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## The use of computer scanning techniques for defining the parameters of rider position in show jumping events

### S u m m a r y

The aim of this work was an attempt to use computer scanning techniques in order to define some parameters of rider position in jumping over oxers and verticals in equestrian competition. This work was inspired by the belief that the rider body position and the way of using aids in particular stages of a jump might have crucial influence on the effectiveness and the style of the jump. The study focused on 360 riders mounting 371 horses during national competition in show jumping that took place in Poland in 2004. The analysis included 1097 performances in jump with the obstacle height ranging from 80 to 130 centimeters. All the events were recorded with digital cameras. From all the digital data obtained we chose images presenting 3 stages of a jump over vertical and 5 stages over oxer. The data were saved into computer memory with MultiScanBase software. On each of the images we outlined the position of the rider particular body parts and placed the data on the graph. In each of the tested stages of the jump we analysed the position of the rider particular body parts by measuring two distances (1 - from bit to rider hand, 2 - from hip to cantle) and five angles (1 - opening of ankle joint, 2 - opening of knee joint, 3 - between torso and thigh, 4 - opening of elbow joint, 5 - degree of torso's slope). It was concluded that the length of the distance from a bit to rider hand depends, to large extent, on the class of the competition, its speed and the size of the arena. The riders taking part in the less advanced events differed tremendously from the competitors in higher classes in terms of the gape between particular joints. This theory was confirmed by the number of faults, caused mainly by the lack of balance in the jump, which resulted in forestalling of the horse's movement so typical of lower class competitors.