EQUINE SHORT COMMUNICATIONS (BEVA AND XCELLENT HORSE INSURANCE AWARD)

EFFECT OF UNIPODAL VS BIPODAL STANCE ON RADIOGRAPHIC EVALUATION OF FOREFEET IN HORSES

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Introduction/Purpose: Lifting the contralateral forelimb is often used as a method of restraint in horses. This experimental study was conducted to evaluate the effect of unipodal vs bipodal stance on several radiographic parameters in equine forefeet.
Methods: Seven non-lame horses were randomly selected. Lateromedial (LM) and dorsopalmar (DP) projections were obtained on both forefeet, squarely placed on blocks, using 2 x-ray generators in a fixed lateral and dorsal position. Radiographs of each foot were made in a bipodal stance, immediately followed by the same protocol in an unipodal stance. Several measurements were made: distal interphalangeal joint (DIPJ) space width on both projections; mediolateral joint balance on DP projections; extensor process-to-middle phalangeal condyle (PE-P2) distance and deep digital flexor tendon (DDFT) angle on LM projections. A matched pairs design, student's t-test with a 95% confidence level and ANOVA were used to test for statistical significance.

Results: Compared to a bipodal stance, lateral DIPJ space width was significantly reduced on unipodal DP views, whereas mediolateral joint imbalance and to a lesser extent medial DIPJ space width were significantly increased. The PE-P2 distance as well as the DDFT angle were significantly increased in unipodal LM views, indicating a higher degree of DIPJ flexion in that condition.

Discussion/Conclusion: Unipodal stance significantly affects the mediolateral balance of the DIPJ on DP radiographs and significantly alters the phalangeal axis on LM radiographs. These findings suggest that stance should be carefully taken into consideration when radiographically evaluating equine forefeet, especially if assessing foot balance and conformation.