Rabbit health and welfare: management and treatment

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As testament to their adaptability and endearing nature, rabbits have successfully made the transition from the “ready food source” of Norman times to the beloved pets they are today.

An estimated 1.3 million rabbits are kept as pets in the UK (PDSA, 2014) and, although historically seen as an easy children’s pet, nowadays they are increasingly valued as family members with complex needs. However, despite this rise in popularity, many basic tenets of rabbit care and welfare are not being met. The following article reviews the essential elements to providing adequate care for pet rabbits.

Husbandry and diet

High-fibre foods such as grass and hay are the most important component of a rabbit’s diet.

As commonly observed in veterinary practice, one of the biggest causes of poor husbandry is ignorance of the animal’s needs. An owner’s obligations under the law are summarised in England and Wales by the Animal Welfare Act (2006) and in Scotland by the Animal Health and Welfare (Scotland) Act 2006.

The guidelines for fulfilling these obligations are often described in terms of the five basic needs of an animal:

- suitable environment/place to live
- suitable diet, including fresh water
- the ability to exhibit normal behaviour
- housed, as appropriate, either with or apart from other animals
- protection from and treatment of pain, suffering, injury or disease

Although these are fairly basic concepts, many clients fall short of their legal obligations from a lack of understanding of what constitutes a suitable diet or environment. Further confusion arises from the lack of rabbit-specific husbandry guidelines in England and Scotland, seemingly contradictory information from different sources and the prevalence of inappropriate housing, food and toys available to purchase.

Explaining to clients what constitutes good husbandry practice is part of our role as vets and veterinary nurses. So, what should we be advising?

For pet rabbits, which are not too far removed from their wild brethren, fulfilling their needs in a domesticated setting is made easier by observing what dietary and environmental niche the wild rabbit has carved out for itself.

Suitable environment and companionship

Scatter feeding is a helpful way to encourage foraging behaviour and increase exercise.

Rabbits are a complicated combination of a social species with territorial tendencies. As a prey animal, communal living means plenty of eyes to look for predators, but with group living comes competition for space. The smaller the space, the more fighting is likely to occur (Myers et al, 1961).

In captivity, a rabbit’s need for company does not diminish – in fact, it becomes more important to

alleviate the boredom of confinement. In a study by Seaman et al (2008), companionship ranked as high as food on a rabbit’s list of priorities.

Unfortunately, the size of a rabbit’s territory is considerably smaller in captivity than in the wild and fighting can be a common problem in domestic situations. An unsuitably small environment also constrains a rabbit’s ability to express normal behaviour and has a profound effect on its welfare (Buijs et al, 2011).

The best advice we can give owners is to provide rabbits with as much space as possible. Rabbits should have access to a spacious hutch with an attached run and be given the opportunity to exercise for several hours each day. Indoor rabbits should have long periods of supervised activity and access to outdoors where possible.

There are no prescribed size requirements for hutches and runs in which to house pet rabbits in England or Scotland. Wales has more detailed guidelines (Welsh Government, 2011), but generally, the advice for minimum space is a hutch 0.68m wide × 0.8m long × 0.75m high (Boers et al, 2002) and a run 2.4m long × 1.2m wide (Rabbit Welfare Association and Fund, 2012). It is important to note these dimensions may not allow a rabbit to run and many commercial hutches and runs available fall short of these minimal guidelines.

If we consider rabbits are a prey species that spend a lot of time underground, a suitable environment would also provide hiding spaces and bolt holes for safety, plus a shaded area to shelter from direct sunlight. Similarly, indoor rabbits will not tolerate a very hot environment and may require respite from indoor heating.

A multilevel hutch, which can be linked to an outdoor run directly or via secure rabbit-proof tubes.

An outdoor run. This can be linked via secure rabbit-proof tubes to a multi-level hutch.

Providing shelter is important for prey species such as rabbits.

Suitable diet

Rabbits have the dentition and gastrointestinal anatomy adapted to digest coarse, high-fibre foods such as grass and hay (Meredith and Lord, 2014), so it is important this makes up the bulk of their diet. Many owners may not appreciate how fussy rabbits can be about the quality of their hay and perceived reluctance to eat poor-quality hay often results in owners offering more greens and pelleted food instead. This predisposes to dental disease (Reiter, 2008), as their continuously growing teeth are not worn down by adequate volumes of hay and grass.

Table 1. The three rules of rabbit feeding (based on an average sized adult rabbit)

1	A ball of timothy or meadow hay the same size as the rabbit minimum per day and access to grass ad libitum
2	A cup of mixed vegetables morning and night (avoid sugary fruits and too much carrot)
3	A dessertspoonful of pelleted food as a treat once daily

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Timothy or meadow hay is recommended. Alfalfa hay should be avoided as the high calcium content can lead to development of renoliths as calcium is excreted through the kidneys (Kamphues, 1991). Ad lib pellet feeding is not advised for adult rabbits, as it is likely to predispose to obesity and less hay is likely to be eaten (**Table 1**).

Ability to express normal behaviour

Wild rabbits spend a large proportion of their day foraging for food (Magnus, 2005). This activity is necessary because the fibrous foods they are accustomed to eating have low nutritional value and a large volume needs to be consumed. Feeding large quantities of lush food or commercial diets predisposes to health issues such as dental disease, obesity and diarrhoea, to name but a few.

In addition, it does not require much time to consume and foraging, which can lead to boredom and destructive behaviours. Providing environmental enrichment and giving rabbits the opportunity to forage improves their welfare and reduces their stress levels (Lidfors, 1997).

Preventive care

The value of preventive health care cannot be underestimated for rabbits. New pet visits to the vet are encouraged to ensure the rabbit has no major underlying problems and to establish a preventive health care regime. Recommendations such as regular dental checks (at least once, but ideally twice yearly) may apply to all animals, whereas others such as parasite treatment may depend on the individual risk. Considerations for a rabbit may include the following.

Neutering

Neutering should be considered for all pet rabbits unless breeding is desired. It is, however, particularly important for female rabbits as the incidence of uterine adenocarcinoma has been reported as up to 79% by some authors in older entire animals and metastatic spread is common (Greene, 1941). Spaying will eliminate this risk and potentially reduce territorial behaviour.

Castration of male rabbits is usually performed for social reasons to reduce territorial or mating behaviour, ensuring a male rabbit can be successfully bonded with a companion. Castration is usually performed from four months of age and spaying from five to six months of age, although in some cases it may be performed younger.

Vaccination

Only one vaccine is available for rabbits in the UK – Nobivac Myxo RHD. This protects rabbits against two potentially fatal viral diseases – myxomatosis and rabbit haemorrhagic disease (RHD).

Myxomatosis is caused by a pox virus and infected rabbits can be recognised by classic signs of swollen eyelids and genitalia, often with profuse ocular and nasal discharges due to secondary infections.

RHD is caused by a calcivirus, but infected animals are rarely presented to the clinic as death is generally peracute due to perfuse haemorrhage. Owners may report finding their pet dead with haemorrhage from the nares or anus.

The combined vaccine can be administered by the subcutaneous route to rabbits from five weeks of age (although it is not licensed for use during pregnancy) and needs to be repeated annually to ensure continued immunity. Vaccination is advised for both indoor and outdoor rabbits as both diseases can potentially be spread by insect vectors such as fleas and flies, which may be found in the home. Reducing exposure to these vectors is also advised to reduce risk.

Ectoparasite prevention

Flystrike is still a common problem in outdoor rabbits or even occasionally indoor rabbits struggling to clean around their perineum. Fly eggs laid in soiled fur or abraded tissue will hatch within 24 hours and develop within three days into pathogenic L2 and L3 larvae.

Migration of larvae can result in severe tissue damage, toxin release and potentially death. Owners are therefore strongly advised to check their rabbit’s back end daily during warmer months to look for signs of fly eggs or maggots. Fly repellants should be considered, enclosure hygiene improved and any underlying problems resulting in the rabbit being excessively soiled should be addressed before the summer months.

Grass can be grown in tubs, which can be rotated in and out of the enclosure to provide extra enrichment.

Flies are, however, unlikely to be completely eliminated from the environment, so use of an insect growth regulator such as cyromazine at the start of the summer is advised to reduce the risk of flystrike by stopping the development of eggs to larvae. Cyromazine may be applied to the dorsum of a rabbit from 10 weeks of age and can prevent egg development for eight to 10 weeks.

Regular ectoparasite treatment may not otherwise be required for every rabbit – especially if kept indoors. However, treatment may need to be considered if sharing a house with dogs or cats, as fleas and some mites may be passed between animals.

A variety of spot-on treatments are available for mites and fleas, but owners should be advised to use a product specifically licensed for rabbits as adverse reactions have been reported following use of products containing fipronil. Concurrent environmental treatment will also be necessary if treating an infestation.

Endoparasite prevention

Routine worming is not generally necessary for most rabbits, as the risk of worms causing a clinical problem in an adult rabbit is low and most rabbit endoparasites have not been reported to be zoonotic. Of greater significance is the protozoal parasite *Encephalitozoon cuniculi*.

E cuniculi is a commonly seen intracellular protozoa. Transmitted via the urine, it is usually ingested and travels
from the gastrointestinal tract to target organs (usually the neurological and urinary systems). In some rabbits, no clinical signs may be seen, whereas in others, signs may include a head tilt, hindlimb paresis, urinary incontinence or ocular lesions.

E cuniculi has been reported to be prevalent throughout the pet rabbit population, with about 51% of rabbits being seropositive (Keeble et al, 2006). It may be treated with a 28-day course of fenbendazole, but no lasting immunity is achieved following treatment.

Owners are therefore advised to treat rabbits at times of highest risk, such as when acquiring a new animal or mixing with a new animal, and otherwise to keep their pets isolated from other untreated rabbits.

E cuniculi is potentially zoonotic, so care should be taken if immunocompromised people are handling untreated animals.

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