Better course inspections: part 1

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Better Course Inspections: Understanding Obstacle Construction

As a course designer, understanding obstacle construction is integral to doing my job and achieving the desired level difficulty; as such I also understand what a complex subject it can be. Hence it is my hope to be able shed some light on the topic in order to help some of our junior and amateur riders get the most out of their course inspection. As course designers, we use the various aspects of obstacle construction to control and refine the difficulty or ease of a course by allowing us to have a certain degree of control over such things as rhythm, pace, stride length, take-off and landing distance as well as, to a certain degree, the quality and shape of the horse's jump. Granted the track along with distances are the largest determining factors in the difficulty of the course, but the various aspects of construction, those being fence type (vertical, oxer, triple bar, wall), degree of fill ('airy' vs 'solid'), colour and obstacle design, have huge influences on the difficulty as well, especially as we reach the higher levels. Indeed there have been many times in the history of our sport where the inherent difficulty of an obstacle has not been accurately assessed and thusly led to disastrous results when used with difficult distance questions. That being said, it is hoped that with increased education of riders and officials, these incidents will become more and more rare in our sport as we move forward. Safety withstanding, a contemplation of the various affects of construction should be as integral a part of your course inspection as walking the distances. For me every 'distance' is made up of multiple factors, including the construction, and a more complete understanding of these factors will lead to a more comprehensive course inspection, which in turn gives the rider every possible advantage walking in the ring.

The first thing to know about any obstacle is its type, those being vertical, oxer, triple bar, wall or open water. They are, of course, of upmost importance because jumping them is the whole point of the sport. However there is more to be considered than just getting from one side to the other. As most of us know, the take-off and landing distances vary depending on which obstacle type is being jumped, but for the sake of review I have included a figure illustrating the general principles. It shows the general relationship between the takeoff and landing distances for each of the obstacle types. It is also useful to consider how these measurements relate amongst the varying obstacles as well. In particular we need to know the following relationships:

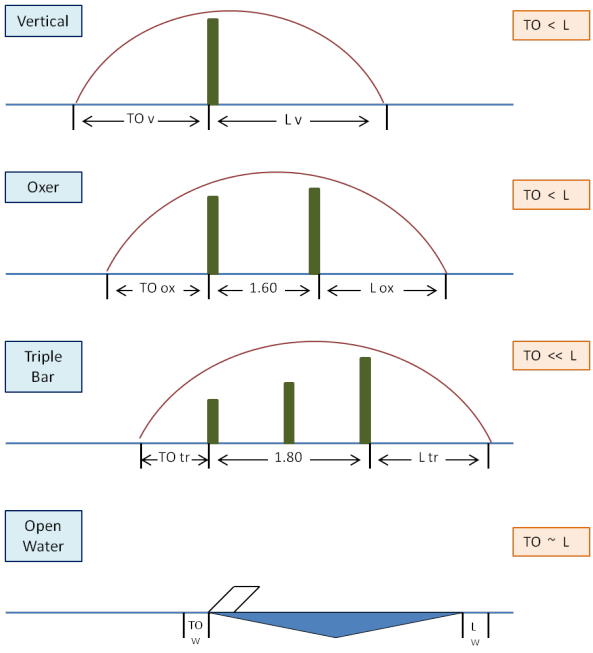

Figure 1. Take-Off and Landing distances of different obstacle types. (Adapted from Olaf Petersen)

$$TOv > TOox >> TOtb >> TOw$$

and,

$$Lv > / = Ltb > Lox >> Lw.$$

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This concept is important because the difference in the takeoff and landing distances between the different obstacle types, means that the obstacle has an effect on the quality of the distance. For example: 26m to a triple bar rides a lot further than 26m to a vertical as the horse must get closer to the triple bar for takeoff. Likewise, 26 m in a line from an oxer will feel longer than it coming a triple bar or vertical, as the horse lands closer to the oxer. As a rider progresses up through the divisions, it becomes more imperative that they understand these differences, as the need for precision will increase dramatically in the ring. Not shown in the figure but of equal importance to riders who wish to progress to sporting levels is the jumping arc over a wall. First thing to know with walls is that the jumping arc is much steeper than with a regular vertical. This is largely due to the horse over jumping in an extra effort to avoid contact with this solid obstacle. Translated this means shorter take off and landing distances than with a vertical. In addition, the relatively high spook factor that walls present to most horses means that they often negatively affect impulsion and stride length. The resulting compounded effect of the shorter takeoff and landing distances with the shorter stride length, is that any distance to or from the wall will ride much longer than it walks on the ground. Referring back to the figure, it is time to consider the open water. As we can clearly see it has both the shortest take off and the shortest landing distance of any of the obstacles. This resulting difference in takeoff and landing distances means that for the same distance, the horse has to cover around 1.5m more ground when jumping the water. On landing this is nearly all made for on the first stride after landing, as it can approach 5 m in length as the horse attempts to regain its balance. Ideally, the rider will shorten the subsequent strides quickly in attempt to regain a more normal stride length and more control. The water, when ridden perfectly will negatively affect rideability in the ring, even for the best riders in the world. For riders who are unable to bring their horse's stride length under control within a few strides of landing are inevitably in for a tough go of it for the rest of the course. In approach to the water jump, the extra ground is made up over multiple strides as the rider builds the necessary energy to clear the width of the obstacle. This point is of important note to any aspiring course designers as anything less than 6 strides becomes very difficult for a horse to make up that difference in takeoff distance, and should be avoided until the designer's experience level is sufficient to do so safely. Ultimately, understanding how the different obstacle types affect your take off and landing distances is the first layer of jump construction. Everything we talk about here after is building on these principles. I would recommend "Course Design" by Dr. Arno Gego, and "Give Your Horse a Chance" by Lt. Col. A.L. d'Endrody for anyone who wishes to further their understanding of this subject and their overall academic understanding of our sport and passion.

*Of note is that the shape of the triple bar will have a large influence on both the landing and take-off distances; The more rampy it is built (lower in front), the shorter the take-off and longer the landing distances are is, where as when we raise the front it increases the take-off distance and decreases the landing.