not parallel in nature even though the lengths were gathered at the exact same significant location of this zone. The area was noted by holes in wall from hardware removed from this cadaver.

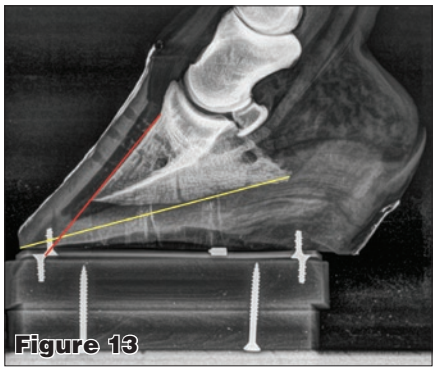


Figure 13

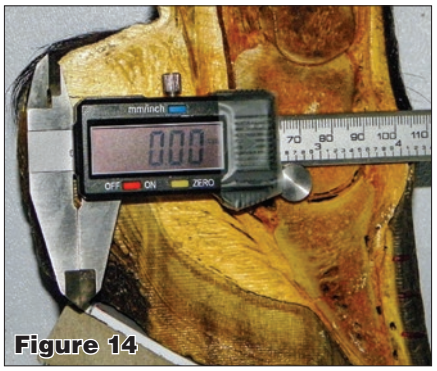


Figure 14

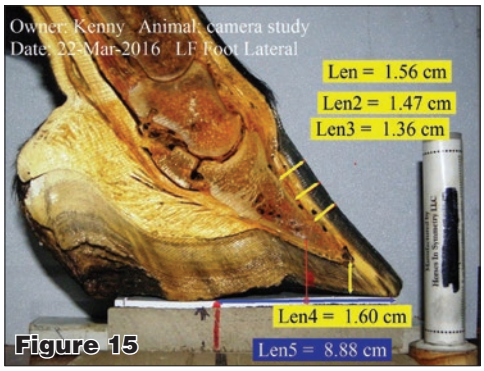


Figure 15

Going Forward

While using cameras and radiology will continue to play a significant role in the care of horses' feet, we must make certain that the data collected can be counted on. To simply "point and shoot" has delivered inaccurate information that we have relied on as practitioners.

I believe that the only way to obtain consistent and accurate data from your photography is by developing a repeatable way to take your photos. One way of doing this is using a camera jig like the one I have made and presented this article.

However, it is imperative that if photos are to be compared to X-rays, then it also is imperative that the vet and farrier take their respective images at the same time and are set up in the same manner. It's also essential that the images be taken on a surface that is level for reliable and repeatable images — and duplicated, no matter where the patient may be standing at the next visit. It's also essential that there is a calibration device used that can be read by both camera and radiology such as this. For disclosure, our business Horses in Symmetry manufactures both a calibration device and portable imaging platform that ensures a level place to take images, radiology or photography.

Over the years, there have been many times when the veterinarian has felt that the farrier has ignored the prescription that was written. However, there have been many times that the farrier feels that what is being asked by the veterinarian is not what is necessary.

Looking at the data from our study, it's easy to see why in many cases that this may occur. Ω

Based in Carthage, N.C., Martin Kenny has been a farrier for over 40 years.