

# Common Hock Problems

## Focus on the 'Big Three': Bone spavin, bog spavin, and OCD

BY D.J. CAREY LYONS

**H**ock: The name is simple, but the structure is not. This major joint includes 10 bones, the joints connecting them, and extensor tendons, flexor tendons, and collateral ligaments.

Because of the great strain the hock endures during any type of work, hock ailments can develop in any horse. The “big three” conditions include bone spavin, bog spavin, and osteochondritis dissecans (OCD). This article explores these issues and how owners and veterinarians can manage them, with the goal of returning patients to work at some level. It also provides tips horse owners can use to minimize horses’ risk of developing these conditions.

### Bone Spavin

Technically known as distal tarsal osteoarthritis (inflammation in the joint), bone spavin is one of the most common hock conditions, said Dr. Julie Dechant, associate professor of clinical equine surgery at the University of California, Davis.

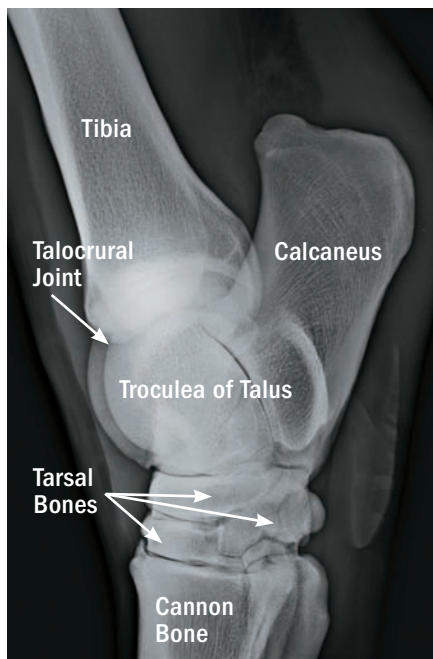
“It manifests as lameness and as performance deficits—the horse doesn’t perform as well as he should,” she explained. “Conformation can be a cause; so can occupation. But bone spavin also occurs in horses with seemingly no risk factors.”

In this condition the small joints in the lower (distal) part of the hock become inflamed. These joints provide very little of the hock’s motion; by far most movement takes place in the big talocrural joint connecting the hock to the tibia bone above it.

When Dechant suspects bone spavin, she performs a detailed lameness exam and joint blocks, followed by radiographs (X-rays) to confirm the pain originates in the hock region. If the case presents with ambiguous or atypical clinical signs, she might follow up with nuclear scintigraphy (bone scan) or possibly MRI or computed tomography.

“Then, because bone spavin is an arthritis, we can’t make it go away,” she said. “We can only manage it.”

Typically, veterinarians begin managing bone spavin with basic approaches,



The hock is a complex structure with 10 bones and connecting joints, tendons, and ligaments.

then advance to more elaborate ones only if milder treatments no longer ease pain.

### Pharmaceutical Options

For a horse in light work, veterinarians might initially recommend administering non-steroidal anti-inflammatory drugs (NSAIDs), such as phenylbutazone (Bute), flunixin meglumine (Banamine), or firocoxib (Equioxx), in response to discomfort.

But for a horse in heavy or regular work, said Dechant, as-needed NSAIDs might be impractical. Instead, she might administer an intra-articular (within the joint space) corticosteroid or hyaluronic acid injection, which can relieve pain (lameness) for several months by acting as an anti-inflammatory agent.

A newer treatment option attracting attention, although not yet FDA-approved in the United States, is intravenous bisphosphonate. “Bisphosphonates (e.g., Tildren) are a group of drugs used for treating osteoporosis (weakening and thinning of bone),” Dechant explained. “We’re not

treating osteoporosis, but researchers have found that the breakdown of bone associated with osteoarthritis in any species is comparable to osteoporosis.”

In a 2010 study, veterinarians administered Tildren or a placebo in horses with bone spavin and found significantly improved lameness scores in those receiving the bisphosphonate.

“The drug’s ability to inhibit bone loss may be one reason; its anti-inflammatory effect is probably another,” Dechant said.

While she hasn’t yet used bisphosphonates for bone spavin, “I probably would if other treatments were not working and I felt confident that the problem was in the hock.”

Dechant noted bisphosphonates might be particularly helpful in cases where hock pain occurs in the bone itself rather than the joint.

As for feeding nutritional supplements and/or injecting chondroprotective agents into joints (e.g., with polysulfated glycosaminoglycan, or Adequan) to reduce arthritic discomfort, Dechant sees no harm in doing so; however, “they’re costly and are best used as adjunct therapies.” In other words, she doesn’t recommend them as the sole treatment. Something she does recommend for any horse with bone spavin is having his feet trimmed for correct balance and shod to promote breakover.

### Joint Fusion

Because the joints bone spavin affects contribute so little to hock motion, one option if medication no longer provides relief is facilitated ankylosis, or deliberately fusing the joints. “Once they’re fused,” Dechant explained, “there’s essentially no more arthritis. Fusing stabilizes them, so the little bit of motion that was causing pain can’t happen.”

An appropriate joint fusion candidate is a horse that has been performing fairly successfully despite bone spavin, but whose steroid injections “are not working as long as they used to,” Dechant said. “Instead of once a year, maybe he needs treatment every couple of months. And that’s pretty often—because injecting a joint always in-



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volves some risk (e.g., infection),” as well as expense.

Currently, three fusion techniques are available: drilling, laser treatment, and ethyl alcohol or ethanol injection. Ethyl alcohol injection is the newest and least expensive method for treating bone spavin. But “one study finds its success rate to be about 50%; another, more like 80%,” Dechant said. “So it seems there’s some variability.”

And alcohol injection carries a risk the other two fusion techniques don’t: “With drilling and laser, nothing you’re doing can go beyond those two joints,” she said. “But with alcohol, you must make sure first that the joints to be injected don’t ‘communicate’ with other hock joints—as they do in some horses.”

The veterinarian does this by injecting the targeted joints with a contrast substance detectable via radiographs, then watching to make sure it doesn’t go beyond those joints. If the contrast study indicated the joint communicated with other structures, the injection would be aborted, as the alcohol could destroy or damage cartilage in the higher motion joints, leading to severe osteoarthritis and debilitating lameness.

Following any fusion procedure, horses need layup time—typically six months to a year—to let the bones fuse. Then, although an owner might need to modify expectations somewhat, Dechant said most horses can return to an athletic career at some level.

“When fusion procedures don’t work well,” she added, “it may be that the problem involved not just joint pain but also bone pain—which fusion can’t relieve.”

#### Other Treatments

Interleukin-1 receptor antagonist protein therapy involves drawing some of the horse’s own blood and incubating it in

the presence of specially designed glass beads. The resulting enriched serum blocks the effects of interleukin-1, a cartilage-damaging inflammatory protein the animal’s immune system secretes.

Another possible treatment is extracorporeal shock wave therapy, which human doctors first introduced as a way to break up kidney stones. A transducer sends pressure waves into areas of discomfort resulting from bony changes such as those caused by bone spavin. Studies indicate this method can reduce inflammation in bone spavin cases for as long as three months.

Published research on both these treatments, however, is very limited.

#### Bog Spavin

Bog spavin, or tarsocrural effusion, is a fluid swelling in the large talocrural joint mentioned earlier. (Why “bog,” you ask? The word is Gaelic for “soft” or “moist.”)

Bog spavin can develop from injury: Strained ligaments, bleeding into the joint, fracture, or other damage can cause swelling and possibly lameness. Bog spavin can also appear spontaneously, with or without apparent lameness. The most common cause of bog spavin is osteochondritis dissecans.

Whether or not lameness is present, Dechant pointed out it’s important to identify the underlying cause and treat it accord-

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ingly. If the horse has a known injury, or if radiographs reveal a problem, treating that condition becomes the primary task.

If the horse is not lame and does not have a known injury or other identified underlying cause, "the next question is whether the swelling is of cosmetic concern,"

Dechant said. "If it is, remember that the longer a swelling persists, stretching the joint capsule, the harder the job of making it go away. So the sooner treatment begins, the better your chances for success."

A veterinarian will drain the fluid, inject the area with an anti-inflammatory

agent, and bandage the area to prevent it from filling with fluid again.

Of course, Dechant said, a swelling that becomes very large could, in itself, cause lameness requiring intervention. But if the swelling isn't extreme, the horse isn't lame, and the owner isn't concerned about its appearance, just living with it is a possibility.

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The hock or tarsal joint of the horse is unique from both an anatomical and functional viewpoint. The hock comprises four different joints. The upper joint of the hock or tibio-tarsal joint is normally a free-moving, gliding joint that is the most mobile portion of the hock. It has a large skin covered inside face that is normally closely adhered to the face of the talus bone but can become very "boggy" if excessive synovial fluid is present due to pathology, injury, or inflammation associated with this loosely folded joint capsule. The three lower joints of the hock, the proximal and distal inter-tarsal joints and the tarso-metatarsal joint, have little movement. These joints comprise a group of smaller bones that are held in proximity by several dense ligamentous structures. These joints are tightly confined by a closely attached joint capsule. Therefore, inflammation associated with these lower joints is much more difficult to diagnose properly.

Acute lameness in this joint is typically presented as a "hike" or hypermetric gait, especially at the trot. Chronic lameness presents as a shortened anterior stride and pronounced toe wear of the hoof wall or shoe as it applies.

My treatment of choice has been directed at decreasing the amount of inflammation in these joints as quickly as possible. Intra-articular injection with HA and a short acting corticosteroid works best to return the equine athlete to its intended job. Other effective methods include systemic anti-inflammatory drugs, topical blisters, or topical anti-inflammatory application.

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### Osteochondritis Dissecans

Osteochondrosis is a general term for the abnormal transformation (ossification) of cartilage into bone. Osteochondritis dissecans, or OCD, refers to such transformation on the surface of or within a joint such as the hock.

"We tend to think of OCD as causing lameness," said Dechant, "but that's not always the case. Joint swelling, such as bog spavin, may be the only sign."

Radiographs can identify OCD in most cases. Dechant said the most common manifestation is "a bone fragment from the middle ridge of the tibia. There can also be bony irregularities on either side of the joint or on the trochlea (the rounded surface of the talus that meets the tibia)." Removing abnormal bone eliminates the principal cause of swelling and, if present, lameness. With prompt, appropriate treatment, the prognosis for a return to normal movement is good.

### Other Hock-Area Swellings

**Curb**, an outward bowing or swelling of the long plantar ligament along the back of the hock, just above the cannon bone, can be caused by several different injuries within the hock. For instance, said Dechant, if a foal is born prematurely or dismaturely (on the expected due date, but less physically mature than normal) the smaller hock bones, if incompletely developed, might be crushed when the youngster starts walking. If curb shows up suddenly on a previously normal leg, she knows it isn't from crushed bone, and advises radiographing the area. If the horse is uncomfortable, she searches for a cause; otherwise, she recommends simply monitoring the swelling.

**Thoroughpin**, a swelling of the deep digital flexor tendon sheath just above the back of the hock, results from extra fluid in the tarsal sheath, but its exact cause is unknown. Fortunately, it is usually considered a blemish and rarely affects performance. If associated with lameness or a wound, however, it warrants investigation into more significant causes of inflammation, such as a tendon tear.

**Capped hock** is a swelling at the point of the hock, typically self-inflicted by a horse that kicks at or leans on his surroundings (e.g., stall walls, fences). Management usually consists of modi-

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### Removing abnormal bone eliminates the principal cause of swelling in a Thoroughbred's hock

fyng the animal's environment by, for example, feeding him in an area where there's nothing to kick or stabling him away from horses that rouse his "territorial" instincts.


Have a veterinarian evaluate any capped hock associated with lameness or discomfort for possible infection.

#### Take-Home Message

Have your veterinarian assess any hock swelling, with or without lameness. If lameness is present, and/or if diagnostic

imaging reveals an underlying problem, initiate treatment as soon as possible. If there's no lameness and no clear cause for the swelling, monitor the area; if you see changes, check back with your veterinarian and take action as recommended. If cosmetic appearance is a concern, treat promptly, aggressively, and persistently.

All told, take any hock injury seriously. Not only is the hock a complicated structure with lots of components, but it also has very little protection: It's just bone, joints, and a few tendons, covered by skin. So any

injury is potentially dangerous, and infection can be devastating. Therefore, owners should pay careful attention to any hock wound and veterinarians must complete any joint injection with great care. 

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