Video Analysis Tips

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Video can be a very useful tool in the training of horses and riders. As the saying goes, "There is often a difference between what we feel, and what is real." Video allows us to bridge this gap and objectively view how the horse is performing. Most top riders rely heavily on video to analyze technique during a competition, making adjustments based on what they see in their video in combination with how their horses felt.

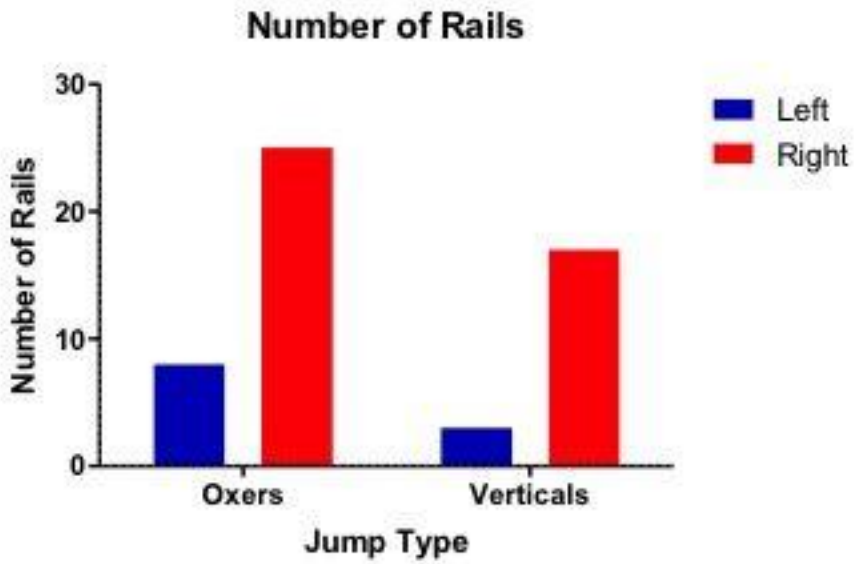
Below, I will discuss some less common (but equally important) applications of video analysis that can be employed to better inform training programs and improve performance results. Although this article is focused on show jumping, these ideas can be applied to all disciplines of riding.

Application 1: Performance Analysis

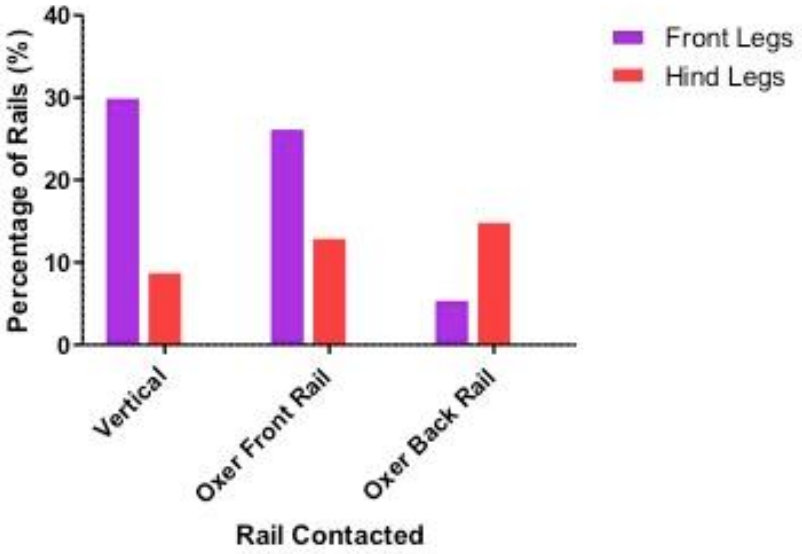
I often speak with riders who, over multiple competitions, have perceived certain weaknesses in their horses while jumping. An example might be a rider who says, "My horse struggles to get across oxers off the right lead when coming around a turn, but he is great off the left lead." Of course, in this situation, the horse that struggles to get across the width of an oxer will have the back rail of the oxer down more often than a typical horse of the same caliber or performance level when turning off the right lead.

Although these anecdotes are insightful, an in-depth analysis of the situation can provide a more complete picture of the strengths and weaknesses of the horse. If every time a horse has a rail, for instance, the rider records information such as: the lead the horse was on (left or right), the jump build (verticle, oxer), the type of approach (long, short), the strides before the jump, etc., we can acquire a very detailed map of how a horse is performing.

Below are two example figures that would provide a rider with valuable data about how their horse performs in competition. The first figure demonstrates the number of rails an FEI horse had at verticals and oxers over a two-year period. As you can see, this horse had more rails at oxers than at verticals, and had more rails off the left lead than the right lead.



The second figure (shown below) presents the percentage of faults that are caused by lowering a vertical, the front rail of an oxer, or the back rail of an oxer. Furthermore, the figure demonstrates if the rail was lowered by the front or hind legs. This horse had a 'typical' pattern, where the bulk of the vertical and oxer front rails were hit with front legs, and the back rail of the oxer was hit more often with the hind legs. Conversely, I have analyzed many horses with different patterns. For example, there are FEI horses that have gone multiple seasons without hitting a rail with their hind end.



Once a rider has detailed information regarding the strengths and weaknesses of her horse, this data can be used to influence competition plans. For example, while walking the course, the rider will choose a plan that puts the horse in the best position to jump clean. If the rider knows the horse is more likely to have a rail down while approaching an oxer off a right turn, for example, that rider may

opt to take a wider turn to better set the horse up (while knowing they will have to make up time somewhere else on course).

Application 2: Movement Analysis

The above method of detailing faults provides useful information about a horse's performance over time, and also allows the rider to track how the horse is progressing (e.g. is the horse knocking fewer rails off the right lead as the season continues?). However, the limitation of looking only at competition results is that it hides a lot of valuable information about the actual skills and technique of the horse and rider.

Competition results tell us what level a team can compete at (i.e. can they jump clean in a 1.40-meter class?), but it tells us nothing about the actual technique of the horse, and if the horse can progress further or if it has already reached full athletic potential. In contrast, by using video to analyze technique, the rider can systematically review the horse's movements to better understand why the horse is achieving these results.

When looking at key movements in a sport (i.e. show jumping), a trained expert can identify why the horse is not clearing certain jumps. Is the positioning of the horse's body relative to the hind legs causing the horse to take off at a suboptimal trajectory? Are the legs extending asymmetrically, thus reducing the peak force output on takeoff?

Of course, there are many other technique errors that can affect a horse's jumping technique as well. As an example of what I consider to be great technique, I have included a photo sequence of Mclain Ward and HH Azur. By analyzing photo sequences such as these, one can quickly identify certain 'key positions' that a horse and rider must obtain during the jumping movement to ensure the musculoskeletal system is in an optimal configuration for jumping. Deviations from these positions reduce the effectiveness of the jumping movement and can increase the risk of injury. Once the rider identifies a suboptimal body position during the jumping movement, it may be possible to use targeted exercises to correct the issue. Although not every horse will have the same technique as HH Azur, a skilled rider can still 'chase' the technique of a horse into the best positions for that horse.

As a final note, analyzing technique is also extremely beneficial when working with therapists and other support staff. Often when analyzing movements in detail, some asymmetry within the horse's body or a reduced range of motion becomes apparent. In this case, the horse may require further examination by a skilled therapist.