

FETLOCK BREAKDOWN INJURIES

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A FETLOCK BREAKDOWN INJURY IS ONE OF THE MOST TRAUMATIC EVENTS TO OCCUR ON A RACECOURSE OR ON THE TRAINING TRACK.

Any horses lost on the racetrack or in training is a tragedy, and vast amounts of resources are continually invested each year into research and development to make our horses healthier and tracks safer.

The risk of a fatality on racecourses (Victoria data) was reported in a research paper by Boden and Colleagues (2006) with the researchers finding 0.44 fatalities occurring for every 1000 flat race starts. Of these fatal injuries, approximately 75 per cent involved the lower limb. In the lower limb, the most common location is the fetlock, with breakdown injuries the most life threatening.

A breakdown injury is a disruption of suspensory support apparatus in the fetlock. The suspensory apparatus is the essential anatomy that allows horses to travel at high speed, maximising the efficiency of movement. In the fetlock, the three key bones responsible for the suspensory apparatus are:

- 1) Cannon bone
- 2) Pastern (Proximal phalanx)
- 3) Paired sesamoid bones

These bones come together with the suspensory ligament to act as a 'spring',

absorbing large amounts of energy and dispersing it back through the bones and into the horse. A breakdown injury is a complete disruption of one or multiple components, resulting in a loss of fetlock support and inability to bear weight. These are career ending and life-threatening injuries, severely compromising the welfare of the horse.

So how do these injuries occur?

The cause of breakdown injuries have been studied extensively in the racehorse and are almost exclusively associated with degree subchondral bone fatigue. As horses gallop, the fetlock joint is repeatedly loaded, extending this joint to a right angle, squeezing the front of the cannon bone and pastern, and compressing the sesamoid bones into the palmar (back region) of the cannon bone. Through training, the bones to continually undergo modelling, with adaption and strengthening of the bone a result.

Adaptive modelling is a desired outcome where the bones respond appropriately. Complete failure of one, or in rare cases all of these bones can occur as a result of a miss-step at high speed, or bone fatigue until failure. (Figure 1.)

Emergency management

Emergency management of the fracture in the racehorse can make the difference between life and death of the animal. Jockeys and trackwork riders can find themselves at high risk of severe injury themselves during a high-speed accident.

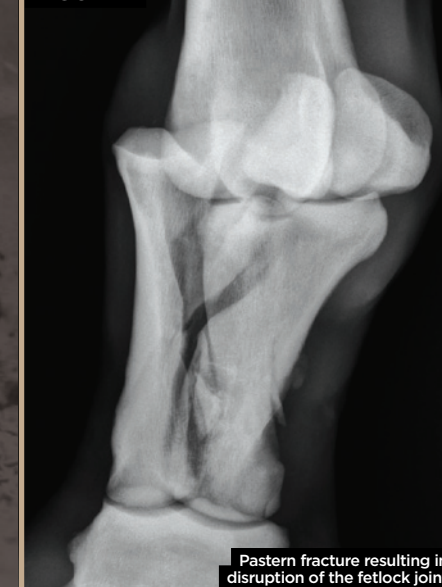
However, when an event occurs, they are the first responders in an incident. Dismounting the horse, identifying the injured leg, and getting the leg off the ground will help prevent more damage. In a track work accident, veterinary assistance may be delayed, with the best option to support the fetlock off the ground if possible in a heavy bandage.

On a raceday, after an accident, pain medications and sedation, combined with a bandage and a splint is essential. With appropriate splinting, many of these horses with initially catastrophic injuries, can be moved from the track and evaluated safely. (Figure 2).

Can we save these horses?

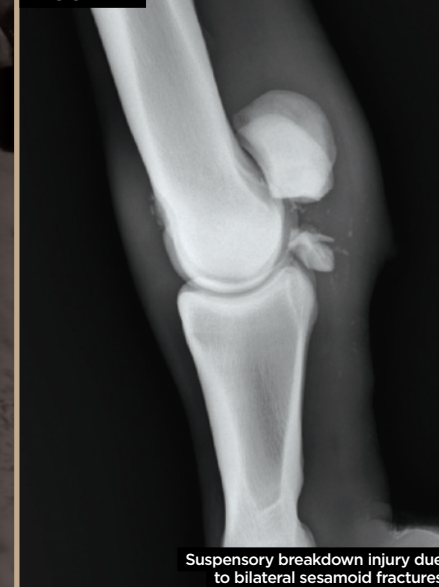
The short answer is yes; but in reality, not always. The principle method to save horses with a breakdown injury is by

FIGURE 1



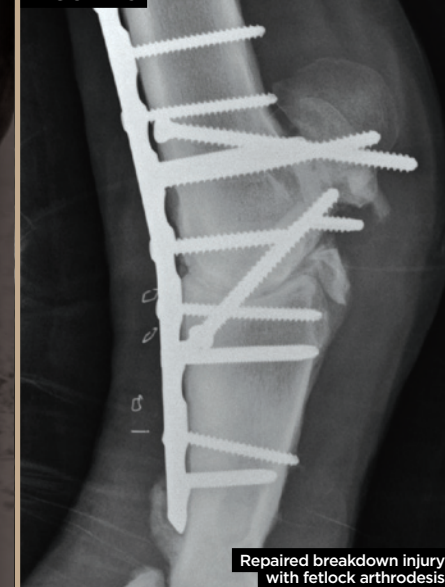
Pastern fracture resulting in disruption of the fetlock joint

FIGURE 2



Suspensory breakdown injury due to bilateral sesamoid fractures

FIGURE 3



Repaired breakdown injury with fetlock arthrodesis

either repairing the fracture primarily or performing a fetlock arthrodesis (Figure 3).

A fetlock arthrodesis is a salvage procedure, to surgically fuse the fetlock joint in position, allowing a level of soundness suitable for eventual paddock turnout and breeding.

As these fractures involve a large amount of energy at speed, with fractures comes severe trauma to the bones and the soft tissues surrounding them. Taking into account many factors, survival rates for fetlock arthrodesis after a breakdown injury is approximately 50-60 per cent.

Even the after a successful surgical procedure, the factors such as presence of multiple fractures, blood flow disruption in the leg, and supporting limb laminitis can lead an unsuccessful result.

As these are career-ending injuries, financial reality implies that not all animals will be candidates for surgery and euthanasia is frequently recommended.

Prevention of catastrophic fractures

Prevention of breakdown injuries and catastrophic fractures is no easy task.

Researchers have identified a number of risk factors associated with the development

of catastrophic breakdown injuries.

These risk factors include repeated intra-articular medications, chronic fetlock lameness, palmar condylar disease, and thickening of the subchondral bone plate. Advanced imaging, such as frequent radiographic (x-ray) monitoring, nuclear scintigraphy (bone scan), computerized tomography (CT), and recently MRI have helped identify at risk horses and provide treatment recommendations.

If non-adaptive change in bones has been identified, and no small fracture is present, horses will often benefit from two to three months small paddock turnout.

Low grade exercise has been found to help bone modelling to continue at a controlled rate. Bisphosphate products should be avoided in these cases, as these will prevent adaptive modelling.

A breakdown injury is perhaps the one of the worse injuries a racehorse can sustain. If prevention is aimed at identifying at-risk horses, using advanced imaging, and improving track surfaces, we can continue to lower the fatality rate and improve the safety of racing. ■

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