

Research on Kissing Spine

1. Pilati et al., 2025, Impinging and Overriding Spinous Processes in Horses: A Narrative Review

Useful comprehensive review of diagnosis, clinical significance, treatment, and gaps in the evidence. A 2025 peer reviewed narrative review concluded that the true incidence of pain specifically caused by overriding spinous processes remains uncertain. The authors emphasized the demonstrated lack of a consistent correlation between imaging abnormalities and clinical signs.

Key Findings:

- The review emphasizes that there is a **poor correlation between radiographic findings and clinical signs**. Horses may have significant radiographic evidence of overriding dorsal spinous processes yet show no clinical signs of pain or performance limitation.
- The authors state that the true prevalence of pain directly attributable to kissing spines remains uncertain and likely overestimated when diagnosis is based solely on imaging.
- Diagnosis should be based on a combination of:
 - Clinical examination
 - Performance history
 - Diagnostic imaging
 - Response to diagnostic analgesia when appropriate
- Assessment for concurrent conditions such as hindlimb lameness or sacroiliac disease
- Multiple treatment options, including exercise rehabilitation, medical management, and surgery, have demonstrated that many horses can return to ridden work following treatment

2. Zimmerman, Dyson, and Murray, 2012, Relationship between imaging findings and clinical signs

Investigated whether radiographic and scintigraphic findings of kissing spines were associated with actual clinical signs of back pain. Evaluated 582 horses referred for poor performance and suspected back pain

Key Findings

- Horses with higher radiographic grades of spinous process impingement were more likely to show clinical signs of thoracolumbar pain.
- Horses with increased scintigraphic uptake of the spinous processes were more likely to have clinical back pain.
- The strongest association with pain occurred when **both radiographic abnormalities and scintigraphic abnormalities** were present.
- Osteoarthritis of the intervertebral articular joints was associated with an even greater likelihood of pain than spinous process abnormalities alone.
- Horses with both kissing spines and articular process osteoarthritis had the highest probability of thoracolumbar pain.
- Forelimb lameness, hindlimb lameness, and sacroiliac pain could mimic signs of back pain.
- Diagnosing back pain based solely on radiographs can be misleading.

- Diagnostic analgesia remained critical for confirming whether imaging abnormalities were actually causing pain.

3. Coomer et al., 2012, Controlled clinical study of surgical and medical treatment

Compares interspinous ligament desmotomy with intralesional corticosteroid treatment.

Compared a minimally invasive surgical procedure, **interspinous ligament desmotomy (ISLD)**, with **intralesional corticosteroid injections** for 68 horses diagnosed with kissing spines (overriding dorsal spinous processes)

Key Findings

- Initial improvement was high in both groups:
89% of medically treated horses improved initially.
95% of surgically treated horses improved initially.
- Long term results favored surgery:
Back pain recurred in **19 medically treated horses**.
No recurrence of back pain was reported in the surgical group during the study period
- Horses that underwent ISLD were **24 times more likely** to have long term resolution of clinical signs compared to medically treated horses.
- Follow up radiographs of surgical cases showed a significant increase in interspinous spacing after surgery.

4. Brassington, Hardy, and Bye, long term treatment and management outcomes

Examines return to previous performance level in 260 horses, with important survey limitations. Examines long-term outcomes in 260 horses diagnosed with impinging dorsal spinous processes (kissing spines).

Investigated whether treatment choice influenced a horse's ability to return to its previous level of performance.

Key Findings

- Just under **50% of horses returned to their previous level of performance** following treatment.
- Horses treated surgically had approximately **twice the odds** of returning to their previous level of performance compared with horses managed without surgery.
- Horses that completed an **exercise rehabilitation program** had approximately **10 times greater odds** of returning to their previous performance level.
- Rehabilitation appeared to be a major factor associated with successful outcomes.

5. O'Sullivan et al., 2022, Effect of thoracic flexion on interspinous spacing

Demonstrates that posture changes measured interspinous distances.

Investigated whether changing a horse's thoracic posture through manually facilitated flexion ("thoracic lift") alters the radiographic appearance of interspinous spaces in 7 horses diagnosed with kissing spines, examined how posture may influence radiographic grading and clinical interpretation of impinging dorsal spinous processes (IDSP).

Key Findings

- Interspinous space distances increased at **every thoracic vertebral level measured** when thoracic flexion was applied.
- The largest increases occurred at:
 - T7-T8 (3.1 mm)
 - T12-T13 (3.0 mm)
- Even horses diagnosed with kissing spines showed measurable widening of the spaces when posture changed.

- Interspinous spacing is therefore not a fixed measurement and can vary according to spinal position
- Radiographic assessments of kissing spines may be influenced by how the horse is positioned during imaging.
- A horse appearing to have more severe narrowing in one posture may appear less affected in another posture.
- Static radiographs may not fully represent spinal motion during normal movement or ridden exercise.

6. Biedrzycki and Elane, 2022, Three dimensional biomechanical evaluation after desmotomy

Provides mechanical evidence of altered spinal mobility after surgery.

Investigated how **interspinous ligament desmotomy (ISLD)** affects spinal motion in horses with overriding dorsal spinous processes (kissing spines). Sought to objectively measure changes in vertebral mobility following surgery using CT imaging and three-dimensional computer modeling.

Key Findings

- Mean distance between adjacent dorsal spinous processes increased by **5.6 mm** after desmotomy.
- This represented approximately a **24% increase in spinal mobility** at the treated sites.
- Movement of the first lumbar vertebra increased in both:
 - Dorsoventral motion
 - Craniocaudal motion
- Rotational mobility of the lumbar spine also increased following surgery.
- Provides objective biomechanical evidence that desmotomy creates greater spacing and mobility between affected spinous processes.
- Supports the theory that reducing ligament tension and allowing greater spinal movement may help explain the clinical improvement reported in previous outcome studies.
- Demonstrates that ISLD is not simply a pain-relieving procedure but also alters spinal biomechanics