Splints are not uncommon – many of us own a horse with a splint on one or more legs. In most cases, this gives us no cause for concern and the horse performs normally with no adverse consequences.

However, in certain cases, a splint can cause long-term chronic lameness and they are also considered a significant blemish in the show-ring.

So what is the difference, and how do we know which splints should be of greatest concern?

**Equine leg structure**

Learning anatomy and understanding exactly what a splint is provides the best way of assessing the situation. A horse’s cannon bone is technically his third metacarpus (in the front leg) or third metatarsus (in a hindleg) – the equivalent to the hand or foot bone leading to your third finger or toe.

Whereas we have five metacarpi, the horse has evolved to standing on just the third metacarpus in each front leg. The splint bones are the second (on the inside) and fourth (on the outside) metacarpi. These bones have become almost redundant (or vestigial) and so are much smaller and largely non-weightbearing.

The splint bones are attached to the cannon bone by the interosseus ligament, known as such because it runs between...
two bones, namely the splint bone and the cannon bone.

Tearing of this ligament through either internal trauma – such as fast exercise – or external trauma, such as a fracture of the splint bone, results in inflammation in the ligament or the lining of the bone, which is known as the periosteum. This leads to proliferative bone growth and a hard lump to the side of the cannon bone.

**Lameness and treatment**

It is the size and position of this bony lump that determines whether a splint is likely to cause long-term lameness. The lump (exostosis) can interfere with the knee joint or the suspensory ligament, which runs down the back of the cannon bone.

The inflammation within the interosseous ligament and subsequent new bone growth interfere with the suspensory, leading to inflammation within this structure as well. This causes chronic lameness until the aggravating cause – the splint – is resolved.

Treatment for most splints is successful and short term. The horse is usually lame on the affected leg, and this is exacerbated on hard ground. There is localised pain and heat, commonly towards the top of the cannon bone, and there may be one or several swellings along the junction between the cannon and splint bones.

Common treatment involves rest and anti-inflammatories and, in straightforward cases, the lameness resolves and the horse returns to work in around four to six weeks.

**Splint bone fractures**

Developing a splint is more common in horses under the age of four, as exercise is a potential cause of damage to the interosseous ligament. As a horse gets older, the ligament becomes less flexible and the splint bones more brittle. Therefore fractures of the splint bone due to the stresses exerted during fast exercise become more common with age.

Splint bones may also be fractured by direct external trauma such as a kick, most commonly to the outside splint, or due to the horse striking himself and damaging the inside bone. The second metacarpal bone (inside) bears more weight than the fourth and thus is more prone to injury.

**Options for fractures**

Treatment of a fractured splint bone varies depending on the nature of the damage. If the fracture is in the bottom or mid section, surgical removal of the part of the bone below the fracture is usually successful.

If the fracture is closed – with no damage to the overlying skin – then rest, anti-inflammatories and allowing a callus to form can be successful. It is cosmetically less pleasing than surgery and there is a risk that the callus may cause a suspensory desmitis, depending on its position.

Fractures in the top third of the splint bone are more complicated. Internal fixation of the fragment with a plate or ‘lag’ screwing is required. The implants usually need to be removed, requiring a second surgery at a later date.

If the fourth metacarpus or metatarsus is affected, then complete removal of the splint bone can be carried out for multiple or open fractures. However, complete removal of the second metacarpus or metatarsus has detrimental consequences, as it results in changes to the angle of the knee or hock.

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**Did you know?**

Good conformation of the knees and hocks, keeping your horse well shod, not allowing him to become overweight and not working on hard ground will all help reduce the risk of splints.

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**SPLINT BONE REMOVAL**

As well as being a treatment for fractures, splint bone removal may be needed in cases of secondary suspensory desmitis or for cosmetic reasons.

If being carried out for the latter reason only, then certain factors will be taken into account, such as the site of the lump, and whether it is on the inside or outside of the limb. The lower down the bone needs to be removed, the simpler the surgery.

If the lump is higher up, then the surgery will be more invasive. Complete removal of a splint bone is only advisable for the fourth metacarpus or outside splint bone.

Also, surgery is not without risk. It involves a general anaesthetic and there are potential complications such as post-operative infection. The surgery itself can result in inflammation of the bone lining and formation of a bony lump.

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**OUR EXPERT**

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**Foreleg anatomy**

1 Splint bone
2 Formation of splint
3 Cannon bone
4 Long pastern