

Magnetic Resonance Imaging, Computed Tomographic, and Radiographic Findings in the Metacarpophalangeal Joints of 40 Non-Lame Thoroughbred Yearlings

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Products

Fan-beam CT, low-field MRI, and radiography

Hospital / Authors

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Clinical Background

Detecting early-stage fetlock abnormalities in Thoroughbred racehorses is critical to prevent catastrophic injuries. Radiographs alone are often insufficient, but computed tomography (CT) offers enhanced precision in identifying subtle bone changes, subchondral abnormalities, and developmental defects before they progress.

Aim of Study

Evaluate the efficacy of CT compared to MRI and radiography in identifying abnormalities and adaptive changes in the fetlock joints of 40 Thoroughbred yearlings entering racehorse training.

Cohort Study

40 Thoroughbred yearlings (80 limbs) were examined using CT, MRI, and radiography.

Results

- CT detected **33 sagittal ridge lesions**, **75.6%** of which were also visible on radiographs, but with **greater precision and detail**.
- CT identified **bone density increases** in **92.5%** of sagittal ridges and revealed **vascular channel enlargement** in **71.3%** of medial condyles.
- Subtle **subchondral lesions** and **trabecular bone changes** were highlighted by CT, surpassing MRI and radiography in **resolution**.
- CT uncovered **unique mineralization patterns** linked to **bone modeling** and early **osteochondrosis**.

Summary

- CT provides **superior visualization** of fetlock lesions and adaptive bone changes, **outperforming radiographs in precision and MRI in identifying** structural abnormalities
- CT's **detailed imaging** can inform **early intervention strategies**, reducing the risk of **catastrophic injuries**.
- CT establishes **new diagnostic benchmarks** for Thoroughbred racehorses entering training, enhancing **equine health management**.