Animal Health
Lameness

SEBWAT parameter
(Standardised Equine-Based Welfare Assessment Tool)

Gait

Welfare issue

- Equid displays signs of lameness in one or more limb/s.
- Studies show that lameness is highly prevalent in working horses and donkeys in the developing world[1], with a high proportion suffering from lameness in more than one limb. Data suggest that almost all working equids show gait abnormalities of some sort[2].

Horse resting a forelimb which indicates lameness.

Welfare significance

Pain

- Pain in the spine, limbs or hooves causes lameness, as the animal adopts an abnormal gait in an attempt to reduce the pain it is experiencing.
- This will lead to further damage to joints, muscles and tendons if not corrected, due to the forces created by the abnormality being transferred through other areas of the musculoskeletal system[3]. Musculo-skeletal asymmetry can also be the result of neurological disorders. If the nerve has been damaged then the muscle is no longer activated and atrophies.
- Chronic pain can also lead to the development of secondary problems, including a supressed immune system which reduces the ability to fight infection; disturbed rest or loss of appetite leading to loss of condition; and the animal becoming increasingly withdrawn and depressed until ultimately an apathetic state is reached.
- If the lameness is chronic or subtle the owner may not notice anything wrong[4] and continue to work the animal normally causing persistent pain and suffering, and perhaps worsening the underlying cause of lameness.

[1] Broster et al (2009)
[2] Pritchard et al (2005) quoted in the Brooke veterinary manual (2013)
[3,4] The Brooke (2013)

Reduced working ability and productivity

- A lame equid will work inefficiently compared to a sound equid. This means that the lame animal will tire more quickly and be less able to cope with heavy loads or long hours.
- Reduced working ability could lead to increased negative interaction from owners during work (e.g. beating, whipping, shouting).
- Days off work for recovery may reduce the owner's income, making it more difficult to afford feed and veterinary medicine to treat the lameness and return the animal to full productivity.
- If lameness is left untreated, the animal's productivity may further decline, ultimately to the point where it becomes uneconomical to keep the animal, creating a risk of neglect or abandonment.

Reduced body condition score

- Studies have found a link between lameness and low body condition score[5]. This could be due to the lame animal expending more energy with each stride compared to a sound animal, therefore without additional feeding there will be an energy deficit resulting in a loss of body condition.
- Alternatively, lameness can be a mechanical consequence of poor body condition, because malnutrition has inhibited the development of a strong, sound musculoskeletal system when the animal was young.

Conformational problems

- Long-term untreated lameness can cause atrophy of some muscles, leading to asymmetry in the animal's skeleton or musculature (i.e. differences in one side of the body compared to the other, e.g. uneven muscle development on left and right shoulders, or one hip joint higher than the other).
- Musculo-skeletal asymmetry can also suggest poor nutrition and/or overwork at a young age whilst the animal was still growing[6], making the adult animal more susceptible to lameness.
- Lameness is also often associated with multiple pathological abnormalities within each limb, with chronic hoof pathology particularly common[7]. This means that when working equids have abnormal conformation of the hooves or limbs they are more likely to experience painful lameness and therefore reduced productivity.
- Consideration should be given as to the wisdom and ethics of breeding from equids showing abnormal hoof or limb conformation, as such abnormalities are often hereditary and therefore offspring are likely to suffer too.

Equid displaying both low body condition and fore limb lameness.

Examples of abnormal conformation of hooves or legs.

[5] Pritchard et al (2005) quoted in Broster (2009)
[6] Reix et al (2014)
[7] Broster et al (2009)

Possible causation

The reasons for lameness are manifold and cases are often a result of multiple factors. Common causes include:

- Poor farriery – e.g. hoof imbalance, toes too short/too long, poor quality and/or fit of shoes, iatrogenic injury by farrier.
- Poor conformation of limbs – e.g., misaligned joints in limbs leading to uneven weight distribution throughout the limb.
- Poor conformation of hooves – e.g. dropped or flat soles leading to increased sensitivity to stones and rough ground.
- Injury to the hoof or limb – e.g. sole puncture, damaged tendon.
- Infection or disease of the hoof or limb – e.g. canker, tendonitis.
- Spinal pain and stiffness - significantly associated with lameness[8]. This spinal pain can be associated with overwork, overloading, and poorly designed carts and harness.
- Overwork, fast work, work on rough ground – can cause bruising of the sole and twists/sprains to the joints. Likelihood of injury at speed or on rough terrain can be increased by some hoof abnormalities, e.g. dropped/flat soles, upright "boxy" feet or broken hoof pastern axes.
- Exhaustion - increase the risk of stumbling, falls and interference injuries, particularly if the animal already has a conformational tendency towards interference.
- Malnutrition – leading to poor quality hoof horn, causing weak and brittle hooves which are prone to cracks.

See the *Hooves and Farriery* summary for further information about hoof-related welfare issues.

Lameness associated with draught work

- More severe lameness in the hind limbs compared with the forelimbs has been reported as being associated with draught animals[9]. This was found in both draught horses and donkeys and is considered to be due to the propulsion required to set a heavy cart in motion.
- This effect is intensified by the weight of the cart causing a caudal (backward) shift in the centre of balance for an animal hitched to a cart. This is worsened when the cart has only two wheels and the weight is loaded behind the wheels.

Example of overwork which could cause lameness

Means of resolution

- Over the long-term, reducing the potential causal factors identified above should reduce the prevalence and severity of lameness in the working equine population.
- The specific means of resolution for individual cases will depend on the cause and extent of the lameness, and requires veterinary assessment. Sometimes the precise cause of the lameness cannot be identified and so the condition must be treated symptomatically.
- The primary requirement for the treatment of lameness is rest; however, this can be difficult or impossible for owners of working equids to provide[10].
- When deciding on a treatment for lameness it must be considered whether the animal can be returned to a pain-free state. A veterinary assessment of whether the animal can return to work should be carried out in discussion with the owner. If the owner is able to support the animal with a reduced workload and/or shorter working hours, perhaps with the support of analgesics, a return to work may be possible. If the owner cannot provide this support or the degree of pain from the lameness is too severe, euthanasia may need to be explored to avoid further suffering.
- Good quality regular farriery.
- Not starting work at a young age.

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

[8,9] Reix et al (2014) [10] Brooke (2013)

References

The Brooke (2013) *The Working Equid Veterinary Manual*; Whittet Books, Essex.

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