

# Multi-Detector Helical Computed Tomography, Transrectal Ultrasonography, and Histology of the Sacroiliac Joint: A Comparative Study in Adult Warmblood Horse Cadavers

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## Products

Computed Tomography (CT) for post-mortem and in vivo evaluation of the sacroiliac joint (SIJ) in horses.

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## Clinical Background

Sacroiliac joint (SIJ) dysfunction is a major cause of poor performance in sport horses, yet diagnosis remains challenging due to the joint's deep anatomical location. While transrectal ultrasonography is commonly used, it provides limited access to the full joint. CT has the potential to significantly improve SIJ assessment by revealing changes otherwise undetectable.

## Aim of Study

To assess and correlate post-mortem CT, transrectal ultrasound, and histological findings of the SIJ, with an emphasis on validating CT as the gold standard for structural evaluation.

## Cohort Study

CT and ultrasound were performed on 25 SIJs from 15 adult Warmblood cadavers without known SIJ pathology. CT findings were compared to ultrasound and histology in a subset of 11 joints to evaluate diagnostic accuracy and correlation with tissue degeneration.

## Results

- CT identified lesions in every joint, demonstrating its **diagnostic sensitivity**.
- Ultrasound missed changes in 8% of joints and was limited to the **caudal region**.
- CT revealed more advanced pathology, including **sclerosis** and **subchondral lesions**.
- Histological degeneration matched CT findings, especially in **cartilage** and **bone**.
- The strongest correlation was between **CT and histology** ( $r_s = 0.731$ ,  $p = 0.011$ ).
- No joint appeared normal on CT, confirming its ability to detect **subclinical disease**.

## Summary

- **CT outperformed ultrasound**, detecting pathology in 100% of joints.
- Histology confirmed CT findings, validating its **accuracy**.
- Ultrasound underrepresented disease, showing limited **diagnostic reach**.
- CT is the **preferred imaging modality** for SIJ assessment, even in asymptomatic horses.
- With growing access to large-bore scanners, CT will enable **early diagnosis** and **improve clinical outcomes**.