

A new approach to healing navicular

by KC La Pierre

The Holistic View

In my not so conventional practice of Applied Equine Podiatry, we seldom use the term “navicular disease”. Taking a more holistic approach, we embrace several principles, theorems, and philosophies. At its foundation is the belief that structure plus function equals performance (S+F=P). We also know that a horse has an innate ability to heal himself, provided the environment is conducive to healing.⁵

What does this mean to the treatment of the condition defined as navicular disease? First, we have to understand that in coming to a point where a single disease is defined, as is often the case in conventional veterinary medicine, we have narrowed our focus, and become reactive. As new research provides evidence that there are multiple causes for the clinical manifestations of the lameness associated with navicular disease, it is only logical that a series of events have led to the condition observed.

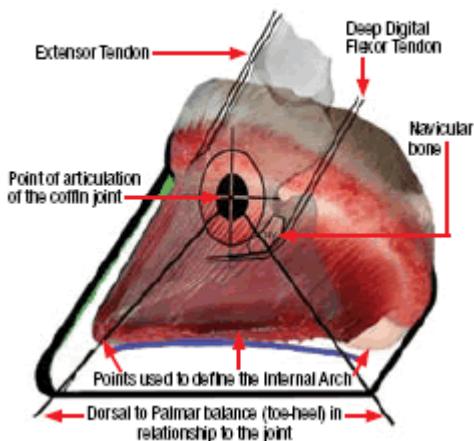
As theorized, changes in normal biomechanics of joint movement may lead to inflammation of the soft tissues of the navicular apparatus, but the question is: what is normal biomechanics of joint movement of the navicular apparatus?

To answer this question, you must subscribe to a specific model of foot function. We subscribe to a model that defines the Internal Arch Apparatus.

Understanding the Internal Arch Apparatus

The Internal Arch Apparatus is responsible for both energy utilization and energy dissipation within the foot, and is comprised of the coffin bone, navicular bone, distal articulating surface of the short pastern, all connective tissues (ligaments, tendons, fascia), the digital cushion, and all corium (inner layer of foot, containing nerves and blood vessels). In short, the Internal Arch Apparatus constitutes all structures of the foot, without the hoof capsule. Applied Equine Podiatry recognizes that true foot function sees all structures working in concert to provide performance. Because this model includes the navicular apparatus as part of the whole, a manifestation of pain within the navicular apparatus would indicate a loss of structure and/or function of the Internal Arch Apparatus.

Internal Arch Apparatus



Taking things a step further, it is understood that the coria (corium) of the Internal Arch Apparatus produce the hoof capsule. It is often said of the foot that the outside is a mirror image of the inside. If one subscribes to this belief, it is only natural that one would become reactive,

being held slave to the foot's internal conformation. I teach and follow the premise that "everything on the inside is a mirror image of that on the outside." Is this semantics? Hardly—with an understanding that the internal structure's health is the result of external stimulus, we become empowered.

Where am I going with this? I am saying that true navicular disease (lameness due to bone change) is only apparent following a long series of recurring events. In this chain of events, soft tissue is the first to undergo change in response to an environmental alteration (balance change, increased vibration, friction and/or pressure), followed by changes to the horn. Before any modifications to the bone become apparent, the hoof capsule will show deformity (flare, excessive wear or growth). As the horse reacts to pain, he changes the way he loads the foot, and deformity appears. The deformity can be minimal, but it will occur.

On rare occasions, a horse may show an acute-onset unilateral (affecting one limb) lameness, which leads to a diagnosis of navicular disease. It is my belief that short of a catastrophic insult (injury), pronounced unilateral lameness is more often the result of chronic loss of structure (fallen arch) and proper foot function.

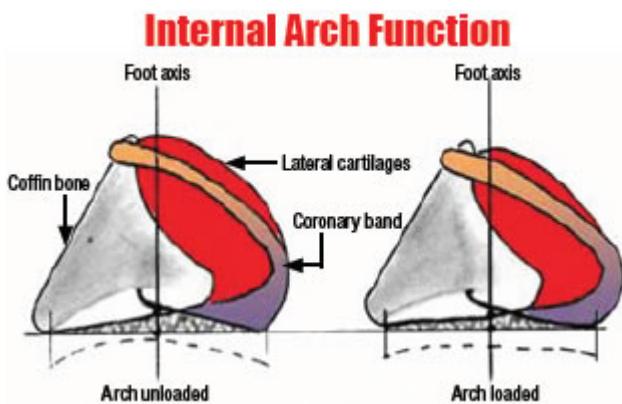
How is it treated?

Conventionally, whether the diagnosis is disease or syndrome, most veterinarians will recommend corrective shoeing. Most commonly, this means an egg-bar shoe (said to give added support to the heel), accompanied by a rolled or rocker toe, wedge pads when needed to correct hoof pastern angle, and impression material for cushioning. But other shoeing protocols are used too. Conventionally speaking, corrective shoeing, regardless of the shoe used, is dependent on the horse's hoof-pastern angle. If the horse already had a wellconformed foot, little will be achieved with corrective shoeing in the advanced stages of the disease.

In addition, vets may recommend nonsteroidal anti-inflammatory medications to control foot pain, as well as phenylbutazone (bute), but not all horses with navicular pain respond to phenylbutazone. Medications to increase blood supply have also been prescribed. As a last resort, your vet may perform a surgical procedure known as a neurectomy. This procedure severs the nerve supplying the back of the foot but the results are often temporary.

How Does Applied Equine Podiatry Differ?

When presented with a horse diagnosed with navicular disease, it is imperative to evaluate the foot structure. As I do not subscribe to the conventional definition of a well-conformed foot, I assess the foot with an eye on the health of the Internal Arch Apparatus. I have found that navicular pain results from a loss of those structures that help in maintaining proper biomechanical function of the joint, and in the



positioning of the coffin bone in its relation to the joint and the distal limb. These structures include not only the distal sesamoidean ligaments and tendons, but also the lateral cartilage and digital cushion.

Where conventional thinking focuses on the stress exerted by the deep digital flexor tendon on the navicular bursa, and reacts to reduce this stress by reducing break-over or increasing foot angle, I find myself more concerned with heel placement and the effect it has on the biomechanics of joint movement, circulation, and neurological function. Where are the heels in relationship to the center axis of the joint? No shoe can alter the position of heels in relationship to this center axis, but it does alter the forces acting on the joint. This may temporarily reduce pain, but it's seldom successful in stopping the progression of the disease.

This conventional approach ignores the importance of the Internal Arch Apparatus and the role it plays in energy utilization. The key to treating navicular pain is to consider the whole. Simply trimming the heels to get them to the widest part of the frog, or reducing break-over, does not address the underlying cause of the pain – the loss of structure causing undue stress on the supporting structures of the joint.

Instead we provide the correct stimulus that will ultimately result in reducing the stresses associated with the progression of the disease process, and help restore sound structure and proper function. I have found that pain management is essential during this time, and that pain can effectively be managed homeopathically and by the use of closed cell foam pads as a rehabilitative strategy.

Over the past eight years, I have worked on many horses diagnosed with navicular syndrome/disease, and most had weak structure to the caudal (back) aspect of the foot. But with correct trimming to achieve balance of the hoof capsule to that of the Internal Arch Apparatus, the appropriate application of stimulus (exercise/pressure) to aid in the return of correct structure, and sound pain management practices, I was able to eliminate the condition.

For more information on Applied Equine Podiatry, please visit www.appliedequinepodiatry.org

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KC La Pierre has been a practicing farrier for over 30 years and is considered one of the foremost experts on the equine foot. He developed the Internal Arch Theory in 2002 and travels the world teaching horse owners, veterinarians and farriers about Applied Equine Podiatry. KC is also a published author and illustrator and has consulted to a number of top trainers.