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Nursing donkeys – what is different?

Donkeys have been serving mankind for 5,000 years (Ali et al, 2014). The phrase 'beasts of burden' describes their utility as pack animals and, in many parts of the world, they play a significant economic and societal role. It is estimated that there are about 90 million donkeys worldwide and they are especially widespread in Central and South America and parts of Europe (Ali et al, 2014).

In the UK, most donkeys – unlike horses – are kept as pets. The fact that donkeys are now popular as pets means we see them more frequently for treatment in equine practice. All veterinary professionals – especially RVNs – working with donkeys should know the main differences between them and horses, so that individualised species-specific nursing care can be applied.

Bonding behaviour

Donkeys generally form lifelong friendships and do not like to be alone. Bonded donkey 'friends' may become distressed if they are separated and this may lead to complications, such as inappetence and colic. Inappetence in donkeys can lead to a potentially fatal condition known as hyperlipaemia (The Donkey Sanctuary, 2015).

Bonding behaviour should always be considered when donkeys are admitted into the hospital for treatment. If possible, both the donkey

and its companion should be admitted and kept in the same stable to avoid any unnecessary distress.

If one of the donkeys is euthanised, it is essential that the surviving donkey is allowed to remain with the body of their friend, until they have lost interest. If this advice is not followed, it can cause significant distress to the surviving donkey, which may develop hyperlipaemia as a result (The Donkey Sanctuary, 2015). The RVN should also discuss with the owner the possibility of finding another companion for the surviving donkey and assist with this where possible.

It is invariably beneficial for RVNs to spend time with a sick donkey because of the tendency of this species to form strong bonds (Figure 1). TLC in the form of grooming, petting and hand feeding can contribute enormously towards recovery (Dabinett, 2008).

Monitoring hospitalised donkeys

Any veterinary professional who is monitoring a donkey in a hospital environment must be sensitive to subtle behavioural changes that are often early indicators of illness. Donkeys are stoical by nature and often do not exhibit dramatic symptoms of illness (Dabinett, 2008). Any donkey described as dull – with its head held low, exhibiting general disinterest in its surroundings and with a reduced appetite – should be investigated (Figure 2).

RVNs caring for sick donkeys should be aware of their tendency to display 'sham eating'. This is where the donkey seems to be interested and eating but in reality is often only playing with the food (Sprayson, 2008).

Normal clinical parameter readings differ between horses and donkeys. It is important to be aware of these differences when monitoring sick donkeys in the hospital. Table 1 gives a comparison of normal

Figure 1. It is beneficial for the RVN to spend time with a sick donkey.



Figure 2. Any donkey described as dull – with its head held low, exhibiting general disinterest in its surroundings and with a reduced appetite – should be investigated.



	HORSE average and (normal range)	DONKEY average and (normal range)
Temperature	38°C (37.5 - 38.5°C)	37.1°C (36.5 - 37.7°C)
Pulse	32 beats/min (25 - 40)	41 beats/min (31 - 53)
Respiration	10 breaths/min (8 - 12)	20 breaths/min (13 - 31)

Table 1. Comparison of normal clinical parameters for horses and donkeys (The Donkey Sanctuary, 2015)

clinical parameters for horses and donkeys.

Nutrition

The domestic donkey is descended from African wild asses that evolved to live in semi-arid environments with only poor quality, sparse vegetation. To increase their potential food sources, donkeys have evolved as browsers as well as grazers – with woody shrubs and trees being potential food sources when grasses and other low vegetation are not abundant (Lamoot et al, 2005).

Donkeys are highly efficient at digesting poor nutritional quality fibre and possess a superior digestive efficiency compared to horses when digesting forages such as straw (Wood et al, 2005). The donkey's natural adaptations to survive on poor quality feed – when compared to ponies – means, that when donkeys are treated as 'mini horses' or kept in the same way as their horse companions, they may become obese and subsequently develop

significant health problems. This is a serious consideration for an RVN nursing sick donkeys in practice.

Feeding recommendations for donkeys and mules have, until recently, been extrapolated from horse nutrition. Using experience and limited research in donkeys, it was estimated that they required 75 per cent of the nutrients that would be given to a pony of the same size (Svendsen, 1997). Research funded by The Donkey Sanctuary established that these guidelines significantly overestimate the digestible energy requirements for maintenance (Carretero-Roque et al, 2005; Wood et al, 2005). This can present a significant challenge in practice where all feedstuffs available are designed for horses.

Straw should form the majority of the diet for most donkeys as it is high in fibre and low in sugar (Figure 3). Good quality barley straw is fine to feed to donkeys with good teeth. Oat straw better for old or underweight

donkeys with good teeth as this has a slightly higher nutritional value than barley straw (The Donkey Sanctuary, 2015).

An RVN working in an equine hospital should source and obtain the appropriate feed for donkeys if they are admitted. If the donkeys have straw at home, it is important to keep their diet the same to avoid gastrointestinal upset. If straw cannot be sourced, the owners should be asked to bring in forage from home to avoid an abrupt dietary change.

A feed balancer should also be provided to give extra vitamins and minerals – access to an equine mineral lick will help to ensure the donkey is receiving adequate nutrition (Figure 4).

An anorexic donkey should be tempted with anything it will eat. These patients should be hand-fed with bread, carrots, apples and/or ginger biscuits! The RVN should consult the owner for information on their donkey's favourite treats (Dabinett, 2008).

Drug metabolism and pain relief

Although the prescribing and dosing of medication is the responsibility of the veterinary surgeon, an RVN should be aware of the differences in drug metabolism between donkeys and horses. Therapeutics are often administered to donkeys based on dosage and intervals recommended for horses, because very few drugs have donkey-specific label indications. Yet differences in drug

Figure 4. Access to an equine mineral lick will help to ensure donkeys receive adequate nutrition.



Figure 3. Straw should form the majority of the diet for most donkeys as it is high in fibre and low in sugar.



*Suggested Personal & Professional Development (PPD)

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distribution, metabolism and elimination – between donkeys and horses – have been noted for many therapeutic agents (Grosenbugh et al, 2011).

These differences can be partially explained by the donkey's unique physiology. Since their ancestors evolved in a desert environment, modern donkeys exhibit qualities that allow them to tolerate dehydration better than the horse and recover more quickly from its effects (Grosenbugh et al. 2011).

Donkeys eliminate phenylbutazone much faster than horses and this is thought to be the consequence of differences in protein binding of the drug (Lizarraga et al, 2004). It has, therefore, been suggested that in order to achieve effective analgesia in donkeys, higher doses and shorter dosing-intervals of phenylbutazone are required (Cheng et al, 1996; Mealey et al, 1997). Carprofen may be a better choice of analgesic agent for donkeys as this is metabolised less rapidly and can be dosed at the same rate as for horses (Matthews, 2008).

With this in mind, veterinary professionals caring for sick donkeys in practice should be aware of the differences in drug metabolism between horses and donkeys. Because donkeys are stoic and do not exhibit signs of pain as readily as horses, analgesic drugs must be considered very carefully. Drug selection and doses should be prescribed and administered with this in mind.

Hyperlipaemia

Hyperlipaemia is a life-threatening disease to which donkeys are particularly prone – both as a primary or secondary condition. It is, therefore, essential that any RVN dealing with donkeys is aware of measures taken to prevent, identify and treat

this disease. The metabolic pathways involved are complex and involve many factors.

Basically, hyperlipaemia occurs when animals mobilise triglyceride from body fat reserves in response to a negative energy balance (Grove, 2008). The end result is multi-organ failure as lipid is deposited in the liver and kidneys.

Contributory factors for hyperlipaemia (Grove, 2008) include:

- body condition – the disease is prevalent in fat and obese individuals owing to their higher body fat reserves and increased insulin resistance
- stress – donkeys are more susceptible to hyperlipaemia in times of stress, such as transportation and change of environment, including being admitted into an equine hospital
- age – older animals are more prone to the disease
- sex – mares are more likely to develop the disease than males
- late pregnancy and early lactation – the additional energy demand during these times increases the risks of developing hyperlipaemia
- Cushing's syndrome – cortisol antagonises the effect of insulin, which allows body fat to be readily mobilised
- laminitis – primary hyperlipaemia can be seen in laminitic animals owing to the association with insulin resistance
- concurrent disease – any disease that puts the animal in a negative energy balance can cause hyperlipaemia
- surgery – the starvation period prior to surgery, added to the possible period of inappetence that follows, increases the risk of the patient developing a secondary hyperlipaemia.

Early clinical signs of hyperlipaemia are often vague and easily missed, so any

animal falling into one or more of the above risk categories should be monitored closely and, ideally, receive preventive management and therapy.

Clinical signs include (but are not limited to) the following (Grove, 2008):

- dullness/depression
- inappetence/anorexia
- gut stasis with diagnostic mucus-covered, dry faecal balls
- halitosis
- congested mucous membranes with delayed capillary refill time.

A comprehensive guide to the treatment of hyperlipaemia is beyond the scope of this article, however, the basic principles (Grove, 2008) include:

- treat any underlying disease
- administer fluid therapy – maintain circulating volume, correct electrolyte imbalances, restore acid/base balance
- administer symptomatic therapy – non-steroidal anti-inflammatory drugs (NSAIDs), analgesics, anti-ulcer medication, multivitamins, anabolics, antibiotics
- give nutritional support – maintain a positive energy balance.

Mortality rates of 60 to 90 per cent have been reported (Grove, 2008). Prognosis improves if the syndrome is detected in the early stages and prompt action is taken and highlights the importance of carefully monitoring donkeys for signs of the disease.

Prevention is certainly better than cure and this is an area where an RVN can really make a difference with careful observation and swift action. If any donkey shows inappetence, then a blood sample should be taken and analysed for hyperlipidaemia (Grove, 2008). Reducing stress is also an important factor to consider with

patients coming into the hospital.

Donkey 'companions' should be welcomed and catered for. Plenty of TLC should be given and if a donkey needs to lose weight, an RVN should make sure that this is done safely and slowly. Strict monitoring procedures should be in place for donkeys that have been starved for a general anaesthetic; and then every effort should be made to encourage the patient to eat once it is safe to do so after surgery.

Conclusion

Donkeys are not just small horses with big ears! There are many physiological differences to consider in comparison to horses. Veterinary professionals, especially RVNs, dealing with sick donkeys must be able to recognise these differences and cater for them. Donkey-specific protocols should be put in place and adhered to in every equine practice.

Special areas of consideration – such as strong bonding, specific nutrition, different drug metabolism and different clinical parameters – should all be taken into account, along with the tendency for donkeys to develop hyperlipaemia.

By following protocols specific to donkeys, the RVN can ensure that these patients receive individualised, species specific nursing care, and therefore have an optimum chance of recovery. ■

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PPD Questions

1. If a donkey has good teeth, what kind of straw should it be fed?
2. Straw is high in fibre but low in vitamins and minerals. What can be given to donkeys to ensure that they receive adequate levels of vitamins and minerals in their diet?
3. Which analgesic agent is considered best for use in donkeys?
4. Which medical condition are donkeys prone to developing after being exposed to excessive stress?
5. As donkeys display strong bonding behaviour, what can RVNs do to help aid recovery in sick patients?

- Answers**
1. Barley straw
 2. A feed balancer and/or an equine mineral lick
 3. Carprofen, as this is metabolised less rapidly and can be dosed at the same rate as for horses
 4. Hyperlipaemia
 5. Provide a great deal of TLC in the form of grooming, petting and hand feeding

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