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Diagnosing and Treating Splints

Part of your pre-ride routine involves running a hand down each of your horse's legs—it's something you do almost automatically. But this time you come across a large, rigid bump on the inside of his front cannon bone. What could it be? It is likely a "popped" splint. Popped splints, or exostosis (a bony growth) of the metacarpal or metatarsal (splint) bones, are a common finding in horses. Usually, these are old and "quiet," meaning they cause no pain or lameness, but others are hot and active, causing pain and sometimes lameness.

The metacarpal and metatarsal bones are the small bones on each side of the cannon bone that extend from the carpus (knee) to just above the fetlock. The strong ligament between these bones and the cannon bone is the interosseous ligament, which hardens to bone as the horse ages. The splint bones are the remnants of prehistoric toes and the anatomic equivalents of your index and ring fingers.

Horses develop or "pop" splints for a number of reasons, including direct trauma, repeated concussion from work, poor conformation, and poor hoof balance. Splints commonly arise in young horses early in their training, but they can also occur in older horses. Front limbs and medial, or inside, splint bones are more commonly affected than hind limbs and/or lateral (outer) splint bones. Veterinarians divide splints into two groups: a fracture of the splint bone and the more common popped splint. They primarily use palpation and radiographs (X rays) to diagnose and monitor fractured or popped splints.

Popped splints
The more common popped splint often presents as a fast-developing warm, firm swelling on the side of the cannon bone. Lameness could be present, depending on the degree of inflammation, but, again, splints can develop with no signs of pain or lameness. The underlying pathology is tearing of the periosteum (the fibrous outer layer of the splint bone) or the interosseous ligament, which results in inflammation and new bone formation—the splint bump. Quiet splints can appear seemingly overnight with no heat, swelling, or lameness and generally require little treatment or rest.

Fractured splints
Direct trauma is the most common cause of a fractured splint bone. The location dictates the treatment plan and prognosis. Fracture of the lower part of the splint can be difficult to treat without surgery. Often the fragment moves so much that a normal stabilizing callus cannot form properly, so the fracture might not heal. If such a callus does not form after a few weeks or if the suspensory ligament branch (which inserts into the sesamoid bones at the bottom end of the cannon to hold them in place) is involved, your veterinarian might suggest removing the lower part of the splint bone surgically. Once removed, most cases have few problems going forward. Higher fractures of the splint bone, toward the knee, are more complicated. Surgeons prefer not to remove the bone closer to the carpus joint due to resulting joint instability. In some cases, they might elect to place a stabilizing plate and screws in the limb rather than remove the bone entirely. Fractures occurring in the middle of the splint bone are usually uncomplicated and resolve with several weeks of rest to allow the fracture to heal.

Managing splints
Most cases respond very well to conservative treatment. It's important that your veterinarian take radiographs to determine whether the bone is fractured. Treatment typically includes rest, cryotherapy (ice/cold hosing), and supportive wraps. Your veterinarian might recommend topical treatment with anti-inflammatory products, such as Surpass (diclofenac sodium), or applying a sweat wrap to the leg to reduce inflammation and swelling. He or she might also recommend oral anti-inflammatory drugs, such as phenylbutazone (Bute) or flunixin meglumine (Banamine). Usually, within a few weeks the splint is no longer warm and does not react to palpation.

Some splints do not respond to typical treatment. These remain inflamed and sore, and the new bone formation can become quite large. Your veterinarian might recommend injecting the splint area with corticosteroids or other drugs that reduce the local inflammation. These chronic splints become problematic when the bone callus becomes so large it impinges on tendons or the suspensory ligament. If the new bone callus becomes large enough to damage these soft tissue structures, surgery is often required to shave down or remove the callus.

Splint bone injuries are common in both working and pastured horses. You can manage most splints easily with help from your veterinarian, minimal downtime from exercise, and medical therapy. Occasionally, your horse might require surgery or more aggressive medical treatment. Quickly involving your veterinarian in the diagnosis and monitoring of splint bone injuries helps ensure the most rapid recovery with fewest complications.