

Determination of horse jump parameters over up-right and oxer fences with use of computer picture analysis

S u m m a r y

The aim of this paper was to define the jump parameters in horses jumping over upright and oxer fences. The research was conducted by means of computer scanning of digital images and it focused on 371 horses and 995 starts in competitions with obstacle height ranging from 80 to 130 centimeters, organised in Poland between 2004 and 2005. Digital record of the whole performance helped to establish the general number of strides in the course, estimate its duration time and note horses' faults such as: obstacle knockdown with fore or hind legs, too far or too close take-off point, rhythm loss, lack of jump harmony etc. Images with 5 stages of jump (over oxer) and with 3 stages of a jump (over vertical) were saved to computer by means of MultiScanBase. In order to measure the jump parameters we analysed the position of these body parts of a horse which effect the way of jumping over the obstacle. It was concluded that older horses made fewer strides and percentage of rhythm loss was lower than in younger horses. We managed to calculate a statistically significant difference between the number of fore legs' faults and hind legs' faults. Moreover, it was proved that the landing distance of the horses jumping over oxer was indeed statistically shorter than over vertical. We also noted essential differences in horse's head position in relation to the ground in vertical and oxer jumps. The average degree of angle between the position of horse's hind part and the ground was smaller in oxer jumps than in vertical jump. Computer image scanning can be effectively used in the selection process of jumping horses.