

Animal Health

Hoof shape and quality

SEBWAT parameter

(Standardised Equine-Based Welfare Assessment Tool)

Hoof shape (fore and hind)
Hoof horn quality (fore and hind)
Swelling

Welfare issue

- The animal displays poor hoof shape or quality, including hooves that are too long or too short, cracks or breakage of the hoof wall, or mismatched pairs of hooves.



Conformation of hoof.

Welfare significance

- The hoof is a complex structure made up of three bones supported by tendons, ligaments, cartilage, and other detailed structures.
- It is important to remember that the full weight of the animal is supported on these four, relatively small feet, so any problems with the hooves have major repercussions for the overall welfare of the animal, and on ability to work comfortably. Remember: 'No foot, no horse!'
- Chronic hoof pathology is very common in working equids¹.
- When equids have abnormal hoof conformation they are more likely to experience painful lameness and therefore reduced productivity and poor mental state. For example, an animal with thin or dropped soles will find working on stony or uneven ground very painful as there will be contact between the ground surface and the sensitive sole of the hoof.
- Uneven loading of the hoof due to poor trimming has repercussions for the entire limb. The forces will be transferred unevenly up the rest of the limb, which will put increased strain on joints, tendons and muscles² leading to fatigue and injury.
- Long term hoof abnormalities can lead to chronic lameness and irreversible arthritis for the animal (see the [Lameness](#) section for more information).
- Many secondary problems originate in the hooves, such as lower limb swelling, tripping or falling, spinal pain, lameness, and interference lesions.



Bad hoof shape - broken back of the hoof.



Badly contracted heels - frog unable to function.

¹ Broster et al. (2009)

² Brooke (2013)

Donkey and mule hooves

- Horse hooves should have an angle of approximately 45-50° in the fore hooves and 50-55° in the hind, and the wall at the heels should be approximately half the length of the wall at the toes.
- Donkey hooves are smaller and have a more 'box-like' appearance than horse hooves. The hoof wall is naturally more upright.
- Little information is available on mule hooves, however texts suggest that they should be cared for similarly to donkey hooves³.



Donkey hoof.



Mule hoof.

Possible causation

- Hoof problems and poor trimming techniques can both be linked to a lack of understanding of the structures of the foot and how forces are transferred from the foot up the limb⁴. See the Brooke Veterinary Manual⁵ and the Farriery Quality Monitoring Tool for further information on the anatomy and conformation of the hoof.
- Poor conformation, e.g. dropped or flat soles, can lead to increased sensitivity to stones and rough ground. Weak conformation can be exacerbated by poor hoof shape.
- Poor hoof hygiene can lead to infection or disease of the hoof, e.g. thrush, canker.

Nutrition

- Good hoof quality comes from good nutrition, combined with regular and effective hoof trimming⁶.
- Poor nutrition can lead to brittle hooves which are prone to cracks and breakage. This can lead to further problems, such as abscesses, where infection has entered the hoof capsule through a crack, or lameness.
- Malnutrition can also slow the rate of horn growth, making it take longer for defects to grow out.
- Shod equids with brittle hooves will also lose their shoes more easily, causing further damage to the hoof wall.



Poor hoof quality.



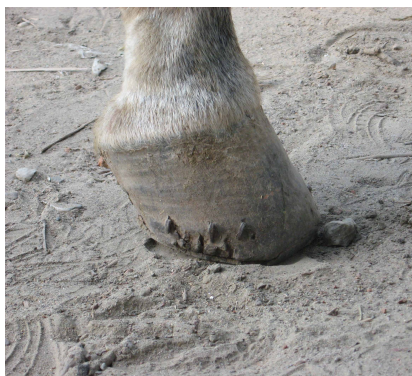
Horizontal crack.

^{3,5} Brooke (2013)

^{4,6} Wilson (date unknown)

Shoes

- The decision of whether to shoe the equid depends on several factors including the animal's type of work, the ground conditions, and the quality of the hoof horn.
- Ideally the hoof should grow at the same rate as it is worn away, however, if the rate of wear will exceed the rate of growth, the hoof will be worn away unless shoes are fitted⁷. The rate of wear will be increased if the animal is working on hard, abrasive surfaces.
- Once shoes are fitted, the hooves will require regular trimming to prevent the hoof growing too long, since it can no longer wear down naturally.
- Long, overgrown hooves increase the strain on the tendons, cause tripping and stumbling, and will increase the risk of interference injuries by causing the animal to over-reach.
- Shoes that are the wrong size, worn or broken can damage the hooves and cause lameness. Shoes that are too narrow at the heel will cause bruising and corns.
- The action of nailing on a shoe can cause pain if the nails are too close to the sensitive internal structures (nail bind) or if the nail pierces one of these structures (nail prick). Nail bind is more likely if the animal has thin hoof walls⁸.
- In the working equine context, those animals without shoes almost always have hooves in better condition than those with shoes, because farriery is a very highly skilled task, and is so often done badly⁹.
- Home-made shoes and home-trimming of the hooves by untrained owners, or farriers can cause or exacerbate hoof problems.



Clenches not flush with the hoof - risk of injury to adjacent limb when this is on medial (inside) aspect.



Brittle hooves, cracked due to nailing.



Sharp edge on shoe (middle) and bad hoof shape, broken forward.

Means of resolution

- Correct trimming and balancing is essential to ensure that the hoof hits the ground correctly at each stride, allowing the forces to be distributed evenly through the foot and limb so that the animal can move efficiently and without pain. It can take more than a year for hoof horn to grow from the coronary band to the ground, so it is important to understand that corrective farriery is not a quick process and problems cannot be rectified in just one trim¹⁰.
- Owners should be encouraged to invest in a trained farrier, as this investment will be recouped many times through a more productive animal.
- Owners should be encouraged to clean hooves daily, and check for any abnormalities or injuries.

Refer to the Working Equid Veterinary Manual, Community Engagement work plans or strategies and the Handling Guidelines before conducting an intervention..

⁷ Wilson (date unknown)

⁸ Hayes (1992)

⁹ A. Brown, personal communication.

¹⁰ Brooke (2013)

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