



Supplementary resources for members of Local Ethical Review Processes

The rabbit: Good practice for housing and care



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1st edition; May 2006



Please read the accompanying sheet *Good practice for laboratory animal housing and care* which provides a general introduction to all the species documents in this series.

Natural history

Domestic rabbits, including the laboratory rabbit, are descended from the European wild rabbit, *Oryctolagus cuniculus*. Wild rabbits are large, conspicuous prey animals and this has played a major role in shaping their behaviour and physiology. In particular, rabbits have evolved to suppress behaviours that show they are afraid or in pain, as this would attract the attention of predators. Unfortunately, this can make it hard for humans to interpret their behaviour and assess their welfare.

Rabbits have highly developed senses of smell, hearing and sight. Smell is most important and the rabbit's ever-twitching nose is continually sampling the air for signs of predators. The large ears can detect sounds at very low levels and can move independently to locate sounds quickly and accurately. The eyes are positioned so as to give a very wide field of vision and rabbits often sit bolt upright, scanning the horizon.

Rabbits are highly alert, easily frightened and are largely nocturnal, usually emerging from their burrows in late afternoon and returning soon after dawn. They are extremely wary when out in the open and will instinctively flee to their burrows when startled. The recommendations in this sheet aim to promote good rabbit welfare by taking account of the nature of the species and its over-riding instinct to avoid predation.

What rabbits need

The following list of requirements has been defined by researching the literature on rabbit behaviour and welfare. It is based on the BVAAWF/FRAME/RSPCA/UFAW Joint Working Group on Refinement report 'Refinements in rabbit husbandry' (reference 1). More in-depth guidance on behaviour and husbandry refinements can be found in references 2 and 3 and a very accessible guide to behaviour in 4.

Social housing

The rabbit is a social animal and group or pair housing is the ideal. Pairs or groups must always be formed at the right time and with appropriate composition so as to avoid fighting. For females, pairs or groups should be formed as soon as young rabbits are acquired (or at or before weaning if animals are bred in-house). New animals should not be subsequently introduced to established pairs or groups, as this can lead to aggression. Male rabbits can be pair or group housed as juveniles but will start to fight when they reach sexual maturity. There are two possible solutions to this, both of which have advantages and disadvantages; males can either be singly housed or left in pairs/groups and castrated 3 to 4 weeks after weaning. Both options need to be carefully evaluated, since single housing causes distress and surgery can lead to discomfort or pain.

If there is *compelling* veterinary, welfare or scientific justification for single housing, animals should always be able to see, hear and smell others of the same sex. Males and females



should not be able to smell one another, as this will stress the males (see references 1 to 3 for guidance on grouping).

Plenty of structured space and adequate enclosure height

Rabbits need enough space for exercise, including taking sequences of hopping steps, otherwise they can suffer bone weakness and skeletal abnormalities. They also prefer to perform different behaviours, such as feeding, resting and excretion, in different places. The ideal is an enclosure that can be divided into separate areas using partitions, platforms and shelters. For cage housed rabbits, it is often possible to link cages together to provide extra space and include cage furniture to encourage different activities in different areas. If it is really not possible to provide the space that rabbits need, a shared exercise area can be provided for the rabbits to use individually or in their pairs or groups. For example, a spare pen or a large, rigid, plastic children's paddling pool can be adapted for this purpose.

The height of the enclosure is very important. Rabbits like to be able to sit upright in a "look out" posture with the ears erect, which requires an enclosure height of at least 75 cm.

Solid floor with substrate

Many studies in a range of species have shown that animals, including rabbits, prefer solid flooring. Solid floors are more comfortable to walk and rest on, and they allow substrate to be provided for digging, gnawing, shredding and foraging activity. Rabbits prefer to have dust-free straw or shredded paper substrate, but have less of a preference for sawdust or wood shavings.

If there is a genuine scientific justification for housing on grid floors, a solid resting area should be provided (such as a shelf).

Raised areas

Rabbits need access to raised areas as "look out" points and for jumping exercise, which helps to prevent osteoporosis. Sufficient platforms, shelves, or refuges with non-slip roofs should be provided for all the rabbits to use at the same time to prevent aggressive competition. The enclosure should be high enough for rabbits to sit upright, with ears erect, on the raised areas.

Gnawing objects and dietary enrichment

Rabbits' incisor teeth grow continuously so materials to gnaw such as wooden chew blocks or sticks must be provided to wear them down. Wild rabbits spend almost half of their time eating and providing different foods, in different ways, is also an appropriate way to occupy domestic rabbits' time. Suitable dietary enrichment includes hay, alfalfa grass cubes, fresh fruit and vegetables, flaked maize and commercially available foraging mixes. Some of these foods can be irradiated to overcome concerns about hygiene and introducing disease. Supplementary foods can be scattered onto the floor to encourage foraging. Hay can be scattered on the enclosure roof to be pulled through, or stuffed inside a dry water bottle to increase feeding time.



Refuge

Refuges or “bolt holes” to run to when afraid are absolutely essential for good rabbit well-being. PVC tubing, rectangular cardboard boxes or commercially available “houses” can be used to provide refuges for escaping from other rabbits, hiding or sleeping. Rabbits also like to rest alongside solid objects such as refuges. There should be at least one for each rabbit, to avoid competition. Refuges with two “doors” should be provided for group housed rabbits to provide escape routes in case of aggressive encounters.

Gentle and empathetic handling and husbandry

Rabbits can discriminate between different humans and positive contact in the form of gentle handling, grooming and habituation to interactions with humans will reduce stress and provide interest (for both rabbits and people). Daily handling has been found to reduce fearfulness and increase the readiness with which rabbits approach people.

Being lifted up can be quite alarming for rabbits (although they may not struggle or vocalise) and using a cue word, such as “lift”, to warn them will help to reduce stress. Restraint is also a stressor and it may be possible to avoid it altogether by changing aspects of a technique, or habituating rabbits to some procedures.

Enrichment devices (toys)

A range of enrichment devices is available for rabbits including stainless steel mirrors, Kong™ toys, stainless steel rattles and balls (*e.g.* “Jingle” balls). These can encourage exploratory and play behaviour and many rabbits make good use of them, especially if the objects are rotated weekly or fortnightly between pens or cages to prevent boredom.

Special needs of breeding does

Wild rabbits have a unique form of absentee parenting in which does nurse their pups for just 3 to 5 minutes, once a day, and cover the nest entrance securely when they leave. This minimal contact is an anti-predation strategy and it is likely that domestic does will become stressed if they cannot break visual and olfactory contact with their pups when they are not nursing them. The pups also need to be left alone because they interpret any vibrations as their mother coming to nurse them and become very active as they prepare to feed, so they will be stressed if she does not appear.

For the sake of both the mother and the pups, it is best if the doe is able to completely get away from the pups when she is not nursing them. This can be achieved by siting the nest box right outside the enclosure, so that the doe cannot jump onto the roof, and restricting access by (in order of preference) removing the nest box altogether, fitting a sliding door that is operated by care staff or fitting a “cat flap” that is operated by the doe.



Potential welfare problems and how to reduce them

Stereotypic behaviour such as repetitive wire-gnawing, pawing or head-swaying can indicate that the rabbits are unable to cope with their environment. There should always be an immediate review of housing and care, addressing all of the topics in this checklist, if any such behaviours occur.

Boredom may be evidenced by restlessness, that is, bouts of activity that have no function and include disconnected elements of feeding, comfort, resting, alertness and withdrawal behaviour alternating with locomotion. Restlessness will upset normal behaviour patterns and time budgets and can make rabbits more liable to panic. Other indicators of boredom resemble clinical signs of ill health, such as hunched posture, apathy, a staring coat or over- or under-eating. As with stereotypies, signs of boredom should prompt a full review of housing and care, especially with respect to the provision of environmental enrichment. Providing an exercise area and encouraging foraging may help.

Aggression can occur if husbandry is not appropriate or for no apparent reason in a previously harmonious colony. The first signs can range from observations of aggressive circling or scuffling, to tufts of pulled out fur in the enclosure, to an individual with fight wounds. Monitoring should be increased if any such signs are seen, and if fight wounds occur, the aggressor or victim should be immediately removed, temporarily or permanently. However, it is also essential to try to address the fundamental cause of the bullying by reviewing housing to see whether (for example) more space, partitions or refuges are necessary, or whether groups are appropriate and compatible. Aggression and fighting can cause serious welfare problems, which is clearly a significant concern, but it is important to try to solve the problem and retain group housing rather than deny social animals the company of their own kind. See reference 1 for further guidance on dealing with aggression and monitoring rabbits.

Recommended further reading

1. Morton, D.B., Jennings, M., Batchelor, G.R., Bell, D., Birke, L., Davies, K., Eveleigh, J.R., Gunn, D., Heath, M., Howard, B., Koder, P., Phillips, J., Poole, T., Sainsbury A.W., Sales, G.D., Smith, D.J.A., Stauffacher, M. & Turner, R.J. (1993) 'Refinements in rabbit husbandry' *Laboratory Animals* **27**: 301-329, available at: <http://www.lal.org.uk/pdf/files/RABbit.PDF>
2. Lidfors, L., Edström, T. & Lindberg, L. (2004) 'The welfare of laboratory rabbits' Chapter 10 in: *The Welfare of Laboratory Animals* (E Kaliste ed.). Dordrecht, The Netherlands: Kluwer, pp 211-243.
3. Boers K., Gray G., Love J., Mahmutovic Z., McCormick S., Turcotte N. & Zhang Y. (2002) 'Comfortable quarters for rabbits in research institutions' In: *Comfortable Quarters for Laboratory Animals*, 9th edition (V & A Reinhardt eds) pp 43-49. Washington DC: Animal Welfare Institute, available at: <http://www.awionline.org/pubs/cq02/Cq-rabbits.html>
4. McBride, A. (2000) *Why does my rabbit...?* London: Souvenir Press.



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Sheet produced by Penny Hawkins and Maggy Jennings

Front cover rabbit picture: Novo Nordisk

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