



Thrush is characterised by a thick, black, gungy discharge, which is actually dead keratin tissue

Under his feet

Many horses have had thrush at some point in their lives and, for some, it's a persistent problem that just won't stay away. Vet Jane White from St Boniface Vets explains what causes this unpleasant condition and how you can prevent it

Our expert



Jane White BVetMed MRCVS CCRT FHEA graduated from the Royal Veterinary College and joined St Boniface Veterinary Clinic, a member of XLEquine, in 2009.

Thrush is a common, destructive infection that affects the frog, particularly the central sulci (or cleft) in the middle of the base of the frog and the grooves between the frog and sole. The condition is characterised by a really unpleasant smell with a thick, black, gungy discharge, which is actually dead keratin tissue.

The hind feet are more commonly affected than the front feet, which is probably because of their more pointed shape. Thrush can affect all ages, breeds and genders.



Bacteria to blame

The affected areas may contain bacteria, fungal elements and yeasts, and the type of bacteria has been shown to vary from one region of the country to another. However, the main culprit for thrush is *Fusobacterium necrophorum*. This bacterium occurs naturally in the environment, and it thrives in dark and moist conditions, and in the absence of oxygen.



When your horse moves, it triggers his foot's natural cleaning mechanism



Horses with contracted heels are particularly prone to thrush

How will I know he has thrush?

There are three main things to look for when checking your horse's feet for thrush...

- the central sulcus (cleft) is usually a shallow depression of less than one centimetre. If it's deeper, it may indicate a loss of structural support for the bulbs of the heels or the beginnings of thrush
- smelly feet, although not every smelly foot has thrush. If in doubt, wash your horse's foot and let it dry, and if it still smells, then it probably is thrush
- black discharge around the frog when picking the hoof out and tenderness when pressure is applied



Horses with thrush have smelly feet, a deep central sulcus and black discharge

Potential causes of thrush

Historically, thrush was thought to be associated with poor stable management, with horses living in unhygienic conditions. But while standing in dirty, urine-soaked bedding or manure-laden mud provides the perfect breeding ground for bacteria, this isn't the whole picture.

We've all seen our horses canter across the field with clods of mud flying out of their feet. This is part

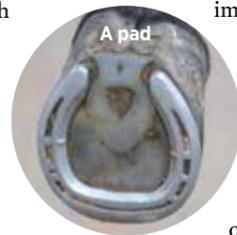
of your horse's natural hoof-cleaning mechanism. As he moves, his hoof changes shape when it bears weight. It's more elastic in the heel area than at the toes or quarters, so when it's loaded the heel expands and sinks backwards. The sole loses its concave shape and flattens, and the frog continues to expand with the sole until, in the unshod hoof, it makes contact with the ground. This expansion and contraction of the hoof during loading and unloading of the limb helps to shift the debris that has accumulated in it.

In a well-shod hoof, the shoe may not affect this mechanism much, but it's

important to remember that anything that affects the normal biomechanics of the hoof capsule may contribute to debris accumulating in it, which will allow bacteria to multiply. A good example of this is a horse who has deep clefts associated with contracted heels. This makes it easier for more debris to accumulate and it's more difficult to dislodge it. Prolonged periods of inactivity or confinement to small turnout areas will also reduce the efficiency of the hoof's natural self-cleaning mechanism. This may explain why some horses kept in poor conditions never contract thrush, while others in immaculate conditions do.



Heartbar shoe



A pad



Antibacterial dressing

Other contributing factors include the use of wide web shoes and heart bar shoes or the fitting of pads, where natural ventilation is reduced. Some farriers advocate the use of an antibacterial dressing under these to help reduce the chances of thrush occurring. One research group has also suggested that there may be a link between high-sugar and starch diets and thrush. On a practical level, ponies with laminitis may have poor hoof conformation and horn quality as a result of the condition, but keeping them on a low-sugar, low-starch diet may be beneficial for controlling thrush as well as preventing further attacks of laminitis.

Clearing up the infection



Diseased frog should be trimmed away

Treatment is relatively straightforward for cases that are spotted early. It's important that your farrier or vet trims away all the unhealthy frog and exposes any cracks to the air to provide a more hostile environment for the bacteria. All mud, muck and stones need to be removed straightaway together with any black discharge, because most of the antibacterial or antiseptic solutions used for treating the infection don't work well in the presence of debris.

Some people prefer to clean the foot



Clean the foot...

with a hosepipe or just water and small brush, but the hoof must be allowed to dry before the application of a solution to treat it – dry the foot with a towel, then allow it to air dry for 10 minutes. An alternative method of cleaning is to use cotton swabs wrapped around a hoof pick to mop out the discharge, which reduces the need for drying.

There are many products available without prescription for the treatment of thrush, but it's important to follow the instructions for use. Alternatively, a

2% solution of iodine can be used. You may find it easier to get the treatment into the crevices using a squeeze bottle with a long nozzle, a tooth brush or a soaked swab. Allow the solution to be in contact with your horse's foot for at least 10 minutes before turning him back out. You should only need to treat it once a day and antibiotics shouldn't be required unless the infection is severe.

Historically, older remedies such as bleach, formalin, copper sulphate, Stockholm tar and hydrogen peroxide have been used. They're effective for killing microbes, but they're also caustic to tissue, so they have the potential to destroy healthy tissue and prolong healing if used inappropriately. Therefore, these treatments aren't recommended.



...then dry it thoroughly

Keep him thrush-free

The key to preventing thrush is good stable management and foot care. This includes...

- ✓ keeping your horse's bed dry and using appropriate bedding – shavings, miscanthus or hemp types may be helpful, as they have a drying effect on the hoof. It's more difficult to keep hooves dry on straw or newspaper. This is particularly important for horses with PPID (Cushing's disease), equine metabolic syndrome or liver disease, as these horses tend to produce large volumes of urine
- ✓ picking out feet daily and, wherever possible, allowing them to dry out afterwards. Use the hoof pick sensitively as overzealous use may cause trauma and create crevices in which the bacteria can hide and multiply
- ✓ looking at areas where horses congregate in the field – for example, around troughs and gateways – and seeing if it's possible to improve the drainage to keep the ground drier
- ✓ removing droppings from stables and turnout areas on a regular basis
- ✓ increasing turnout time to promote the normal cleaning mechanisms of the hoof. If this isn't possible, ensure your horse receives plenty of exercise under saddle or in-hand
- ✓ regular and appropriate trimming by your farrier, including correction of hoof imbalance
- ✓ working closely with your farrier and vet if your horse has poor foot conformation or chronic lameness issues



Try to keep areas where horses congregate dry



Canker confusion

Canker is a similar but more severe condition, which in the early stages could be mistaken for thrush. The exact cause of canker is unknown, but recent studies suggest an immunological response to a papillomavirus. There's an increase of the horn-producing tissues in the frog region, which then become infected with bacteria such as *Dichelobacter*. So this condition differs from thrush, where the horn-producing tissues in the frog region are destroyed. However, like thrush, wet, dirty conditions play a role. It was originally thought to mainly affect draught horses,

especially in the hind feet, but other breeds can be affected.

Canker lesions are often described as foul-smelling, cauliflower-like lesions with cottage cheese-like pus. Horses often become lame as the disease progresses to the deeper layers. Treatment needs to be aggressive, with the removal of all diseased tissue, followed by antibacterial drugs and pain management. Steroids given in food have been shown to reduce the recovery time and the rate of recurrence, however, the prognosis for severely affected horses remains guarded. Fortunately it's quite a rare condition.

Take action

If left unchecked, the bacteria that causes thrush can eat away at the frog and penetrate the deeper tissues, causing discomfort and lameness. However, if it's caught and treated early, there's no reason why your horse shouldn't make a full recovery. So inspect his feet daily for signs of infection and take measures to prevent the bacteria breeding in his hooves to keep them in the best of health. ■