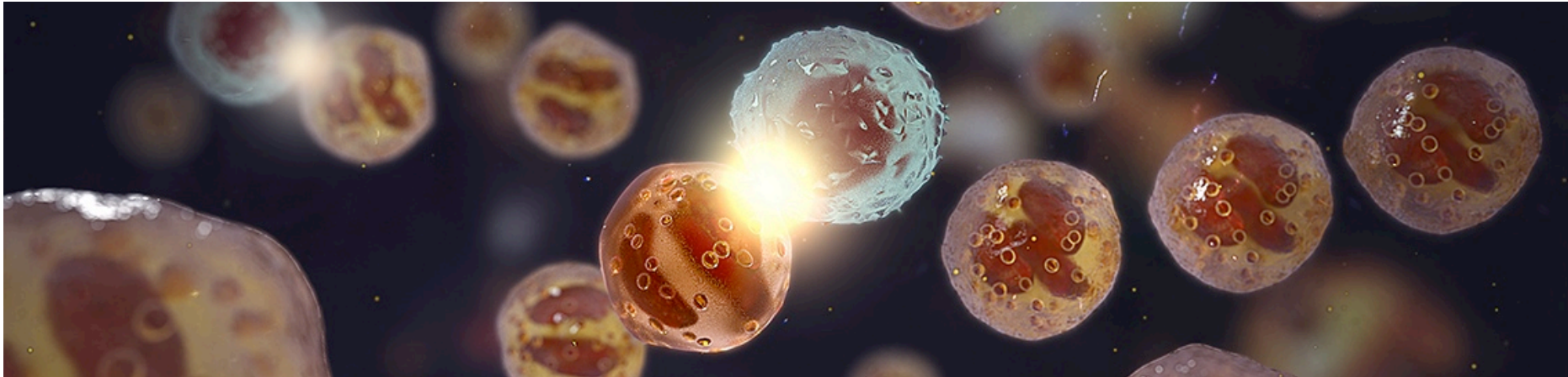


# Practical strategies for providing rats with a complex environment

**Kate Shenton**

NC3Rs workshop for technicians. IAT Congress 2017

March 2017



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# Practical strategies for providing rats with a complex environment

- Permanent housing
- Intermittent access to enriched area



Conventional  
caging used.  
Internal height  
19cm.

# Modified rabbit exercise pen





# Playtime for telemetry animals

- How it started
- What we did
- What we found



- What we learnt
  - start slowly and build up the time spent in the play/exercise area
  - no aggression seen between mixed groups of mature male animals
  - animals enjoy utilising vertical space



# Playtime for telemetry animals – video footage

<https://az.box.com/s/df1mqdc24s6htv7qukp3231o2md9p1te>

<https://az.box.com/s/jy9u9uqtdege509aqxa0grzaybfmyamg>



# Providing a play / exercise / socialisation area

- Want to give it a go?
- What have you already got that you might be able to utilise?
  - Examples: modified rabbit exercise pen, rabbit housing and diet bin. Use your imagination!
- Other options to consider are commercially available pet ferret/parrot cages





# Modified rabbit exercise pen



# Modified diet bin



# Modified rabbit housing



This is actually used as a home cage but where that is not suitable this could be used as an exercise / play area.



# Alternative housing

To provide rats with continuous opportunities to carry out the activities a play area offers. Options looked at:

- Modified rabbit cages



# Alternative housing

- **Commercially available options**

- rats in the enriched cage over the conventional cage (18cm high) saw better muscle strength in an incline plane test.
- Body weight and food consumption were unaffected.
- The behaviour repertoire differed as rats in enriched cages could stretch and climb. Rats in the conventional cage spent a greater proportion of their time resting.





# Alternative housing

## Double level cages

- Widely commercially available
- Increased height, reduced floor space



Rats reported to 'hang out' on the platform. Increased playing and activity suspected but requires measuring.



# Barriers to implementation & considerations to be made

- Making it work within the constraints of your facility and science.
  - For example IVC facilities. GLP studies. Financial considerations. Space available. Time available. Wash facilities.
- Certification of play area contents- GLP required. Use of toys commercially made for research dogs and primates.
- Treats- to offer or not to offer? What to offer? How much? Certified?
- What do you think the questions asked will be? How can you work around concerns and constraints?





# The next steps

Gathering some data.

We would like to build up some scientific evidence to support the use of exercise time/areas and investigate the impact of these sessions on parameters such as stress hormone levels, bodyweight, lean tissue versus body fat composition, ultrasonic vocalisation

Any other ideas of ways in which we can measure the affects of playtime?

**Any questions?**



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