Effects of Limb Positioning on Mediolateral Interphalangeal Joint Balance as Evaluated on Dorsopalmar Radiographs

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Positioning of the limbs has a significant effect on mediolateral distal and proximal interphalangeal joint balance. Proper positioning of the limb is important when evaluating interphalangeal joint spaces. Authors' address: Colorado State University, College of Veterinary Medicine, 300 West Drake Road, Fort Collins, CO 80523; e-mail: erincontino@yahoo.com. *Corresponding and presenting author. © 2012 AAEP.

1. Introduction
Foot characteristics, including joint imbalance, can influence gait, biomechanics, and soundness in horses. Dorsopalmar (DP) radiographs are often used to evaluate the interphalangeal joint balance. Quantification of the influence of foot position on joint balance is lacking in the literature. The goal of this study was to evaluate the role of limb position on the radiographic appearance of the mediolateral distal and proximal interphalangeal (DIP and PIP) joint spaces.

2. Materials and Methods
Horses were positioned squarely, with both forelimbs on blocks, and DP radiographs were made. From a square, or baseline position, the limb was abducted 5 degrees and 10 degrees, and DP radiographs were repeated at each position. The lateral and medial DIP and PIP joint spaces were measured on the radiographs and compared at each position.

3. Results
Fourteen limbs from nine adult horses were evaluated. Limb abduction resulted in narrowing of the medial aspect of the interphalangeal joints in relation to the lateral aspect. There were statistically significant differences in interphalangeal joint balance between different limb positions.

4. Discussion
The results demonstrate that limb positioning significantly affects mediolateral interphalangeal joint balance. Therefore, care should be given to positioning the limb as squarely as possible when taking DP radiographs for the purpose of evaluating interphalangeal joint space. Correct positioning of the limbs is required to evaluate interphalangeal joint space on radiographs.