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Hoof Cracks Types and Treatment

From afar your horse's hooves look pristine. But you notice there's a dark fissure creeping from the ground up the hoof wall in his left fore. How did your horse develop a crack in one of his seemingly impenetrable feet, and what can you do to halt its advance?

Hoof cracks develop for many reasons. Some are superficial, some are serious, and either can be permanent. Inspecting and picking your horse's hooves daily, along with keeping your horse on a regular trimming/shoeing schedule, can help prevent hoof cracks from appearing in the first place. Environmental, genetic, nutritional, and conformational factors also play an important role in hoof health and strength. There are many types of hoof imperfections that involve chipping, tearing, and cracking of the hoof wall. Here we'll describe how to identify and handle common hoof cracks.

Grass crack Typically a grass crack is a superficial flaw that starts from the ground and moves upward. It is usually very thin and does not penetrate deep within the wall. These cracks can occur for many reasons, including ground condition changes (specifically, from very wet to dry environmental conditions), poor nutrition (malnourishment inhibits hoof growth) and lack of exercise (as exercise increases healthy blood flow to the hoof).

Sand cracks are very similar to grass cracks; however, they originate from the coronary band and extend downward.

Heel cracks can be very painful. Most are caused by "short shoeing," meaning the heel of the shoe does not cover the heel of the horse's foot. Cracking in the heel region might also result from a shoe that is too long--excessive shoe length creates leverage that applies excessive force to the heel region. Heel cracks might also develop due to uneven heel loading.

Bar cracks that appear in the bars (the inward folds of the hoof wall, located on either side of the frog) also can be painful and are usually caused by trauma (e.g., stepping on a hard or sharp object). Folded or crooked bars tend to be weaker and more prone to cracking.

Toe cracks Your horse can overload the toe when he moves, causing these cracks. Also, many horses with heel pain land toe first, causing extreme toe concussion--and, hence, cracking. Hoof Project Foundation head David Hood, PhD, DVM, is studying horses with a prominent crena, or notch, at the distal dorsal aspect the of the distal phalanx (the lowest point on the top of the coffin bone), to determine whether a weak or absent laminar attachment from the wall to the coffin bone in this area causes toe cracks.

Quarter cracks can be the most aggravating of all hoof cracks to manage. They are usually caused by uneven foot landing, usually due to conformation defects such as carpus valgus (outward deviation of the lower limb stemming from the knee, seen as knock knees) or varus (outward deviation of the lower limb stemming from the knee, seen as toeing in). They can also result from many other factors such as neglect (hooves can grow too long if not trimmed regularly, causing cracks and splits), imbalance (when one side of the coronary band is higher than the other), coffin bone defects (e.g., inflammation and demineralization of the coffin bone, fractures, keratomas [tumors of the underlying structures of the hoof wall], or remodeled coffin bones), constant impact on hard surfaces, and trauma.

Quarter cracks usually appear at the coronary band and grow toward the ground. These types of cracks might bleed or become infected, causing extreme pain. Your veterinarian might need to take radiographs (X rays) to determine the exact cause of the crack. Radiographs can reveal foreign objects in the hoof wall, coffin bone defects, or coffin bone remodeling that could weaken the wall and create cracks.

Hoof abscesses can also cause cracks. If your horse has an abscess and the infection drains from the coronary band, a small horizontal crack called a cleft might appear at the hairline. Usually, these small clefts will grow down the hoof wall with no problems as long as they are kept clean and reasonably dry.



One method of hoof crack repair includes the use of wiring, screws, and patching materials.

Photo: Courtesy of Steve Sermersheim

My Horse Has a Hoof Crack, Now What?

If the crack in your horse's hoof appears to be superficial, ask your farrier or veterinarian to take a look at it the next time they see your horse. With the advent of the smartphone, it has become easy to snap a picture and send it to your farrier and veterinarian for them to scrutinize. However, if you notice any infection, blood, or lameness associated with the crack, call your veterinarian immediately.

What can your farrier and veterinarian do to help treat the problem? First of all, as an owner/trainer/farrier/veterinarian team, determining the cause of the crack is the most important piece of the puzzle because it can help prevent recurrence.

The first step you and your horse health-care team will likely take in this process is to watch the horse walk and trot to determine footfall. They will consider your horse's conformation and what you are asking him to do as an athlete, along with scrutinizing the footing that you're working him on--is it hard or uneven? Recognize that you might need to institute environmental changes--such as eliminating extremely wet, dry, or filthy turnout or bedding conditions--before your vet and farrier can remedy the hoof cracks. Knowing what type of feed and supplements the horse receives will also help them determine if your horse is on the correct diet to support his hooves (several studies have found that biotin supplementation, for instance, can improve hoof quality). In short, consider all of your horse's management and lifestyle factors to help determine the cause and, thus, prevent recurrence.

The next step is to repair and stabilize the hoof crack. Your farrier and veterinarian might have particular methods they prefer to use for different types of cracks. Balancing the horse's hooves so his weight is more evenly distributed around the limb's center of gravity is a major factor in repairing the crack(s). In some cases trimming the foot is all that's needed to remove the crack or to get the horse on the road to recovery. More severe cracks might require corrective shoeing and stabilization techniques, such as adding clips on the shoe to either side of the crack and placing implants across the crack.

Some of the methods veterinarians use to stabilize a hoof crack involve lacing--cleaning and resecting (cutting away parts of the hoof wall) the crack, and then drilling very small holes on each side of it. They run stainless steel wire through the holes, connecting the wires at each end and tightening them by twisting the ends together.

Another method of repairing hoof cracks involves wire and very small screws. The practitioner places screws into the hoof wall on either side of the crack. He or she weaves the wire back and forth around the protruding screw heads. Many times the treating veterinarian or farrier applies special hoof-patching glue over the screws so they do not work their way out of the hoof wall.

Veterinarians and farriers commonly use such polymer and acrylic patching materials or "glue" to stabilize and repair hoof cracks. They mix some of these materials with fiberglass to create stronger patches over or around the hoof cracks. Keep in mind that a crack that has been bleeding, infected, or filled with bacteria or fungi should never be covered with any type of repair material unless the veterinarian or farrier adds a drain for medicating the area. Covering an infected crack will most likely make matters worse, creating a breeding ground for the offending bacteria or fungi.

It is very important that you seek a farrier and veterinarian who are trained in diagnosing and repairing hoof cracks. Many farriers are qualified--through experience as well as continuing education opportunities offered by state and national associations -- to repair hoof cracks, with some specializing only in hoof crack repair. If you suspect your horse is lame because of a hoof crack or if there is infection or bleeding in the crack area, call a veterinarian to meet with you and your farrier.

Bottom line:

Clean and inspect your horse's feet daily and ensure he is on a routine trimming and/or shoeing cycle."

Steve Sermersheim

Take-Home Message

At the end of the day, you can prevent hoof cracks by cleaning and inspecting your horse's feet daily and ensuring he is on a routine trimming and/or shoeing cycle for preventive maintenance. Employ a well-qualified farrier to keep your horse's hooves balanced. Make sure your horse receives the proper nutrition he needs to maintain healthy hooves and house him in an environment that is not too wet, dry, or hard. While these steps might sound simple, it is often the most basic things that keep our horses well. An ounce of prevention and a little effort today will yield positive results for your horse later.