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A step in the right direction

Suspensory ligaments have always proved a problematic area for horses, however the frequency of diagnosing these injuries is on the increase. Kirsty Whittle delves into the science behind Promixal Suspensory Desmitis.

On the up
Equine injuries are commonplace in today's world. The Thoroughbred, designed to be sleek and fast, balances half a tonne of bone and muscle upon four spindly legs while negotiating top speeds of 40 miles per hour.

With increased demand and finer breeding, horses are evolving to become faster and stronger, but their limbs are not and while owners will select a horse based on their likes and dislikes, the end result is still the same; injury can happen at any time to any horse.

Suspensory ligament injuries are being diagnosed at an alarming rate due to increased knowledge and technology. "We are seeing increasing numbers of horses suffering from hind limb lameness and we are diagnosing more of these with proximal suspensory desmitis (PSD)," says Gemma Coleman, a vet from Westover Veterinary Centre in Hainford, Norfolk.

"It is impossible to say whether the increase is due to a rise in the number of horses suffering from the condition, an increase in owner awareness of lameness; or whether this is a result of an increasing awareness in the veterinary profession and our improved ability to image and diagnose the disease."

With more horses being diagnosed, it's important to understand the origin of the problem. Sue Dyson from the Animal Health Trust (AHT) in Newmarket explains: "PSD is a strain and degenerative injury of the top part of the suspensory ligament sometimes also involving its attachment to the top of the back of the cannon bone (third metatarsal bone)."

Diagnosing the problem
PSD may appear as a slight lameness, often further noticed when a horse is ridden in a circle. A vet should be called to assess the lameness, before a lameness work-up is carried out at a suitable establishment. This will include the horse being observed at walk and trot on different surfaces, a series of flexion tests and a nerve blocking session to pinpoint the exact area of pain.

"Hind limb proximal suspensory desmitis results in lameness of variable severity from a loss in performance to a severe lameness," explains Gemma. "The disease is diagnosed by a veterinary surgeon who will use nerve blocks to localise the pain and then visualise the ligament and any lesions with an ultrasound." This part can be tricky as Sue explains: "The ultrasonography is important for definitive diagnosis of suspensory ligament injury; we are looking for changes in shape, size and internal architecture of the ligaments, characterised by alterations in echogenicity. This is challenging because it is technically difficult to get high quality ultrasonographic images of this region."

Some cases will also have radiographs and an MRI or CT carried out.

"With such a varied range of symptoms, it's important to monitor the horse's behaviour so you can inform the vet, "There is a huge variation in clinical presentation," says Sue. "There may be mild to severe lameness, loss of performance, bucking, rearing, bolting, sticking its head in the air of difficulty in performing."

Prevention is better than cure
"The most important risk factor for developing PSD is a horse's conformation; those with very straight hocks are more likely to develop the disease and respond less favourably to treatment," says Gemma. "Dressage horses are predisposed to hind limb suspensory disease. This is likely to be because of the type of training dressage horses undertake and the increased loading of the hind limb during certain movements such as collected trot or canter pirouettes."

Gemma goes on to explain that responsible training can also play a large part in keeping the horse sound. "We do think that repeatedly training on a surface..."
in a confined space may increase the risk of injury," says Gemma. "It has been known for some time that the type of surface used to train racehorses significantly affects their risk of injury. The greatest risk is seen in surfaces that are poorly maintained, deep, boggy and uneven. In contrast surfaces that remain uniform and level reduced the risk of injury occurring."

"The prognosis for an individual case will depend on the severity of disease seen, its conformation and the treatment that is attempted"

**On the mend**

The rehabilitation process for PSD will vary depending on the severity of disease the horse suffers and what treatment has been attempted. Treatments include conservative management and rest, shockwave therapy and surgery (neurectomy and fasciotomy).

However, it is important to remember that each horse is different and cases should be seen that way. "The prognosis for an individual case will depend on the severity of disease seen, the horse's conformation and the treatment that is attempted," explains Gemma. Sue continues: "Mild acute (recent onset) injuries may heal, but most others do not because these are often degenerative injuries," she says. "Shock wave therapy may help but surgical treatment offers the best prognosis." EQ

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**Arena surfaces**

The Animal Health Trust (AHT) has conducted extensive research into arena surfaces and the impact they can have on the horse. The study showed that arenas with deep, boggy or uneven surfaces increase the risk of lameness, and arenas that are poorly maintained or have no base tend to have negative properties. Using a stable base, like limestone, and a good quality arena surface are important in arena construction, but whatever the arena construction, the safety of the surface will continue to be affected by the level of maintenance. A questionnaire focussing on dressage horses showed that more frequent arena maintenance reduces the risk of lameness, but it did not show how maintaining the surface specifically produced this effect. Arena testing and gait analysis has shown that arena maintenance (superficial harrowing and watering) alters the properties of the surface and the movement pattern of the horse. This suggests that the horse is sensitive to changes in surface properties, both between arenas and across a single arena, making uniformity across the arena an important goal in surface management. Large differences across the arena could result in the horse frequently changing its gait causing it to tire more quickly, which would have negative implications for performance and injury.

To keep the arena surface uniform, it is ideal to use the arena evenly, so avoiding jumping or lunging on the same section of the arena repeatedly. However, in the real world, most arenas have areas that are used more than others (e.g. the track around the edge) and some heavy traffic areas of the arena (e.g. the entrance) cannot be moved, so the maintenance schedule must be adapted to take these areas into account. High and low traffic areas of the arena should be maintained with the aim of producing similar properties to keep the entire arena consistent. This is easiest and most effective if the maintenance is carried out frequently as there is less time for large differences between these high and low traffic areas to develop, making consistency simpler to achieve. Although this is dependent on the amount of use the arena gets, the more it is used the more often it needs to be maintained.

Apart from showing the impact of variable wear and conditions on surfaces, the AHT’s research highlighted the impact of different surface materials; woodchip surfaces tend to increase the risk of slipping, while including fibres or wax, consistent watering or preventing evaporation with a layer of rubber may assist in stabilising a sand-based arena. Sand based surfaces had the highest risk of lameness but this risk decreased with the more sessions the horse was ridden on it per week.

For further advice on arena maintenance, construction and use see the Animal Health Trust’s guidance leaflet, which is being produced in association with World Horse Welfare. This will be found at: www.aht.org.uk or www.worldhorsewelfare.org

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**Picture:** BHS Stage Three - Riding and Stable Management. By Hazel Reed

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