

Is your horse a Tender Foot?

We receive at least three to four calls a week concerning thin soled horses. The stories have common threads running all through them. My horse has been tender footed for as long as I can remember. I have been trying to toughen his sole up for the past two years. Every spring my horse has bruised soles.

What it all comes down to is poor sole health, but why? We first need to look at the foundation for the sole. What is the structure that is covered with the corium (sensitive structures, where circulation is present?) When we observe the "sole," we are often looking at the area of the sole where the coffin bone is the foundation. This is the area of the sole around the apex (tip) of the frog. The horn that is produced by the corium covering the coffin bone is called "primary tubular horn." This horn is very *hard*, unlike the horn produced at the outer edge of the coffin bone. The horn produced at the outer edge of the bone, and anywhere that has cartilage as its foundation is called "terminal tubular horn." That horn is *tough and flexible*. As a reference, tool steel (chisels, drill bits) is hard and unyielding, iron is tough and flexible (pry bar, hinges). Can you recognize the difference? A benefit of recognizing these tubules is gaining the ability to identify the location of the coffin bone within the capsule. Each type of horn serves a purpose.

The Primary tubular horn below the coffin bone helps in preventing torque or twisting of the bone, whereas the Terminal tubular horn allows for concussion and distortion, helping to protect the sensitive structures.

When I hear someone say my horse has a thin sole, they often are referring to the Primary Sole located below the coffin bone, and not the sole at its outer most edge.

Why does this sole have such difficulty in growing healthy? There are several reasons, but the most influential is a lack of proper circulation. (I am not simply referring to an increase in circulation, but to proper circulation and its timing) There are a number of causes of poor circulation to the solar plexus (vascular bed). One is improper conformation of the hoof capsule. You see, blood flows from high pressure to low pressure throughout the stride, and having proper conformation of the hoof capsule is very important. To short of a toe for instance can reduce blood flow to the circumflex artery that feeds the solar plexus. At the time of break over, it is important that the toe be engaged, producing pressure on the outer wall, creating high pressure in the plexus of the lamellae, thus causing the blood to seek the lower pressure presented in the primary solar plexus. If the pressure on the foundation of the outer wall and its corium is not higher than that of the solar plexus, proper circulation does not occur. This is only one small part of how circulation happens in the foot.

Overall circulation in the solar aspect (bottom of the hoof) can be affected by a lack of suspension of the Internal Arch Apparatus (Internal foot). This results in chronic mild compression of the solar corium, which can cause bruising, abscessing, and poor horn growth. Where does this lack of suspension come from? Most often it is the result of a chronic elastosis. Elastosis is a loss of elasticity within connective tissue and cartilage. When a horse suffers a loss of elasticity, the foot is the first place we see the symptoms. This is primarily because the

internal foot and the relationship it holds to the hoof capsule are under the greatest amount of stress. How does elastosis occur? Elastosis is the result of a metabolic disturbance of some sort. Following a harsh winter, many horses are suffering metabolic imbalances due to exercise, dietary, and hydration changes. Spring can be very stressful for our horses.

I suggest you take a close at how environmental changes could be a cause of stress in your horse. I treat thin soles by first treating the metabolism of my horse. Then I make sure he is well hydrated, trimmed properly, free of infection, and exercised to promote the health of the Internal Arch. Take care of the inside, to gain health on the outside.

In last month's newsletter, I mentioned that spring is a great time to detox your horse. Check out our [Hydropathics HD](#) (Hydrate and Detox) remedy. It can help alleviate many of the symptoms associated with spring time elastosis.