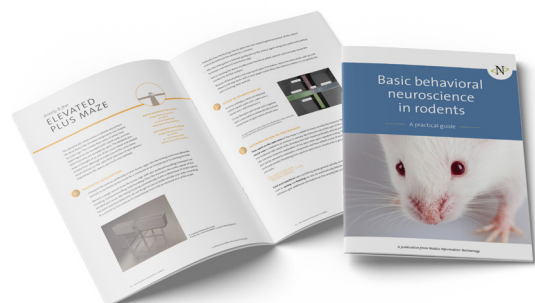


The importance of handling



This is a chapter from the e-book:
Basic behavioral neuroscience in rodents.



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INTRODUCTION

Human contact can be perceived as stressful for a rodent, and even become aversive to the point that animals can develop anxiety and show exaggerated stress responses when approached. It is therefore extremely important to appropriately handle your experimental animals. Being calm and confident is the first major rule. You as a person can show signs of stress, which can be picked up by the animal. Don't talk loudly, don't make sudden movements and in general try to have a non-threatening approach and an overall caring attitude towards the animals.

HOW SHOULD I HANDLE MY ANIMALS?

There is more than one way to pick up a rodent. Between rodents there is also a difference, as rats and mice do not only differ in size, but also in the way they behave towards a handler. As mice are by far the most commonly used animal in research, most information on common practices are available on this species, of which a lot does also apply to other rodents. Mice are small in size, which makes them vulnerable to predation. For this reason mice often show a strong response towards capture and/or handling. They are however quick to adapt, and if handled appropriately, might even voluntarily seek contact.

- **Picking up by the tail**

Picking a mouse up by its tail has been a popular method on handling. It has however been shown that this method can induce aversion and anxiety and is advised to be avoided. Rats can be picked up more easily by grasping them around the shoulders.

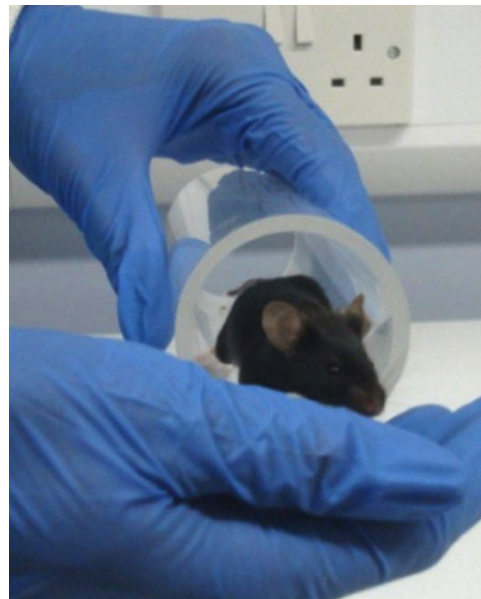
More non-invasive methods have been developed such as tunnel handling and cupping.

- **Tunnel handling**

Tunnel handling has become increasingly popular in the last years. This is basically guiding the animal into a handling tunnel, and lifting the tunnel to its desired destination. What makes this handling technique particularly useful in the fact that these tunnels can be added to the home cage as cage enrichment. This increases recognition of the tunnel, and also proved to be particularly useful for more anxious strains.

- **Cupping**

Cupping refers to simply scooping an animal onto the hand. This can be a tricky method, as the animals (mice) have to habituate being picked up. Naïve and young animals will jump from your hand, keep this in mind the first few times!



Tunnel/tube handling is a way to handle your animals more gently.

You should also choose your method of handling pragmatically. Use cupping with more docile strains, and only with animals that are well habituated to handling. Also this is a technique that is a bit more reserved for experienced animal handlers. Less confident handlers (and more anxious mice) should employ the tunnel handling strategy.



Gouveia and Hurst (2013) provide a very informative overview of the benefits of tunnel handling in mice.



Videos on how to tunnel handle and cup mice performed can be found here:
<https://nc3rs.org.uk/3rs-resources/handling-and-restraint>

RESTRAINING ANIMALS

Restraining animals is a necessary evil in some cases. Rats are in general easier to handle, but also mice can accept physical restraint without losing tameness towards the handler. Picking up by the tail should be avoided as stated before, however with restraining the base of the tail can be held to properly position the animal once in/on the hand. To begin restraining the mouse place it on a surface they can grip, a wire grid such as the lid of the cage for example, grab the base of the tail with your dominant hand. With your non-dominant hand grasp the loose skin of the mouse at the back of the neck. Tuck the tail behind your pinkie.

Now you have your dominant hand free to perform any necessary interventions (for example an injection or ear clip). During restraint the animal should be able to breathe easily.



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