



# A Review of Rabbit Housing and Enrichment

## BASED ON A CASE STUDY

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### Introduction

Pet rabbits can be prone to disease and behaviour disorders as a consequence of unsuitable housing, diet or handling. As a minimum, housing should be large enough to allow the rabbit to stretch fully in all directions, stand on its hind legs without its ears touching the ceiling, and make at least three hopping movements (Meredith and Lord, 2014). In addition to sheltered housing, rabbits need daily access to a spacious and secure exercise area: after all, pet rabbits are domesticated from wild rabbits... whose territory equates to 30 tennis courts! (PDSA, 2013). Ideally, the exercise area should be attached to the main housing to allow the rabbit control over its environment.

Not only will providing a suitable housing and exercise area result in better welfare, it will also allow your rabbit to express more behaviours: particularly when provided with appropriate enrichment. The best enrichment is the company of a suitable companion (see [www.rabbitwelfare.co.uk](http://www.rabbitwelfare.co.uk)), whilst other enrichment items include tunnels, soil-filled containers, straw baskets, edible branches and various novel items, such as paper bags filled with hay and vegetables. Human interaction and training is another great form of enrichment, although care should be taken to ensure the rabbit builds confidence with their human carers. This considers that rabbits are inherently a prey species.

The following case study is a great example of how important it is to provide a rabbit with a suitable environment which considers natural instincts and behaviours. It also highlights the need for humans to consider natural behaviours when interacting with their rabbits, in order to build and maintain trust. This will allow the rabbit and human carer to

benefit most from the human-rabbit relationship.

**Rabbit: Rosie** (Dutch / Female)  
**Owners: Female adult and teenage children**

#### Background

Rosie joined the household aged 8 wks and was paired with a male companion. At 12 wks of age she displayed aggression towards people, which manifested as vocalisation, lunging-towards and biting. Rosie was neutered in the hope that aggression would cease, but this was ineffective. Rosie's owners then sought advice, which was to handle Rosie as much as possible. Aggression subsequently increased and a behaviour consultation was arranged as an alternative to euthanasia.

Rosie had no known health problems, her diet was excellent and she had a good relationship with her male companion. Rosie had daily access (8 hours) to a large run containing tunnels, toys, shelter, burrowing substrate, raised heights

and foraging material. At other times both rabbits were housed in a small hutch which did not contain complexity or promote species-specific behaviours. The hutch and run were very separate, and the owners carried both rabbits between these twice daily.

Around the time Rosie became aggressive, she experienced two environmental changes. Firstly her hutch was changed to that of a 'top-loading' design, meaning her owners needed to lift the roof and reach in to transfer Rosie to her run. Secondly, Rosie was brought indoors for short periods, where she failed to adapt to slippery flooring. Rather than manoeuvre on this, she sat still behind a curtain. Rosie also became startled indoors when household appliances were in use.

#### Behavioural Diagnosis

Rosie's aggression was fear-related, developing as her hutch design changed and she was brought indoors. Rabbits are a prey species, and being approached from above mimics' predatory behaviour.

Rosie's small hutch did not allow for escape from this perceived threat and therefore Rosie resorted to aggression. Handling in general also limits opportunity for any rabbit to escape: therefore many will avoid being handled, although consistent positive handling experiences can teach a rabbit to relax with this (Mullan and Main, 2007). When brought indoors, Rosie may also have associated her fear of slippery flooring and noisy household appliances with humans, causing a deterioration in her associations with humans.

Rosie would likely have exhibited early warning signals to deter the human contact she feared. These include muscle tension, ears held flat and backwards, vocalisation and escape attempts (McBride et al. 2010). However, subtle signals are often not noticed by handlers and are therefore ignored. Fear responses would then have escalated to aggression as Rosie was forced into a 'fight or flight' situation, with nowhere to flight to in the confines of a hutch. As Rosie continued to be handled to be taken indoors or to her run, her associations with humans would have further deteriorated.

Finally, Rosie's hutch failed to meet recommended guidelines in terms of size and complexity. This would have contributed to defensive behaviours as Rosie had no control over escape or avoidance. Designing housing with raised areas, open-ended pipes and boxes would allow more environmental control. It would also reduce stress by allowing a more natural behavioural repertoire: for example, pet rabbits retain most of the behaviours of wild rabbits (Mullan and Main, 2007), yet behavioural range and duration is much reduced without space or complexity (Schepers et al. 2009).

### **Treatment Programme**

To change Rosie's perception of humans it was advised she not be picked up during the treatment programme, and instead she be encouraged into a pet carrier with a non-slip base to be carried. This meant allowing Rosie to explore the carrier, containing high-value food,

within her housing. Rosie quickly formed good associations with the pet carrier and was relaxed when carried. The alternative was to connect Rosie's hutch and run via a ramp or purpose-designed tunnel system: again removing the need for handling. A larger, more enriched hutch design, with front access, was also promoted.

A programme of desensitisation and counter-conditioning was then implemented, which involved exposing Rosie to levels of human contact which did not evoke an emotional or behavioural reaction (as described by Cromwell-Davis, 2007). For example, Rosie's owner began by sitting several feet away before gradually reducing distance without causing reactivity. As her owner was able to get closer, high-value food was simultaneously given so that Rosie would re-associate humans with pleasant consequences. This progressed until Rosie was confident enough to approach her owners, after which time 'hands' and then 'touch' were reintroduced into Rosie's environment. The ultimate aim was that Rosie could be picked up when necessary, such as for examination or veterinary visits.

Rosie's owners were also made aware of the 'blind-spot' immediately in front of a rabbit due to eye positioning, as approaches to this area can cause a rabbit to startle. Potential stresses imposed by indoor environments were also discussed: if ever Rosie reached a stage where she was consistently relaxed around humans and further attempts were made to bring her indoors, a non-slip surface, familiar tunnels and boxes should be available. Finally, the importance of refraining from using household appliances, under these circumstances, was highlighted.

### **Outcome**

Rosie's owner implemented all behaviour modification strategies which included providing a larger hutch with front-opening access, and initially refraining from picking Rosie up. Instead, Rosie was encouraged into a pet carrier to be transported to and from the run each day, and good associations were quickly formed. Within days of these changes, Rosie

stopped attempting to approach her handlers to aggress and within 12 days she was approaching her handlers to accept food and interact with them. Progress continued until Rosie's owners were able to pick her up. Rosie tolerated this but was not relaxed, hence using the pet carrier for transportation continued.

### **References**

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