

Computed Tomographic Evaluation of the Sagittal Ridge of the Third Metacarpal Bone in Young Thoroughbred Racehorses: A Longitudinal Study

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Products

Computed Tomography (CT) for evaluating the sagittal ridge of the third metacarpal bone in young racehorses.

Hospital / Authors

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Clinical Background

Fetlock pain and abnormalities, particularly in the sagittal ridge of the third metacarpal bone, are common in Thoroughbred racehorses, linked to joint effusion, lameness, and lower sales prices. CT enables precise detection and tracking of these lesions, improving understanding of their progression.

Aim of Study

To describe CT findings of the sagittal ridge in young Thoroughbreds and monitor lesion progression and adaptive changes during the first year of training.

Cohort Study

CT exams were performed on 40 yearlings at training onset (time 0) and repeated at six-month intervals on 31 and 23 horses to evaluate bone density changes and lesion evolution.

Results

- An increase in **bone density (hyperattenuation)** of the sagittal ridge was observed within the first six months of training, reflecting **adaptive remodeling** to increased exercise.
- **Hypoattenuating lesions** were present in **41.3%** of limbs at time 0, decreasing to **35.5%** at time 1 and **30.4%** at time 2. These lesions showed potential to **shrink** or **resolve** during the first year of training.
- **Hypoattenuating lesions** were most commonly located **dorsodistally** on the sagittal ridge and were **elongated**, extending towards **trabecular bone**.
- In this cohort, **sagittal ridge lesions** were not associated with **clinical lameness**, highlighting their **developmental** or **subclinical** nature.

Summary

- **CT imaging** provided **unparalleled detail** in detecting and tracking sagittal ridge abnormalities, surpassing **radiographs** in sensitivity.
- **Hypoattenuating lesions** demonstrated **dynamic changes**, often **decreasing** in size or **resolving** over time, suggesting potential **healing** in early training stages.
- **CT findings** highlight the potential for **non-invasive monitoring** of sagittal ridge lesions and support its use in evaluating **adaptive bone remodeling** in racehorses.
- This **longitudinal study** reinforces the value of **CT** in understanding **fetlock pathology** and sets a foundation for **future research** in equine training and orthopedic health.