



# Foul Foot: Thrush and Canker

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## Thrush

This disease affects the clefts and grooves of the frog, and sometimes the sole of the foot. It is a type of hoof rot, characterized by black necrotic (dead) tissue in the affected area, caused by pathogens found in barnyard, stable or pasture. These organisms thrive in wet or decaying material such as mud and manure, decomposing bedding material, etc. There are several pathogens that cause thrush, but the most common is *Fusobacterium necrophorum* (the old name was *Spherophorus necrophorus*), a bacteria that can also cause foot rot in cattle, diphtheria in calves, and navel ill in foals and calves. Some cases of thrush are caused by a fungus.

Lack of ventilation in the hoof makes it more susceptible to thrush. These organisms like dark, damp, airless environments, and the deep clefts of the frog make an ideal location. If the hoof is usually packed with dirt, mud or manure, lack of air next to the frog and the constant moisture work together to make a perfect situation for infection to flourish. A horse kept in a wet, boggy pasture, muddy pen, or dirty stall, is more likely to develop thrush than a horse kept in a dry, clean pasture or a clean stall. A hoof that is always clean and dry will not develop thrush.

Improper trimming and shoeing, and poor hoof health, can make a frog more susceptible to thrush. Horses with contracted feet have deep clefts (sulci—the grooves on each side of the frog), so dirt and manure are more apt to accumulate in those clefts. Frequent cleaning of the feet helps prevent thrush, making sure all the material is cleaned from the frog and its clefts. Torn or ragged pieces of frog should be trimmed off, since they are no longer useful to the horse's foot and just provide nooks and crevices where thrush could get started. Keeping the frog properly trimmed helps make its grooves more self-cleaning—they won't collect mud and debris so easily—and flexing of the foot (expanding and contracting) when the horse exercises, will enable the lodged material to fall out of the hoof.

In earlier times, before people knew about bacteria, horsemen thought thrush was due to secretions from the frog itself that collected in the clefts, making it moist and foul. Thrush is easily recognized by the dark color along the frog (and some-

times dark soft patches up into the sole, especially along the white line) and by the strong offensive smell of the foot. There is a black, slimy moisture in the clefts of the frog, which tends to stick to the hoof pick when you clean the foot. When the clefts are cleaned out, they are deeper than normal and may actually extend into sensitive tissues inside the foot, making the horse flinch as they are cleaned. The frog may be undermined, and large areas of it may be loose, or rotten, and should be removed. If thrush is neglected and allowed to get worse, it can make the horse lame—the infection spreads and erodes more and more of the foot. Infection may penetrate the horny outer structures and invade the sensitive inner tissues.

## Prevention and Treatment

In the early stages of thrush, there is merely some dark coloration and grime around the frog, or in spots along the white line, and the accompanying bad odor. At this point it can be quickly and easily cleared up by keeping the feet clean and applying a little iodine (strong tincture) or chlorine bleach (a mix of equal parts bleach and water) or any commercial thrush medication daily for a few days, applying it to the affected areas after cleaning the foot.

If the horse is kept in a muddy or dirty environment, however, and his feet are not cleaned regularly (and never have much chance to dry out), the condition may slowly progress to unsoundness—the horse will be lame, and show pain when their feet are cleaned or trimmed. In severe cases there will be a thin, watery discharge from the frog. After a time this becomes a thick discharge as the frog is destroyed and deteriorates. The horse will be quite lame, with swelling in the leg above the hoof, due to the infection. A neglected case of thrush can eventually affect the navicular joint.

Regular hoof care and a clean environment can prevent or halt thrush, as can daily exercise on dry surfaces. This enables the horse's feet to dry out, and air can get to all parts of the foot. Keeping the feet clean and dry is the best solution—medication won't cure or keep thrush from recurring if the horse's feet are continually packed with mud and manure between treatments.

If thrush is well started before it's discovered, large areas of the frog may have to be trimmed away, and if there's infection in the foot it must be treated. The infected area should be

cleaned and opened for good drainage, and the horse given antibiotics under veterinary supervision. A bad case of thrush that has invaded the inner tissues of the foot should be treated like an infected puncture wound, with a tetanus shot, antibiotics, daily cleaning and soaking of the foot (in warm water and Epsom salts, at least 20 minutes at a soak), to help pull infection out of the tissue, then bandaging the foot between soakings to keep dirt out until the inner tissues have healed. The cleft of the frog can be packed with cotton, soaked in iodine, when you rebandage the foot.

Whatever chemical you use for treating thrush (chlorox, iodine or commercial products), apply it only to the affected area and do not spill any on the horse's skin, or on other parts of the hoof. These can burn the skin and dry out the hoof. Some veterinarians recommend use of Kopertox rather than iodine, for treating thrush, since it can kill the causative organism and dries to form a barrier against reinfection—and is not as caustic if you spill some on the horse's skin. If early thrush can be treated with a little iodine or Kopertox, each time the foot is cleaned, before the infection causes damage to the frog, thrush can be cleared up in a short time. If inner tissues have been affected, however, chances of complete recovery are not as good—there may be permanent damage done in the foot.



### Canker

Another problem that occasionally affects the frog (mainly in wet climates) is necrotic pododermatitis, or “canker”. This is an infectious disease of the hoof that usually involves the frog and surrounding sole. It results in an abnormal growth of horn, sometimes creating a white to yellowish mound of soft material with a foul smell.

Treatment for canker generally consists of removing the abnormal tissue and applying metronidazole or chloramphenicol to the foot. These are both strong antibiotics that seem to combat the infection fairly well. The affected area may need to be trimmed off more than once during the healing process (to make sure the daily medication can get to the infection), since the abnormal tissue may regrow for awhile. It may take two to 12 weeks to halt the infection completely.

### Infection Between the Heel Bulbs

Another condition similar to thrush consists of inflammation of skin between the bulbs of the heel. It should not be treated with iodine or harsh chemicals like bleach, however, because they will actually cause more damage to the skin. If a horse has contracted heels, the bulbs of the heels grow closer together, and a deep crevice may form between the heel bulbs. Moisture and dirt in this crevice can lead to a painful infection. It smells and looks like thrush, so some horsemen make

the mistake of treating it like thrush, causing a chemical burn that makes the condition worse. It is a similar infection, caused by the same organism as thrush, but since the crevice is lined with skin instead of hoof horn, the same treatment is not appropriate. Products that can be safely used on the sole and frog may burn the skin, especially if applied several days in a row.

To treat a thrush-like infection between the heel bulbs, clean and dry the affected area, then saturate some gauze strips with nitrofurazone ointment and work the medicated strips, one at a time, down into the groove between the heel bulbs. The protruding ends of the strips can then be cut off. Each day the old strips can be removed and newly medicated clean strips put in. After a few days the space between the heel bulbs will widen a bit and the infection will clear up. If heels are contracted due to improper shoeing, this situation should be corrected.

Proper foot care and a healthy foot can keep feet from becoming contracted, and prevent deep clefts along the frog edges and between the heel bulbs that can accumulate dirt and bacteria that lead to thrush and infection.