Influence of Head and Neck Position on Distances Between Thoracic Spinous Processes: A Radiographic Study

Dagmar Berner, DVM*; Karsten Winter, MCs; Walter Brehm, DVM, Dr. Med. Vet., Dr.Habil., Diplomate ECVS; and Kerstin Gerlach, DVM, Dr. Med. Vet., Associate Member ECVDI

Alteration of the head and neck position influences the distances between the spinous processes of the equine spine on radiographs. Lowering of the head, one effect of sedatives, results in flexion of the thoracic spine and therefore in wider distances between adjacent spinous processes. Authors’ addresses: Large Animal Clinic for Surgery, Faculty of Veterinary Medicine, University of Leipzig, An den Tierkliniken 21, D-04103 Leipzig, Germany (Berner, Brehm, Gerlach); and Translational Centre for Regenerative Medicine (TRM) Leipzig, Philipp-Rosenthal-Str. 55, D-04103 Leipzig, Germany (Winter); e-mail: dagmar.berner@vetmed.uni-leipzig.de. *Corresponding and presenting author. © 2012 AAEP.

1. Introduction
One specification of impingement of dorsal spinous processes in horses is narrowing of the distances between the spinous processes (SPs) on radiographs. These distances can be altered by spinal movement. The objective of this study was to test the hypothesis that the head and neck position (HNP) alters the distances between the spinous processes on radiographs.

2. Materials and Methods
Lateral-lateral radiographs were obtained in three different HNPs (normal, low, high) from 23 horses. The distances between adjacent SPs and the widths of the SPs were measured perpendicular to tangents between the caudal extremities and SPs of the same vertebrae. Measurements were expressed as ratios to the normal HNP.

The distances in the three different HNPs were compared using the Kruskal-Wallis test and Mann-Whitney U test.

3. Results and Discussion
A low HNP increased the distances between adjacent SPs from the 8th to the 15th SP on radiographs compared with the other two positions (P < 0.05). Conversely, a high HNP decreased them (P < 0.05). Therefore, the HNP should be considered when comparing radiographs of the equine thoracic region.