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Boots on Horses: Limb Protection or Hyperflexion Training Aids in the Showjumping Horse

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Showjumping riders regularly employ various schooling strategies to control the horse’s jump stride kinematics (JSK). Strategies include plyometric training regimes with fences of different heights and widths set at specific distances. Gymnastic grids teach the horse to jump cleanly. Rapping, once used almost routinely, is no longer in vogue. However, the use of performance enhancing (PE) boots on the distal hind limbs to alter equine JSK has become popular. There are two broad categories of PE boots: weighted and pressure. Some riders use so-called weighted boots on the horses’ hind limbs during training and in competition to improve the jump stride. The application of so-called pressure boots may be little more than an adaptation of this technique. It appears that the PE boots induce hyperflexion of the hind limbs and incline the horse to jump fences cleanly. In the absence of scientific appraisal, it is unclear if such boots are acceptable and innovative training aids within equitation.

Show jumping is an increasingly popular equestrian sport (Bobbert, Santamaria, van Weeren, Back, & Barneveld, 2005) among both amateur and professional participants. Riders and horses are required to jump courses of various fences and incur penalty faults for refusing to jump or by knocking fences and are eliminated if they fail to complete the course (Fédération Équestre Internationale, 2005).

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The athletic demands placed on showjumping horses are considerable, and riders employ various strategies to improve the horse’s jump stride kinematics (JSK). Standard training or schooling strategies include plyometric regimes to develop explosive power and spring factor in the jump phase and gymnastic grids to regulate accuracy, stride pattern, and elasticity. Horses perform over vertical (uprights), spread (oxers), and combinations of different heights and widths set at specific distances. These techniques train the horses to become careful jumpers (often inducing hyperflexion of the equine limbs) and avoid hitting fences. In the past, various forms of sensitizing the horses’ legs (rapping) occurred almost routinely, but this practice is now illegal (Fédération Equestre Internationale, 2005).

Rapping is an inappropriate strategy that sensitizes the legs with the application of astringent substances to the anterior aspects of the third metacarpal (or cannon) of the equine forelimbs such that the horse would avoid hitting a fence when jumping (McGreevy, McLean, Warren-Smith, Goodwin, & Waran, 2005). However, the use of performance enhancing (PE) boots on the distal hind limbs is another mechanism used to alter equine JSK that has become popular. Different variations of the PE boots are now available; however, they broadly fit into two categories: weighted and pressure. Some riders use various so-called weighted boots on the horses’ hind limbs in training, immediately prior to and during competition, to improve the actual jump stride. Similarly, the application of so-called pressure boots may be little more than an adaptation of this jump stride altering technique. It appears that tightening elasticized sections and repositioning the pressure boots (by pushing them distally onto the fetlock joints) sensitizes the horse’s legs to the resulting pressure or constriction. It is unclear if the horses ultimately habituate to the boots, but in general, it appears that PE boots induce hyperflexion of the hind limbs and incline the horses to jump fences cleanly. The objective of this study was to gauge the extent that the PE boots are used at the various levels of showjumping competition.

METHOD

Boot surveys were conducted at various ($n = 13$) showjumping events, including four international shows and eight national shows. Data were recorded for horses ($n = 247$) competing in eight Grand Prix classes, horses ($n = 88$) competing in four Nations Cup competitions, and horses ($n = 112$) competing in a 1.30 m National Young Horse Competition. All the horses were observed during preparation for competition in the warm-up arena to establish if they wore PE type hind boots. Additional data were also recorded during final adjustments of tack, which often occurs in the collecting ring immediately prior to the horses entering the showjumping arena to compete.
RESULTS AND DISCUSSION

Among the horses competing at Nations Cup level of competition, 70% had boots fitted to the hind legs, whereas 66.8% of horses competing at Grand Prix wore hind boots and 47.3% of the horses wore hind boots in the National 1.30 m Young Horse Class (Table 1). Some horses had hind boots (3 in Nations Cup, 11 in Grand Prix, and 3 in the National competition) during the warm-up phase only; a number of horses had different boots (3 in Nations Cup, 4 in Grand Prix, and 3 in the National competition) for the warm-up and actual competition. Grooms regularly adjusted the boots (usually by tightening and pushing the pressure boot distally onto the fetlock joint) just before entering the arena to begin jumping.

Show jumping has evolved to test the limits (heights, widths, and intricate combinations) that horses can jump without incurring errors, penalties, or refusals (McLean, 2003). In elite competition, horses are required to jump big fences (Grand Prix fences range from 1.40 m to 1.60 m) with precision, accuracy, and athleticism while galloping and turning (Dyson, 2002). Such horses are valuable; it is appropriate to use various boot and leg protection systems specifically to safeguard the lower limb from trauma. Although Paalman (1984) and Bobbert et al. (2005) have described how the horse executes the jump phase (bascule) most favorably in terms of optimal approach stride, limb placements, and velocity, it appears that some riders regularly use PE boots to enhance their horses’ JSK. Although very few boot data currently exist, in a recent treadmill study of horses at walk and trot, weighted boots on the hind limbs increased the range of movement (ROM) for dorsoventral flexion and extension in the lumbar back at the walk (Wennerstrand, Johnston, Rhodin, Roethlisberger-Holm, & Drevemo, 2006). Dorsoventral flexion and extension in the lumbar back and hind limb ROM are important facets of JSK in the showjumping horse. In the case of the weighted boots, it would appear that the additional weight provides the horses’ hind limbs with increased elastic potential energy, which would transfer to kinetic energy during

<table>
<thead>
<tr>
<th>Competition</th>
<th>Number of Classes</th>
<th>Number of Horses</th>
<th>Horses With Boots</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nations Cup</td>
<td>4</td>
<td>88</td>
<td>62</td>
<td>70</td>
</tr>
<tr>
<td>Grand Prix</td>
<td>8</td>
<td>247</td>
<td>162</td>
<td>66.8</td>
</tr>
<tr>
<td>National Qualifier</td>
<td>1</td>
<td>112</td>
<td>53</td>
<td>47.3</td>
</tr>
</tbody>
</table>
the jumping phase. Thereafter, any increase in centripetal force and kinetic energy would result in greater elevation of the hind limbs during the flight phase of the jump stride. Similarly, the use of so-called pressure or excessively tightened hind boots appears to produce a comparable effect during the jump stride, at least in some horses. Tightening the elastic properties and pushing the taut boot distally onto the fetlock joints acts to sensitize the horse’s hind limbs to the pressure. Depending upon the response characteristics of individual horses, the most obvious and immediate effect is instantaneous exaggeration of the horses’ limbs during the flight phase of the jump stride to improve performance. In the absence of empirical data, it is not immediately clear if the horses benefit from a learning effect in terms of improved JSK due to the boots. The effect may be purely reactionary and temporary in nature, and habituation to the boots over periods of extended usage might be expected.

PE boots could enhance JSK, especially in horses who fail to finish the jump stride or are “tight behind” (possess insufficient hind-limb flexion). Individual horses may lack natural flexibility of the hind limbs, whereas other horses merely lack style and technique when jumping. However, excessive hyperflexion of the hind limbs could be problematic in some instances as balance of horse and rider is critical when jumping large dimension fences (Powers & Harrison, 2000). This is particularly the case where excessive hind-limb flexion results in the horse rotating too far in the jump stride and “tipping up” on landing after the fence. Clearly, such “overjumping” efforts could lead to injury and physical damage to horses and riders if falls occur. Although relatively uncommon, instances such as these are more likely to be associated with amateur riders when attempting to jump bigger fences. The rules of equestrian competition stipulate that, at all stages during the preparation and training of competition horses, welfare must take precedence over all other demands. This includes good horse management, training methods, farriery, and tack and transport (Fédération Equestre Internationale, 2005). Some equestrian societies have prohibited the use of PE boots in young horse competitions during the jumping phase (Future Event Horse League, 2007). Their objective is to eliminate any unfair advantage in terms of performance enhancement, potential welfare concerns, and risk of injury to novice horses in competition. It is important to monitor the use of innovative training aids carefully, particularly if there is any suggestion that they could pose potential health and welfare risk to the horse (and rider). Although professional riders will be more expert in assessing the performance and welfare consequences of such training aids, amateur equestrians may lack this ability. While it has become popular, the use of PE boots in attempts to alter equine JSK warrants investigation as it is unclear how it affects welfare.
REFERENCES


Powers, P. N. R., & Harrison, A. J. (2000). How can the rider help show jumpers to have better performances? In A. Lindner (Ed.), The elite show jumper (pp. 79–90). West Lafayette, IN: Purdue University Press.