


Solutions for KISSING SPINE

While simple enough to identify in horses, treating, repairing, or living with this condition can be a challenge

by Kimberly French



Known clinically as overriding dorsal spinous processes, “kissing spine” most commonly affects the vertebrae in the mid and caudal thoracic area of a horse’s spine (T13-T18) where the saddle is placed. It can occur closer to the horse’s rump, but much more rarely. On a healthy spine, the dorsal spinous processes (DSPs) – the vertical part of the vertebral body – are evenly spaced without touching each other. In kissing spine, the DSPs impinge or come in contact with the spinous processes directly in front or behind, or cross each other, rather than remaining in a straight line, upright, and with the correct amount of spacing between them.

Kissing spine afflicts as many as 40 percent of all horses and tends to be prevalent in Thoroughbreds as young as two years old – although for some unknown reason many horses never show the slightest signs of discomfort.

PAMI WACKENZIE PHOTO

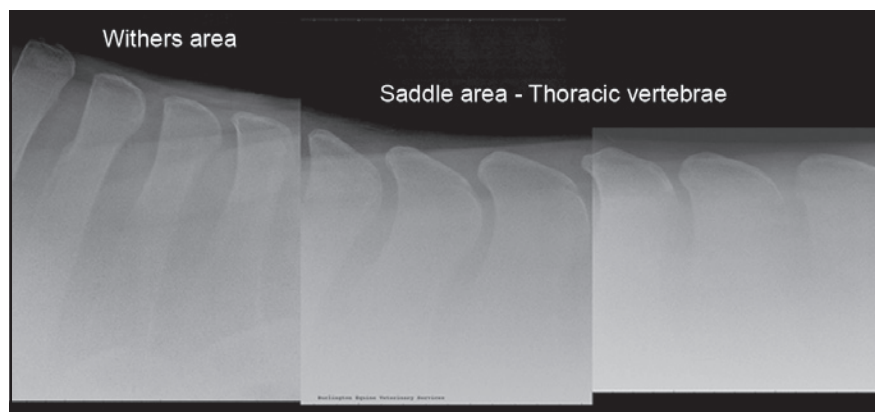
For some horses, the presence of kissing spine on radiographs is associated with pain and behaviour issues such as bucking, rearing, irritation during saddling, and back and hind end soreness. But one of the mysteries of the condition is that some horses clearly show developed kissing spine on radiographs and exhibit no signs of discomfort.

SURPRISING PERCENTAGES

In 2011 at the American Association of Equine Practitioners Convention, Tracy Turner, DVM, of Anoka Equine Services in Elk River, MN, presented his study on lameness, kissing spine, and back pain. He evaluated 212 horses from early 2004 to the end of January 2011 and determined that while kissing spine does *contribute* to back pain, it can be tough to pinpoint whether kissing spine is the *cause* of a horse's back pain.

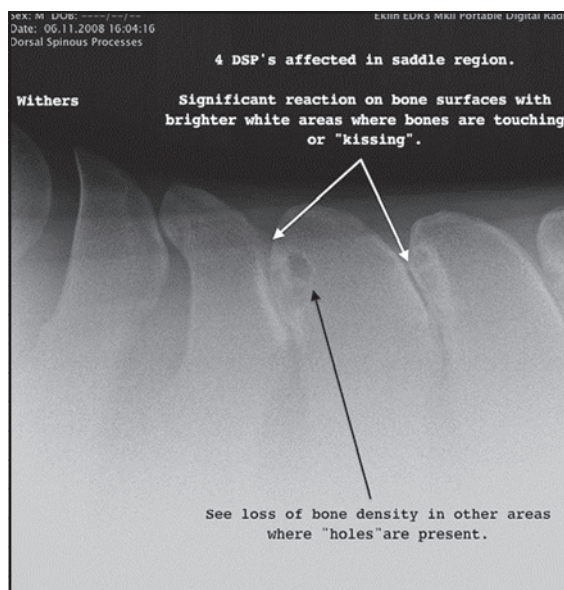
"My research suggests that about 40 percent of horses have this condition," he said. "Certainly, 40 percent of all horses do not have back pain. Kissing spine would appear to be a conformation anomaly that predisposes to back pain. The difficult part is determining the horses that have pain as a result of kissing spines, but less than five percent of lameness issues are related to kissing spines."

Turner found that Thoroughbreds were the most likely breed to have kissing spine – 41 percent of his cases were Thoroughbreds, followed by Quarter Horses (26 percent), and warmbloods (23 percent). "I think kissing spines are in a horse's genes," said Turner. "I believe it develops sometime between when a horse is a weanling until they become two years of age. I have taken a significant number of back films in neonates and have not seen any cases of kissing spine. However, we have many horses that come in for pre-training screening [at two to four years old], and we have radiographed the backs of these horses and found kissing spines with no clinical signs [40 percent]."



(Top) A combined back radiograph from a horse with normal spacing. The tall vertical DSPs (dorsal spinous processes) that make up the withers are narrow and long but are usually not involved with kissing spine disease; it's usually the group of vertebrae behind this area – the thoracic vertebrae – in the area where the rider sits. Here, the spacing between the DSPs is even and there is no significant bone reaction.

(Right) An abnormal radiograph which clearly depicts kissing spines. The finger-like spinous processes are touching the adjacent process and in some cases actually overlapping.



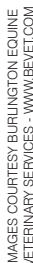
NEW TREATMENTS

Treatment options abound for horses that do have hampered performance ability due to kissing spine. Steroid or Tildren injections, mesotherapy, shockwave therapy, acupuncture, chiropractic treatment, massage and physical therapy alone or in combination have been used to relieve the pain. However, not all horses respond to these therapies, and, until recently, the only surgical option involved an invasive procedure requiring incisions and often the use of a bone saw, which didn't yield consistent positive results.

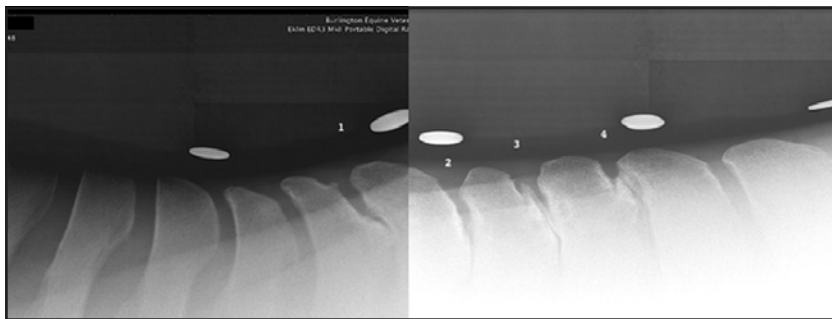
Richard Coomer, MRCVS, of Cotts Equine Hospital in Narbeth, England, published a study in *Veterinary Surgery* in 2012 about a new surgical technique. "A controlled study evaluating a novel surgical treatment for kissing spines in standing sedated

horses" showcased a new approach to kissing spine surgery. "I began this work in 2009 in New South Wales," Coomer said. "It developed out of necessity, really, as in this part of the horse world many are not insured, and there is not a lot of money to spend on treatments. I got the idea from a conversation I had with some colleagues in France who were working on endoscopic techniques to aid with kissing spine."

The veterinarians noticed that simply cutting the interspinous ligament (ISL) seemed to make the horses more comfortable, as opposed to removing the bone. Coomer's study included 37 horses he surgically treated with his method, which involves transecting the ligament through a one-centimeter "keyhole" incision along the side of the affected vertebra or vertebrae while the horse



X-ray of an 11-year-old Irish Sport Horse gelding that had been a jumper for years - see numbered spaces involving DSP impingement. This horse had become unrideable, as he was bucking so much and even low-level jumping had become impossible.



Eight weeks post-surgery and you can already see some “opening up” of the spaces between the four sites. Once he was started back under saddle he was able to navigate low jumps and remained very comfortable.

is standing but sedated. There was also a control group of 38 horses treated with cortisone injections in the appropriate locations.

Both groups of horses were stall-rested for 24 hours, then handwalked twice a day for 30 minutes for three weeks before being turned out in a paddock. Eighty-nine percent of the medically treated horses recovered successfully in comparison to 95 percent of the surgical group. Nineteen cases experienced recurring back pain, all from the control group.

The real shocker was that when Coomer took radiographs of 19 of the surgically-treated horses, there was marked improvement in the spacing between vertebrae, apparently reversing the “kissing” syndrome. “It’s cutting in the actual impinging area that’s the most important, and I know it’s the hardest thing to do, because they usually are so close together,” Coomer said. “It’s conceptually very straightforward, but as a lot of surgeons have found, when you actually get down to it, it’s not as easy as it sounds. The interesting thing is my success rate had no real change from the improvement of me handling the learning curve that went with the procedure. Early on we only received horses with very severe cases that had really sore backs, and even when I felt I didn’t do a particularly good job, the results were encouraging, so we persisted.” Coomer noted that surgery led to an immediate improvement in back pain. “A lot of horses become much more relaxed overnight,” he said.

Despite the encouraging results, Coomer said a horse's rehabilitation after the surgery is just as integral to its healing. "I say it's 50 percent surgical and 50 percent aftercare," he said. "This surgery focuses on rehabilitation, and if you don't do the aftercare you won't see the results. You have to allow the horse to start using his back again normally to rebuild his core strength and to be comfortable."

While relief from the pain of kissing spine is a huge accomplishment, Coomer believes his new technique is just one step along the way of dealing with the condition. “I hope down the line people

will speculate on how these horses are performing after the surgery and look more at the possible genesis of kissing spine and why it really happens,” he said. “There are a lot of proposed mechanisms, but I think undiagnosed lameness goes hand-in-hand with back pain. A large proportion of horses have back pain and then overuse their legs, because they don’t use their backs. Then it accelerates the wear and tear on their legs. Many horses don’t have much core strength, so they would be prone to developing a back problem, and I think kissing spine is most likely a symptom of their chronically malfunctioning back.”

“ODD AND FRUSTRATING”

Tim Lynch, DVM, veterinary surgeon at the Peterson & Smith Equine Hospital in Ocala, FL, took note of Coomer’s study and the high success rate for ISLD. Lynch performed his version of the procedure on five horses in 2014 and feels it possesses great potential, but

he hasn’t completed enough cases to pass judgement. “It’s not a very pretty surgery,” he said. “It involves a lot of grinding around between the interspinous ligaments, but it’s a very small incision. I followed the rehab protocol in the paper, and two horses are doing really well, while the other three are still recuperating, so I haven’t done enough to make heads or tails of it, but it is very interesting.”

Like Turner, Lynch’s practice performs radiographs on a variety of young horses in training, and he’s always astonished by which horses present symptoms of kissing spines, while others seem to be impervious to the condition. “We see a lot of horses that are back sore, so we bone scan them and they have uptake in the dorsal spinal process, which is probably kissing spine, and they still perform very well,” he said. “Then there are the ones you can’t even get a saddle on, that buck and rear and are quite dangerous.”

Pre-purchase examination bone scans on young Thoroughbreds reveal kissing spine on a regular basis, but it’s difficult for veterinarians to predict whether the mechanical impingement will ever lead to back pain and lameness. “I’m always surprised by how young they are; they show no signs of clinical lameness, and they already having kissing spine,” Lynch said. “Is it because of the breed or conformation of the horse? It’s odd and frustrating for veterinarians, because it’s all over the map.”

Lynch started performing the procedure, because he found that many of the traditional medical therapies used to treat kissing spine led to disappointing results. “It’s also very difficult for us as the veterinarians to determine which horse requires what kind of treatment,” he said. “I’m not saying this surgery could be a cure-all, but maybe we can discover which horses benefit from surgery versus medical therapy.”



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Because the recovery rate in Coomer's published paper is so good, it's tempting to conclude that this surgery will be the right choice for every horse diagnosed with kissing spine. But it will take many more surgeries before veterinarians can determine the cases where the risk and expense of surgery will most likely yield a positive outcome.

REFINING THE SURGICAL APPROACH

Ian Wright, MRCVS, and his associates at Newmarket Equine Hospital in Suffolk, England, published the results of their study on a slightly different surgical technique to Coomer's to treat kissing spines. Their method is called subtotal cranial wedge ostectomy. Their research,

which appeared in the May 2014 edition of *Equine Veterinary Journal*, evaluated how horses recovered over a period of time and how their backs appeared after the surgery.

Wright's ostectomy surgery incorporates resecting the uppermost portion of the diseased vertebrae while a horse is under general anesthesia. He and his team felt if they only cut away the bone that was damaged, they would preserve the tissues that were not affected, so the horse's back would continue to maintain its normal spinal structure. This was important to the research group, as they wanted to employ a technique that would not alter the appearance of the horse's back. Also, using general anesthesia affords

better access to the damaged spinal area, so there will be less time spent in surgery (average 30 minutes) and the healthy tissue will not be affected.

The research team performed their work on 25 horses at the Newmarket facility from 2009 to 2011. Fifteen horses completely recovered and resumed work, while three horses saw their clinical symptoms improved, although not at an optimum performance level. Only one horse did not improve after the surgery. Also, just over 80 percent of the horses retained the normal appearance of their backs. Wright and his associates ultimately determined their surgical method performed well to treat this disease. 🐾

Saddle Fit and Kissing Spines

by Jochen Schleese, CMS, CSFT, CSE

There are differing opinions as to whether kissing spine is a disease with predilection already present at birth, or whether it is caused by poor saddle fit, poor riding, etc., during the course of the horse's life. Whatever you believe, the fact is that it can definitely be exacerbated by poor riding and bad saddle fit.

To understand how saddle fit plays a role in kissing spines, you first have to examine the possible underlying factors. Along with 'trainable' or conditioned reflexes, both horses and humans have parasympathetic, non-consciously controllable reflex points, where muscles react to a stimulus of specific nerves without the horse or human being able to stop them.

A saddle which is too long, or pinches at the gullet, or is too tight over the shoulder(s) where the tree width or angle is incorrect and as a result sits on one of the horse's specific reflex points, can cause many problems. The equine spinal column has nerve ends which protrude between each of the vertebrae. About five of these nerve ends are actual reflex points. Using pressure between the 18th thoracic vertebra and ending at the withers to approximate the feel of a saddle, under even a light rider, will cause the horse to drop his back. If the horse were to assume this position the whole time under saddle, the formation of the condition known as 'kissing spine' would result – presuming it is not already present. Pressure on these nerve ends from a gullet channel which is too narrow, a saddle which is too long, or a saddle which twists during movement because of natural asymmetry (and a gullet plate which has not been fitted to accommodate the larger shoulder), will cause the horse to reflexively lower his back to escape the pressure and/or resulting pain.



The propensity of many incorrectly-trained riders to neglect proper gymnastics of the horse at the lower levels to get him to 'bring his back under' properly has resulted in what is known as 'leg movers' rather than 'back movers' and I would warrant a guess that many of these horses are also suffering from kissing spine. If not yet present, it will develop from this type of riding where the back remains hollow rather than supple, causing the vertebrae to lean into each other.