

# SACROILIAC PAIN

**By Dr John Kohnke BVSc RDA**

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## IN THIS FACTSHEET

- **Common Symptoms of Sacroiliac Pain**
- **How to check your horse for Sacroiliac Pain**
- **Therapy and Treatment for Back Pain**
- **Simple Rehab Program**
- **Other ways to help**
- **Prevention Strategies**

Any ridden horse can display signs of sacroiliac (SI) pain, with up to 50 % of all back injuries being associated with the sacroiliac ligaments and joints.

Lower back pain can cause changes in gait and behaviour, loss of impulsion and resistance in 'collected' work and upwards transitions.

## Summary

Lower back and sacroiliac pain is common in equestrian horses. Up to 50 % of all back injuries are associated with the sacroiliac ligaments and joints.

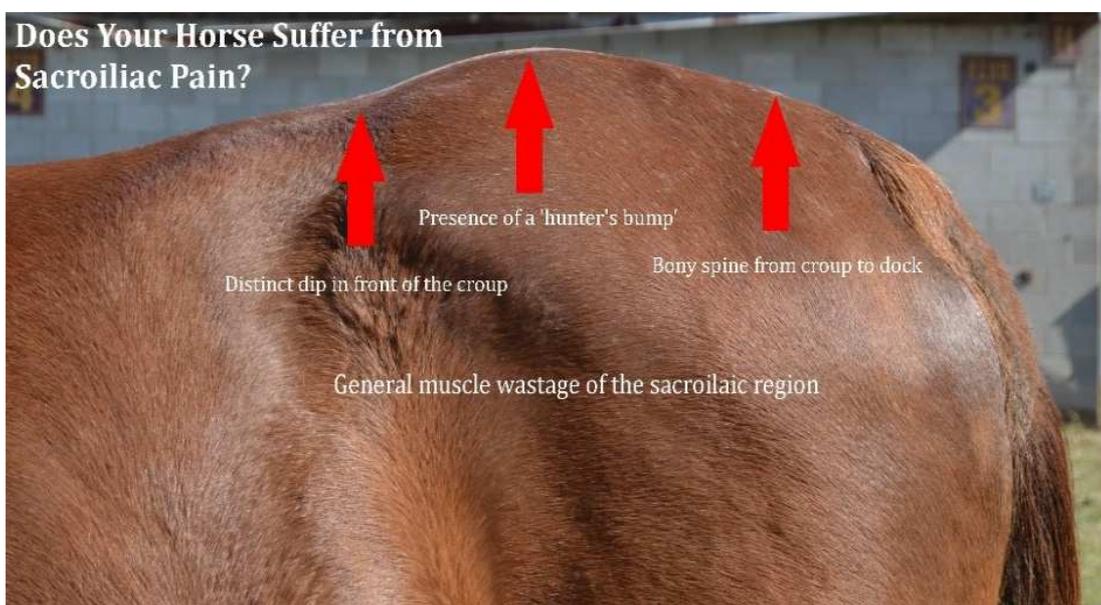
There are 12 common symptoms of sacroiliac pain and a horse may display more than one symptom of sacroiliac pain.

Horses with a well-developed back line and hindquarters are less likely to suffer from sacroiliac pain.

Long term sacroiliac weakness, muscle spasms and discomfort can reduce hind limb action, leading to muscle wastage in the lower back region.

Therapy and treatments for back problems are many and varied but simple rehabilitation exercises are effective in helping to re-build and strengthen the croup muscles and sacroiliac ligaments for a quicker and better recovery.

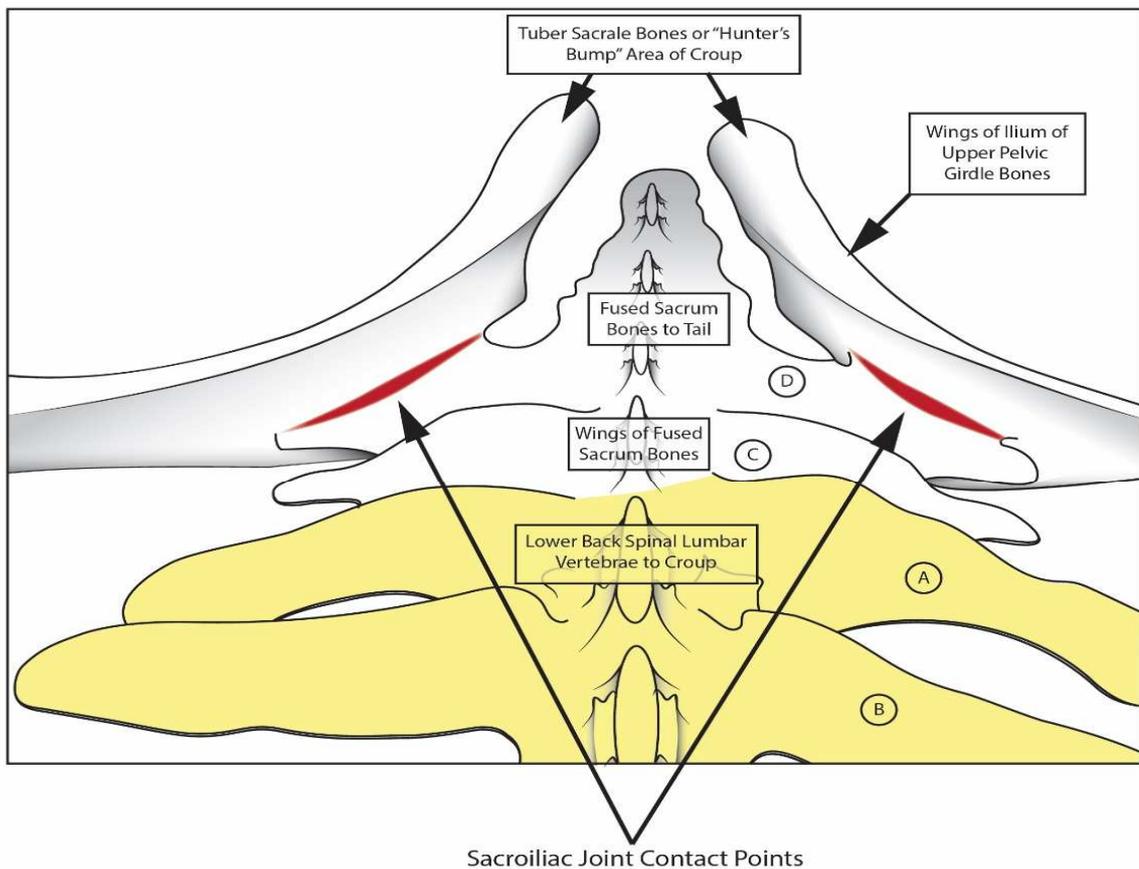
A course of Kohnke's Own Muscle XL™ can help to accelerate recovery and improve top-line, muscle strength and movement.



## Structure of the Sacroiliac Joint

A horse's pelvis is not attached to the bony sacrum in the croup area of the spinal vertebrae by a typical joint, as in the hip and the lower limb bones. Instead, a type of 'contact' joint is formed between the wings of the sacrum and the inner surface of the ilium bone in the upper area pelvic area. The structure of the sacroiliac joints on each side are held in place by the strong ventral sacroiliac ligament, which provides a stabilising and shock absorbing function within the lower back and croup. A series of 3 strong ventral (lower) ligaments and connective tissue sheets fan out to attach to the sacral bone wings and the upper pelvic girdle ilium bones on each side. It is surrounded by a strong fibrous joint capsule, which combined with the ventral stabilising ligaments, spread out to maintain the two bony structures in contact with very little, if any, movement. Studies have shown that the sacroiliac joint has only a 1-3% range of movement in the horse. If the sacroiliac stabilising ligaments are strained or torn by overloading as a result of high impulsion forces of movement by the strong croup and rump muscles, this can lead to excessive movement between the two bony surfaces which form the sacroiliac joints on one or both sides.

**Diagram of the Sacroiliac Joints in the Croup Area**



**Location of Sacroiliac Joints in Croup Area**

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## How does Sacroiliac pain occur?

Sacroiliac pain and injury can occur due to both overloading and high loading forces. Overloading forces are especially common when working a horse repeatedly on a deep surface. High loading frequently occurs during jumping as the horse's body is pushed up by the strong lower back, sudden downward weight bearing also occurs after landing heavily. High loading forces are also commonly seen in dressage exercises and movements, especially as the level of the horse's education and training increases. Other common causes include twisting the sacroiliac structures whilst struggling to get up after being cast in a stable, a sudden loss of traction on a slippery surface and a

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fall, skidding to a halt and turning, turning sharply or sudden high load, fast acceleration from a standing start, or pulling a cart or heavy drawn vehicle; all can result in the stabilising ligaments being strained or even torn on one or both sides.

The sacroiliac joint surfaces are covered by hard hyaline cartilage on the bony wings of the sacrum on each side and soft joint cartilage on the opposing ilium of the pelvic girdle wing side of the joint. Instability and abnormal movement can result in the erosion of the softer cartilage on the inside of the pelvic girdle and development of painful arthritis in the sacroiliac joints on one or both sides. To compensate, the horse will tension the strong croup area muscles to support and maintain the sacrum in position, this can lead to painful muscle tension and muscle spasms, especially when being ridden.

Many owners and riders of dressage, jumping, eventing and Western Performance horses have experienced reduced performance and loss of impulsion power to be associated with chronic SI pain. It is also relatively common in harness horses and older racing horses due to increased traction forces on the hindlimbs and lower back, which can cause SI problems when transitioning to equestrian sports after retirement.

Dressage horses are considered to be more prone to sacroiliac ligament strains due to the high impulsion loading and power from their usual high muscle bulk and rear end weight, increasing lower back and croup loading, especially during advanced movements or when worked on loose, deep arena surfaces.



*A horse with a significant 'hunters bump' and muscle wastage*

In more chronic cases, affected horses lose top-line muscle bulk and when rocked from side to side by pushing on the 'point of the hip' or 'pin bones', make a 'grunting' noise due to pain. A horse will often resist lifting one or both back legs as it twists the lumbosacral ligaments and the tension on the painful sacroiliac joints increases.

A study found that an increase in the height of the midline bony projections of the tuber sacrale or top of the pelvic girdle ilium bone (referred to as the 'Hunter's or Jumper's Bump' area) – which is often more prominent in a horse with top-line and croup muscle waste due to sacroiliac damage, of more than 10mm (1 cm) was associated with sacroiliac injury and loss of race performance in Standardbred horses.

### DID YOU KNOW???

***Pacing harness horses also often develop painful arthritic changes in the lower back just in front of the croup (the lumbosacral joint of the vertebral column). The lumbosacral joint is the only vertebral joint in the back which allows side to side rotational movement of the hind quarters which is aggravated by the pacing action. In some cases, older harness racing horses have discomfort in both the lumbosacral and sacroiliac joints and are unable to race to their full ability.***

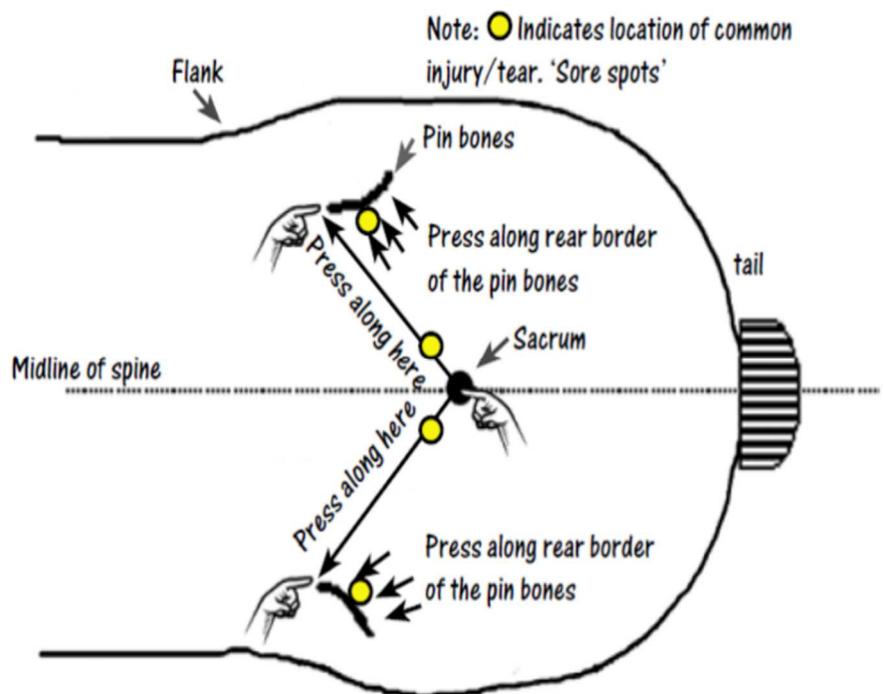
## Common Symptoms of Sacroiliac Pain

If you recognise 4 or more of these typical symptoms, then your horse could be suffering from a chronic sacroiliac injury:

1. Lugging to one side or inability to work smoothly around a bend or circle on one side.
2. Resisting the transition, throwing the head up, and 'dipping' in the back when asked to canter, for collected movements or to work with hindlimb impulsion, or a reluctance to stretch out at the canter, developing a characteristic 'bunny hopping' gait with both hind limbs lifted together at each stride.
3. Dipping the back when ridden in a 'collected gait', with lack of lateral flexion.
4. Working with one hind leg swinging under the hindquarters, especially when turning.
5. Dragging the toe with the hindlimb of the affected side when walking, with a short limb stride length.
6. Bucking when asked to work up a rise or refusing to jump over rails.
7. Failure to develop top-line croup muscles, with short hindlimb stride length movement.
8. Intermittent lameness and shortened stride in the diagonal front limb.
9. Swishing the tail when under saddle, particularly during warm-up exercises.
10. Presence of a 'hunters or jumper's bump' or prominent midline bony tuber sacrale area at the highest part of the croup just in front of the rump, which is often associated with top-line and croup muscle wastage in chronic SI affected horses.
11. Signs of discomfort and leg 'trembling' when the affected hindlimb is lifted upwards for hoof trimming or cleaning.
12. Sometimes, short-term relief after chiropractic manipulation or acupuncture therapy, but not long-term lasting improvement in movement in willingness or impulsion power.

## Checking for Discomfort in the Croup and Sacroiliac Pain

As a horse owner, you can check for pain in the muscles overlying the sacroiliac stabilising ligaments. Check the croup area before the horse is worked or a couple of hours after it has cooled down after exercise. Place the index finger of your right hand on the highest point on the midline of the back (sacrum) and the index finger of your left hand on the front border of the pin (hip) bone at the flank. Join the two points by moving your right finger to the left finger and leave a line in the hair. Press down firmly with your fingers together along this line – affected horses will dip in the back significantly at the point of muscle tension and spasm associated with the sacroiliac ligament strain and SI joint pain. Press firmly along the upper border of the bony prominence of 'hip' or 'pin' bones to check for discomfort (Refer to the diagram)



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**HANDY HINT - A 'Hunters' Bump does not always indicate a sacroiliac injury**

***The more prominent 'Hunter's or Jumper's Bump', is not always a definitive sign of sacroiliac instability, as some horses, such as Arabians, have a 'bump' which is related to a raised croup conformation and not always associated with sacroiliac ligament strain.***

Consult your vet for confirmation of the diagnosis.

Repeat the check on the other side croup area to help determine which side may be more affected by muscle spasm pain associated with sacroiliac injury. Normally, one side may exhibit more pain reaction, which coincides to the side with the more severe sacroiliac ligament strain or tear injury. In most cases, the affected horse will resist turning to the opposite side as the discomfort will reduce the stride power to turn. For example, a horse with an off-side sacroiliac injury will resist turning to the near-side as it has to push harder with its off-side or right-side

limb to allow it to turn its body to the near or left-side.

### Diagnosis of Sacroiliac Pain and Joint Arthritis

The initial diagnosis of sacroiliac discomfort is based on symptoms and examination of the sacroiliac region to check for pain reaction to deep finger pressure. Veterinary examination can help to pinpoint the exact area of pain and assess the horse for lower back pain and sacroiliac injury that may require specific treatment and rehabilitation. Unfortunately, the ventral ligaments and sacroiliac joint surfaces are deep within the upper croup and pelvic girdle/sacrum bone structures and cannot be viewed by penetrating X-rays to establish a definitive diagnosis.

However, blocking the sacroiliac joint area from the front or rear aspect of the joint in the croup with infiltration of local anaesthetic, has been shown to relieve the pain and discomfort in 98% of horses with a suspected sacroiliac ligament strain and joint arthritic damage. Whilst the sacroiliac area is numbed by the anaesthetic, a SI affected horse will regain full movement, with increased hindlimb impulsion and return to a smooth canter under saddle. If possible, working the horse on a circular lunge each way to observe the return of normal movement and full hindlimb extension, will help your vet determine which side of the sacroiliac joint affects the gait and ability to turn. The horse can also be worked under saddle to check for straight-line movement and ease of turning at the trot and canter.

Scintigraphy or a penetrating bone scan, carried out at a registered specialised lameness clinic, will allow a specially accredited veterinarian to correctly diagnose sacroiliac joint pain and injury. The sacroiliac image is illustrated on a radiation detector unit with a screen to highlight bony changes and joint damage and is helpful to confirm the diagnosis in 48% of cases. However, a negative result does not always rule out sacroiliac bony joint involvement.

A less expensive alternative is ultrasound imaging to help confirm inflammation, soft tissue, ligament and arthritic changes in 32% of SI affected horses.

### Therapy and Treatment

The treatment for back problems are many and varied! Back problems often become chronic in nature, so there is no single therapy that is the one 'cure' for all sacroiliac related injuries.

Most sacroiliac strains involve ventral sacroiliac ligament and soft tissue injuries, often with a displacement injury to sacral and pelvic structures associated with a fall, sudden

**HANDY HINT- *Change in a Horse's 'Hunters or Jumper's Bump'***

***Horses with well-developed back line and hindquarters are less likely to develop sacroiliac injury, with the risk increasing in all horses that jump (hurlers, showjumpers, eventers) or use their lower back for acceleration and impulsion (pacers, dressage horses, barrel racing, reining horses and polocrosse horses). Monitoring a horse with a 'hunters bump' is essential to gauge any change in the sacroiliac area which could lead to sacroiliac pain or discomfort. When checking the 'hunters bump' it is important to consider the horse's work history, stage of fitness, breed conformation, condition and ideally, how the size of the 'bump' has changed over time.***

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overloading or slipping on a wet arena or work surface. Long term sacroiliac weakness will lead to muscle wastage in the lower back region, which often requires a long period of rehab before full fitness is achieved.

Studies have shown that chiropractic manipulation to restore full sacroiliac joint stability is not possible even in an fully anaesthetized horse. Massage of the croup area can help relieve the associated muscle spasms temporarily and improve a horse's movement with some noticeable benefit in impulsion power, hind limb forward movement and ability to turn on a circle lunge. Unfortunately, chiropractic or equine body work skill varies between practitioners and because it cannot be performed each day due to the expense of the massage and muscle spasm relief, it may have benefit for 2- 3 days in most cases.

Studies have also indicated that acupuncture to relieve croup pain is short-lived as well and the long-lasting benefit in rehabilitation of SI pain and arthritic changes is variable.

Swimming a horse with sacroiliac injury can exacerbate the lameness due to the 'frog -like' hind limb movement when swimming which can increase the discomfort.

Working a horse at a light trot in a straight line up a slight rise will help to engage and load the top-line, croup and rump muscles, and in some mild cases may help strengthen the hind quarters, in many cases a horse with sacroiliac joint pain will resist the hindlimb movement and gain little if any benefit or chronic SI associated pain relief.

A therapy program which includes initial rest, followed by specific exercises to 'work' the sacroiliac ligaments and increase their flexibility and strength, provides the best chance of rehabilitation. Studies have shown that up to 47 % of horses with sacroiliac ligament strain or SI joint arthritis can be helped with the simple set of exercises below.

**In our extensive experience, combining the rehabilitation exercises with a dietary supplement, such as Kohnke's Own Muscle XL®, to help to build extra top-line and croup muscle strength in the affected region, can significantly increase the speed and degree of rehabilitation.**

### Simple Rehab Program

Where the sacroiliac ligament or joints are inflamed and painful, initial injections of long acting anti-inflammatory cortisone (on the advice and carried out by your vet) into the SI joint area, can help to provide relief from long standing discomfort, followed by an appropriate rest period before returning to training or competition. Daily dosing with NSIAD such as 'Bute' to relieve the discomfort in a working horse, is not recommended for more than 7 -10 days at a time, as there is a risk of gastric ulceration and damage to the hind gut lining cells. Adopt guidelines prescribed by your vet.

A new ventral ligament strain or slight tear with severe local inflammation and discomfort, may require up to 30 – 45 days of stable and yard rest. However, extended spelling periods are not recommended because the back muscles and associated sacroiliac ligament structures need to be 'worked' to improve flexibility and strength. Strengthening the back muscles can provide external support to the croup and ventral sacroiliac ligaments to limit sacroiliac joint movement and associated SI joint cartilage 'wear and tear'. Controlled daily straight-line hand walking (avoid a circular walking machine) will help to avoid further strain injury and 'work' the sacroiliac area. Ligaments are able strengthen and repair in response to step-wise loading without any further overload insults.

Do not turn out a horse with a severe SI ligament of joint injury into the paddock as uncontrolled paddock exercise is likely to aggravate the injury and extend the rehabilitation time especially in a horse in training released from stable confinement to paddock rest.

### Massage: Relieving Muscle Spasm

The first method to benefit a horse with a sacroiliac strain or back pain is a deep kneading massage technique, which any horse owner can perform. Machine massage is usually not able to beneficially restore blood and relax the deeper muscle spasms associated with chronic sacroiliac injury.

Before exercise, perform a deep kneading type of massage using your clenched fists over the path of the sacroiliac ligament area from the hip or pin bone on each side up to the point of the croup ( the Hunters' or Jumper's Bump or tuber sacrale area) for 30-60 seconds on each side. This type of massage will help to increase blood flow into the tissue and relax muscle spasms. It is recommended that you start the massage on the near (left) side of the sacroiliac area as most horses are familiar with near side grooming first in a routine. Massage with sufficient kneading force to depress the skin and underlying muscles by approximately 10 mm under your clenched fists as you roll them upwards together onto the top knuckles of the fingers and over in a kneading massage movement. It is most important that you lift your hands off the skin surface at the completion of each massage 'roll' of your clenched fist. If you roll over your fist and stretch the underlying skin, it may hurt the horse which may be tempted to kick out with you next to its hind quarters. Lift your fist and replace it slightly higher back onto the skin each time following each roll. After completing one side, move to the other side to repeat the deep massage to relax the sacroiliac ligament discomfort and associated muscle spasms.



*Performing the kneading massage before exercise.*

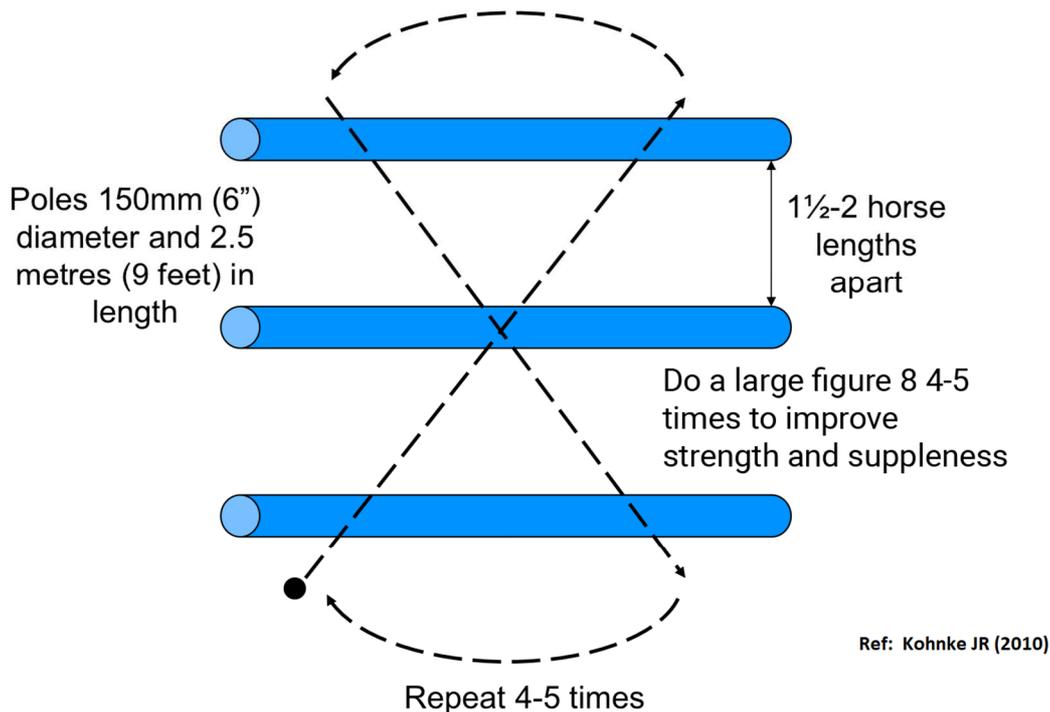
### Simple Exercises to Strengthen the Sacroiliac Region

Observations over many years by Dr. John Kohnke has shown that groundwork over poles carried out each day is a simple but highly effective exercise for horses suffering from sacroiliac strain and lower back pain. In fact, this exercise can improve the suppleness of all horses. It is especially helpful for increasing the lower back, croup and rump muscle strength and overall flexibility of the back in order to improve collection and bold impulsion movement in all horses, especially those being trained and competed equestrian sports. It can be adopted as simple warm-up exercise before ridden work to improve the flexibility of the lower back and help strengthen the sacroiliac ligaments.

#### 1. Pole Work on the Ground

Walk the horse over poles daily for 10 – 14 days following the initial rest period. Use 3 ground poles such as jumping rails or treated pine logs, spaced 1 stride or 2 horse lengths apart. Lead the horse in walk at a 45° angle approach over the poles on a loose lead in a figure 8 pattern (as illustrated), making a wide end circle turn so as to not cause discomfort in the croup area by twisting the sacroiliac structures. Complete the figure 8 pole pattern 4 – 5 times to help flex and tension the sacral and pelvic areas as the horse lifts each leg individually as it walks diagonally over the poles. This can be carried out as a pre-riding warm-up and muscle stretching exercise before riding each day, even in horses without a sacroiliac strain injury. Do not ride the horse over the poles, as the horse must have the ability to fully stretch the muscles and extend the hindlimbs forward. Often a horse will 'clip' the poles, especially with the hoof of the affected leg, during the first few days as it walks over the poles at the 45 degree angle until it regains its lower back strength to walk cleanly over each pole.

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### Physiotherapy exercise pattern to strengthen and supple the lower back and reduce the risk of sacroiliac weakness

## 2. Ridden Work

Once under saddle, if possible, use leg aids to walk the horse at an angle as in a 'shoulder in' lateral movement for 4 to 5 'zig zags' across the arena. This will further help to strengthen the sacroiliac ligaments and associated joint structures. For the initial 10 days of ridden work, plan to work the horse towards its 'good side' if it breaks when cornering or work on a circle lunge, to reduce the strain on the sacroiliac ligaments and movement in the SI joints.

### HANDY HINT – A Sore Back Can Make Lifting the Hindleg Difficult

*During the first 3 – 5 days of pole exercise, the horse may 'clip' the pole with the toe of the worst affected hindlimb as it walks over the poles until the exercises strengthen the lower back muscles and sacroiliac area. The weakness in an affected limb can often be seen when looking at a horse walking away from the observer. The horse might place the hoof of the affected limb well over to the other side rather than straight underneath the body. The affected limb will often have a shortened stride length.*

## 3. Other Ways to Help

Horses with severe sacroiliac pain may find more relief during meal-times by placing their feed bin 30 cm off the ground to avoid the horse having to tense its back when feeding with its head down.

Check saddle fitting regularly, horses can often change in condition.

Covering the horse with a horse rug with static magnets 3000 gauss in strength positioned over the lower back and croup, usually overnight when stabled may help improve the blood flow and assist in reducing muscle spasms and the healing of the ventral sacroiliac ligaments deep within the croup. The blanket must **only be applied for 12 hours on and 12 hours off during the full 24 hours.**

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### 4. Introduce a good quality Joint Supplement

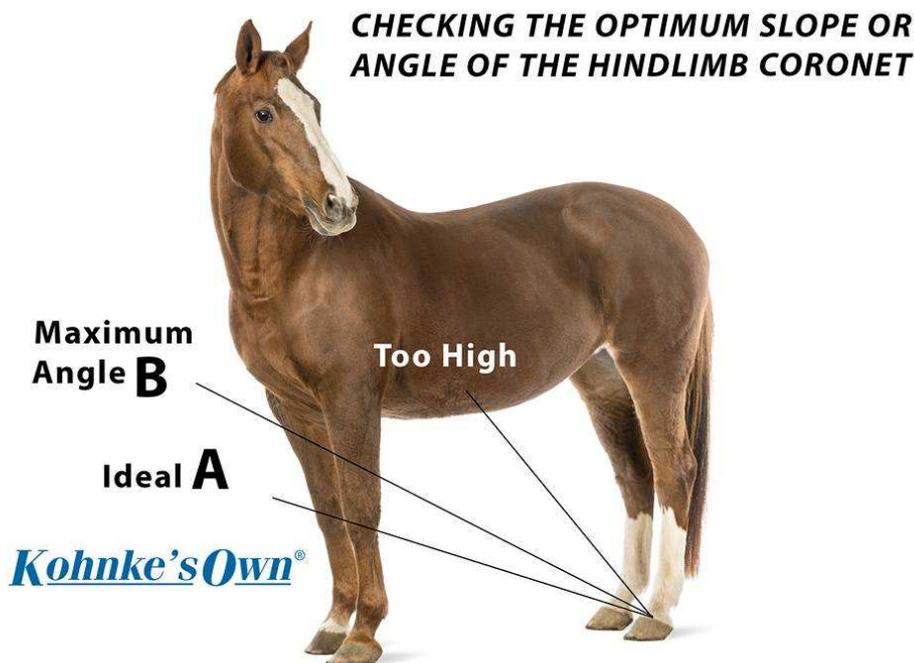
Excessive movement of the two bony surfaces which form the sacroiliac joints within the croup can lead to cartilage 'wear and tear' of the two opposing surfaces on the wings of the sacrum and ilium bone.

**Kohnke's Own® Redi-Flex®** has over 10 joint active ingredients which all have roles in joint health and function. Redi-Flex has increased synergy with nutrients targeting the entire joint structure, synovial fluid, tendons and ligaments for proven benefits. Field studies with Redi-Flex, to evaluate its benefits in horses with symptoms of sacroiliac pain, indicated that daily long term supplementation may help improve the comfort and willingness to exercise in affected horses, to complement to massage and walking over poles therapy.



### 5. Improvement in Hoof Angles on the Rear Hooves

Poor hoof angles, such as low heels or long toes, can cause extra loading stress to the lower back and sacroiliac region. Check the hind hoof angles to prevent overloading the lower back area.



*The angle of the hoof can significantly impact the load bearing and pressure put on the horse's joints and lower back. It is important to achieve the ideal hoof angle for each individual horse, to help support the sacroiliac area as well as the leg, joints, and tendons. The hooves in the left picture below are too low in the heels, whilst the hooves in the right picture are too high in the heels, neither depict an ideal hoof angle.*

Heels too low,  
angle is too high



Heels too high,  
angle is too low



### 6. Building Muscle Bulk and Strength of the Top-Line and Croup area

It is advised to optimise the muscle strength and top-line of the lower back to support the weakened region. Experience over the last 15 years by veterinarian Dr. John Kohnke in managing sacroiliac rehabilitation of all types of horses indicated that a combination of massage and walking diagonally over poles, as described above, was complemented by a targeted daily supplement of a comprehensive muscle building 'food', as in **Kohnke's Own® Muscle XL®**.

#### Using Muscle XL to help your horse recover from sacroiliac pain and lower back weakness

*A course of Kohnke's Own Muscle XL is the easy way to support recovery and regeneration of strength within the back muscles for horses with sacroiliac weakness. Muscle XL can help to improve the rate of recovery in horses with sacroiliac pain by building top-line and muscle tone in the lower back region to support the weakened top-line and croup muscles and sacroiliac ligaments.*



*Muscle XL is often used with massage and ground work pole 'Figure 8' exercises for quicker and easier results, usually seen within 14 – 21 days, although horses with serious muscle wastage around the sacroiliac region may need a longer course to fully recover good muscle strength and tone.*

*Muscle XL can also be used after regular exercise, hard training days and competition to improve muscle recovery and muscle cell energy regeneration, especially once the horse commences back into a full work program. This is particularly helpful for horses with previous SI injuries when competing over consecutive days, which can stress or aggravate lingering ligament instability or weakness.*

*Muscle XL is the ultimate 'muscle food', combining multiple active ingredients such as highly concentrated branched chain amino acids, essential amino acids and extra glutamine. Muscle XL also features synergistic nutrients for muscle building and recovery from wastage issues or hard exercise, such as high potency vitamin E as a muscle antioxidant and MSM, which has anti-inflammatory properties.*

*Use Muscle XL after exercise, even light hand walking which warms and activates the muscles for better uptake of the nutrients in Muscle XL. All types of horses can benefit from Muscle XL to regenerate and repair muscles, build top-line and encourage muscle growth for strength, stamina and tone.*

### Preventing Lower Back and Sacroiliac Injuries

Some measures that you can adopt as a horse owner to reduce the risk of lower back sprains and strains include:

1. Avoid working a horse on a slippery surface as it may lose its footing, or working on a very deep, heavy and dry arena surface where the risk of lower back sprain is increased.
2. Correct and supportive shoeing and trimming can help to reduce back strain. Ensure the hind toes are kept short with adequate heel height to avoid loading additional weight onto the hocks, stifle and sacroiliac structures.
3. In a horse with history of sacroiliac injury, reduce high risk impact and tight turns at speed if possible. High risk sports include polo, jumping, eventing, polocrosse, camp drafting and western pleasure sports. Do not return to training or competition if the horse is not fully recovered.
4. Ensure all horses are warmed up and if possible, adopt the massage and walking diagonally over poles, as outlined in rehab exercises, prior to exercise and training.

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5. Where a horse has sacroiliac joint discomfort, maintain it on a daily joint supplement, such as Kohnke's Own Redi-Flex.
6. If a horse develops symptoms of lower back discomfort or shortened hind limb stride length or uneven hind limb movement, have the horse checked out and adopt the rehab measures as recommended above.
7. When purchasing a horse, carefully check its gait from the side and rear at the trot and on the circle to check for symptoms of lower back injury.
8. Any horse which develops a more prominent 'Hunter's or Jumper's Bump' due to muscle loss on the top-line and croup should be examined for sacroiliac pain and a rehabilitation program adopted as outlined above.



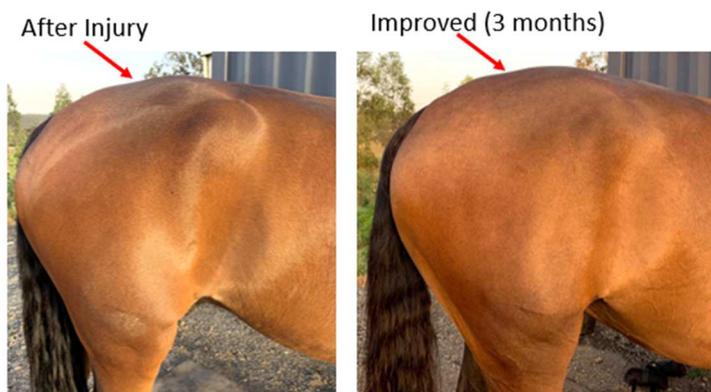
*Muscle wastage on off-side indicating sacroiliac strain and lower back weakness from injury*

### Rossi's Journey to Recovery from Sacroiliac Strain

Rossi sustained an unfortunate paddock injury and he became extremely lame behind. Thorough veterinary examination was carried out and he was diagnosed with a deep muscle tear and sacroiliac strain. Within a week after the accident, Rossi lost muscle on his off-side rump. I immediately started him on Muscle XL to help support and rebuild the damaged muscle. After a few weeks of paddock rest, I started Dr. John's rehabilitation exercises in combination with the Muscle XL.

I hand walked Rossi over poles daily as outlined by Dr. John for a month. He then began very light work under saddle with walk only for the first two weeks. I increased the amount and intensity of work slowly over 6 weeks. Rossi is now back in full training and eventing competition. I still use Muscle XL as a course before and after competition or intense training days. It is especially helpful if he has had a few weeks off to help support his muscles as he comes back into work.

The healing process of muscles takes a long time but Rossi would not have been able to recover so well and come back so strong without the assistance of Muscle XL and Dr. Kohnke's rehabilitation exercises.



*Characteristic lower back 'dip' often seen after sacroiliac strain*



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