

# The 3Hs – home, hammocks and happiness

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## About the facility

- Academic Institution
- 600 cages of 3,000 rodents
- Zebrafish facility
- Staff: director/designated veterinarian, biomedical advisor, chief technical officer, 4 senior technicians and 2 laboratory attendants
- 25-30 research groups with multiple researchers per group at any one time

## Mission statement

It is our mission to continue to improve the environment and enrich all animals in our care. We continue to find better ways to interact with animals daily. To this end we started a programme to improve the experience and environment of our animals and give them a better life and to aid research and all those who work with animals in our facility.

## Enrichment programme

In University College Dublin’s (UCD) biomedical facility we always strive to improve our animal’s welfare and environment. We endeavour to enrich the lives of our research animals, promote a Culture of Care and implement continuous improvements in support of the 3Rs.

## Implementation framework

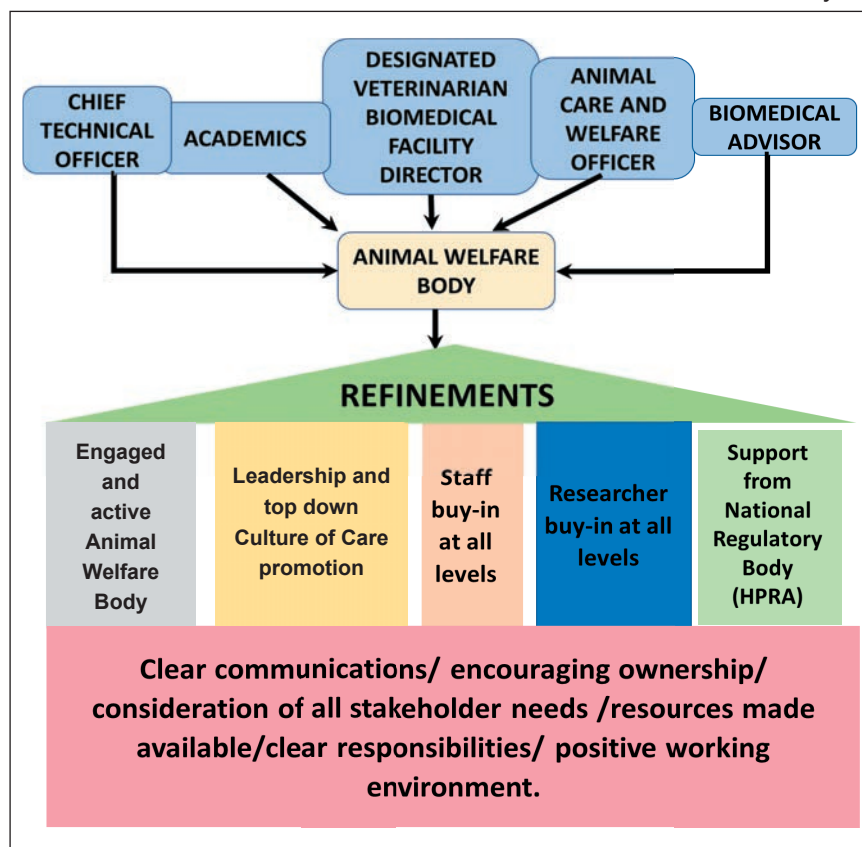


Figure 1.

Standard environmental enrichment for our rodents has always included some or all the following;

- perspex red house
- opaque tubes
- running wheels
- nesting material
- chew sticks

During 2017 tunnel handling was implemented for all mice and we commenced our current environmental enrichment programme in 2019. Since then we have added hammocks, vet beds, climbing ropes, play balls, sand pits, pools and additional nesting material to our standard environmental enrichment. In addition to this our habituation programme has been expanded to include rat tickling.

## Hammocks

### Hammocks heaven

Provides a comfortable, warm shelter for animals. Even when sick the animals will often retreat to their hammocks.



Figure 2. Mouse.



Figure 3. Mouse hammock.



Figure 4. Peak aboo.

## Playpens

Playpens are easy to set up and are inexpensive. The majority of our rats are given 30 minutes 3 times per week in the playpens. Inside is an assortment of toys which include ropes, balls, bath, sand pit, seesaws and hammocks.



Figure 5. Male rat playpen.



Figure 6. Female rat playpen.

Tail cleanliness difference when a bath is provided. Rats enjoy their bath (Figure 9) and clean themselves from head to tail. A clear difference can be seen between rats that have access to the bath (Figure 7) and those that do not (Figure 8).



**Figure 7.** Star clean tail.



**Figure 8.** Dirty tail.



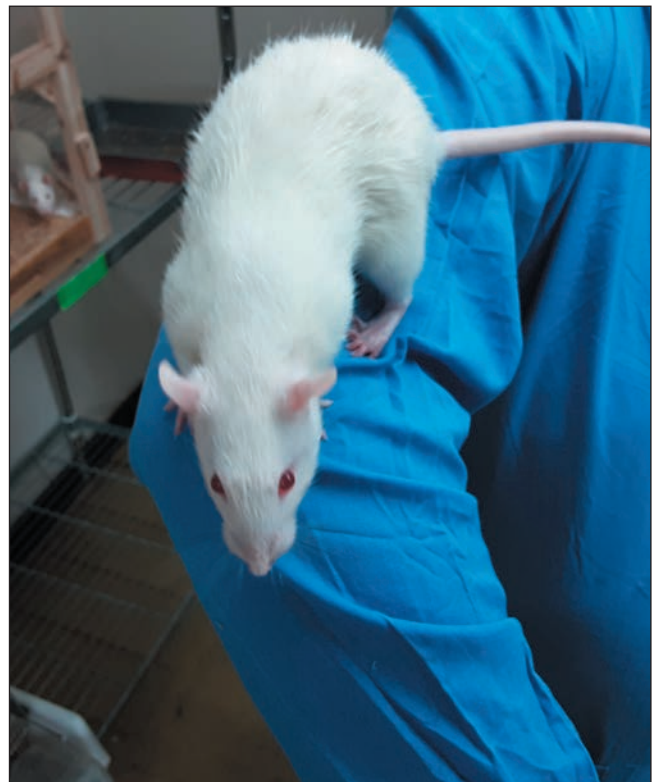
**Figure 9.** Rats enjoy their bath.

## Habituation

These rats are keen to say hello when people come into the animal room. They greet us every morning.



**Figure 10.** Rats greet us every morning.



**Figure 11.** Rats are keen to say hello.

## Rat tickling

We align this with other activities such as cage cleaning and when the rats are being placed into their playpen once or twice per week. This does add an additional 2 to 3 minutes of time to cage changing time per cage. The rats are less stressed and more relaxed with being handled.

The rats have been trained to associate a positive experience with being on a vet bed e.g. rat tickling. During procedure habituation training the same vet bed is used.



**Figure 12.** Rat tickling.

## Future directions

We are always looking out for new refinements for us to trial for both rodents and fish. Currently under investigation are:

- continue to monitor and update current practice
- micro pipetting for mice and rats
- playpen benefits and possibilities for mice
- encouraging further engagement from researchers in our enrichment programme

## Acknowledgements

Biomedical facility staff and our animals.  
Further thanks to Emer Conroy and Mark d'Alton.

## Benefits

- Further promoted our Culture of Care for animals, staff and researchers.
- A more relaxed environment in which to work and conduct research.
- Increased job satisfaction from knowing the animals have a better quality of life.
- Better life and less stress for the animals in our care.
- Benefits to research by reducing stress for both the researcher and the animal.
- Less confounding variables and improved reproducibility.