General Investigations on Obstacle Courses in Romania

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Abstract
Show jumping is an equestrian sport event, where each horse-rider couple must run in average about 12-20 obstacles, named a set course, within a specified time. Faults or penalties are collected if the couple brings down the highest element of an obstacle, if the horse refuses to jump or when the allocated time exceeds the allowed seconds. The idea of the jumping events is never to standardize the courses and types of competitions; the variety provides a precious element of interest for competitors and spectators.

Keywords: obstacle courses, show jumping competition

1. Introduction
- It is a relatively new equestrian discipline, late in the 18th century, when jumping different fences became a feature of the fox hunting sport, using horses which were capable of jumping fences. Early in the 19th century, there were not established rules for show jumping and courses; everything was built only with imagination. Later with the main contribution of the British and American Equestrian Federation, the rules were established but the time element did not count at that point.
- The rules for jumping it were looked like this:
  - Refusing or vaulting at any obstacle: first time means 2 points penalization, second time another 3 points penalization and the third time the couple was eliminated;
  - The fall down of the horse, or rider, or both, 4 point faults;
  - Horse touches a fence without knocking down, means ½ point penalization;
  - Horse upsets obstacle with fore limbs became in 4 points fault and with the hind limbs means 2 points fault; the same situations at the water jump were scored with half penalty points;
  - Upsetting or removing the water fence ½ faults.
- Nowadays, there are six (A, B, C, D, E, F) levels of show jumping, which determine the height and the width of the fences. While level F operated with a maximum height of 0.80 – 0.90 meters and a width of 1.00 – 1.10 meters (allocated to beginners, amateurs and young horses), level A asks a height of 1.40 meters and a width of 1.60 meters; as well as levels B, C, D and E means to clear courses in order with 1.30, 1.20, 1.10 and 1.00 meters in height and 1.50, 1.40, 1.30 and 1.20 meters in width.
- The ground jury must walk the course to inspect the obstacles before the start of the competition. The goal of a show jumper is to finish the elaborate course of obstacles within a set of time frame. The horse-rider couple is judged on success in clearing over obstacles and time only, style does not matter. As the competition pays not attention to style, the courses are intensely elaborate with a number of quite creative fences, challenging the horses jumping skills, as much as possible.
- At the first look, there it appears, a great many show jump fences at the various courses, but it is easy to discover that there are only a few basic
show jump types. Visually, removing the decorating planting, the fancy fillers and any other decoration it will be find out, that the professional course builders assembled their courses, using the standard show jump types. There are authors, studies and books that performed analyses of the conditions that influenced the final results in competitions [1, 2, and 3]. Most of the published material on this subject is based on the experience of people working with horses. In the same line, the aim of this study was to examine the running over the obstacle courses and the influence of various factors on the final result.

2. Materials and methods

All observations were taken from 2007 to 2010 in national show jumping competitions or in similar demo equestrians’ show [4, 5, 6 and 7]. The registered data were from levels C, D, E and F, that means 1.20, 1.10, 1.00 and 0.80 – 0.90 meters height and 1.40, 1.30, 1.20 and 1.00 – 1.10 meters width of the fences. The obstacles were relatively simple, without additional advertising elements.

The course is the track, which the mounted competitor must follow when competing from passing the start in the correct direction up to the finish [8, 9 and 10]. The length vary by the level of difficulty and must be measured accurately to the nearest meter taking account, especially on the turns, the normal line to be followed by the couple horse-rider. This normal line must pass through the middle of all the obstacles.

Today, the generally and most used scoring rules in show jumping are:
- First refuse or vaulting at an obstacle, 4 points penalties, second time, elimination;
- Horse knocking down the highest element of the fence, over the jump, 4 points;
- One or more feet in the water jump, or any imprint in the limits, 4 points fault;
- Exceeding the time allowed, 1 penalty point, for every four seconds and over the allocated time, elimination;
- Falling down of the rider, horse or both, elimination.

The taken into study fences were: a simple one - the vertical fence and some spread obstacles: the oxer, the double and the triple bar and the wall. The vertical is a show jump fence that consists of poles directly above each other with no spread or width, to jump. This is surely the most common of all the show jump types and the type that show jumpers will have to get over most often.

The oxer or the spread means basically two verticals placed reasonably parallel close together to make the jump wider. The double bar looks like an ascending oxer, the furthest pole is higher than the first. The triple bar is one of the most challenging show jump types, it has three poles placed across to produce a wide spread obstacle.

The wall is a fence usually made to look like a brick wall; however the “bricks” are constructed of a lightweight material and fall easily when is knocked by the horse limbs.

There were also double and triple combinations, which mean a group of two or three fences, with distances between the obstacle elements of 7 meters minimum to 12 meters maximum, which respectively require two or three efforts. The distance is measured from the base of the obstacle on the landing side to the base of the next obstacle on the take-off side. In combinations, each element of the group must be jumped separately and consecutively, without vaulting around any element. Faults committed at any element of a combination are penalized separately.

The influences of the following elements of the obstacle course have been studied:
- The type of the obstacle;
- The height of the obstacle in accord to the level of performance, grouped into 10 cm intervals from 0.80 to 1.20 meters;
- The width of the obstacle in accord to the level of performance, grouped into 10 cm intervals from 1.00 to 1.40 meters;
- The color of the fences;
- The order of the obstacles, if faults happened at successive fences;
- The place of the obstacle, respectively the first, the last, or in the course;
- A single obstacle or a combined, double or triple combination;
- The mode of the take-off area: straight or from turning;
- The level of the competition (C, D, E, F);
- The type of the competition: not against the clock, against the clock, take your own course, over two rounds and in two phases;
- The weather conditions were classified in four types: sunny, sunny but windy, cloudy, rainy;
- The arena sort earth was grass or sand;
- The riders age, respectively juniors or seniors;
- The successive course rounds made by a horse in the same day.

The courses were measured, described and walked by the riders before the beginning of the competitions. At all type of competition, the number of knock – downs and run – outs at each obstacle has been scored. The refusals and the vaulting in the take - off area have been included in the run – outs. These and both kinds of faults in total at individual obstacles have been compared to the number of faultless jumps in the course, considered each factor separately, with the use of the analyses of variance. At least, the Student “T” test was used to evaluate the significance differences between the results registered at various levels of the factors.

3. Results and discussion

Most of the factors significantly influenced the number of knock – downs, run – outs and faults in total. It is to be mentioned that the percent of run – outs was over twice lower than that of the knock – downs; hence the tendencies have been mainly clearer in the case of the latter.

The kind of the fence significantly affected all the types of faults. The knock – downs were the most higher in number in the case of oxers and verticals. The run – outs happened most often at walls. Generally it is known, that the walls and oxers are difficult to jump, which the total faults reflected. The double and triple bars were the easiest. It is well known also, that an oxer differs from a double bar only in the height of the hind pole; thus this pole is equal with the first one, which makes it less visible and the obstacle is more difficult in taking – off.

The percent of knock – downs raised regularly with the growing height of the obstacles. The decreases of the run – outs was not significant, thought both kinds of the faults speak in favor of the horses, which competed in highest levels.

The width of the obstacles significantly influenced the faults. Generally, the number of the knock – downs and the total faults increased with the extended width, except of difficult verticals and easy triple bars. On the other hand, the percentage of the run – outs did not show a growing tendency and the significance of this factor mainly resulted from the fewer faults at verticals. Thus, both, the height and the width of obstacles mostly affected the number of knock – downs and faults in total.

The colors of obstacles also significantly influenced the percentage of the faults. Usually, whole light (white and yellow - white), as well as dark (brown – red and green - blue) bars were the most frequently knocked down and the number of total faults committed here was the highest. The easiest to jump were obstacles of two contrasting colors, for example: blue – white, blue – yellow orange – brown or red – white. The percentage of run – outs was less, the difference being the highest at white and green – yellow obstacles.

In spite of the supposition, that the last obstacle at a course did not come out to be statistically more difficult than all others, the number of the total faults here was even slightly lower than at the others.

If the obstacle was single or in a combination similarly influenced the percent of knock – downs, run – outs and faults in total. It was registered to be significantly the lowest at the second obstacle in combinations. Single obstacles were sometimes more difficult to jump but still more faults occurred at the first fence in combination. The third obstacles in combination were not enough numerous to conclude if indeed they were the most difficult. The report between the total faults at single fences and at a fence part of a combination was almost 1:1.

The take – off area, straight or on a turning, in front of the obstacle affected the number of knock – downs and run – outs. The obstacles jumped just round the corner were knocked down more often and run out more rarely that those behind straight tack. It can be suspected that the horses did not run because they were surprised, but the jumps less prepared, more frequently resulting in a knock – down.

The level of the competition had a direct effect to the height of the obstacles, but it influenced only the percentage of knock – downs and total faults; the number of the run – outs statistically remained at the same level for all.

The type of the competition shows that the two rounds running courses had the most faults in total.

The weather conditions, the type of the arena and the rider’s age mostly influenced the number of run – outs. Relatively, the run – outs happened
more often when the rain was present, on grass arena and in the case of horses ridden by juniors. All results show that in two first rounds made by a horse in one day, the number of the faults was similar, whereas the third course resulted in significant rise of knock – down percents and faults in total. In the same time, the run – out percentage lowered, which can suggest that the horses became familiarly with the arena but were too tired or do not keep enough attention to jump faultlessly.

4. Conclusions

In this report, the influence of only some of the factors which affect the running over of an obstacle course by a horse – rider couple has been analyzed. The results connected with the construction of an obstacle course or the fences by own, can be an indication for course builders and they can help to judge the difficulty of the course. The analysis of the influence of more general factors only informs what their statistic significance is.

References

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