

# Does the regular husbandry handling method affect response to a novel handler

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## Introduction

The handling method, cupped/tubed or tailed, can affect the behaviour of the mouse and has a considerable influence on their anxiety levels.

Tailed mice have higher levels of anxiety and still show these high levels of anxiety after subcutaneous injections. Whereas tubed/cupped mice have low anxiety levels even after subcutaneous injections and were likely to approach the handler.<sup>1</sup> Altered mouse behaviour can also be seen with the different experimenter sex. Male experimenters cause both rats and mice to inhibit pain responses whereas this is not seen with the female experimenters.<sup>2</sup> A lot of factors can contribute to the anxiety levels of mice and their behaviour.

## Aims

### Aim 1:

Investigate the effects of tube vs tail handling on ease of handling of mice by future experimenters.

### Aim 2:

Investigate the effects of tube vs tail handling on anxiety in mice.

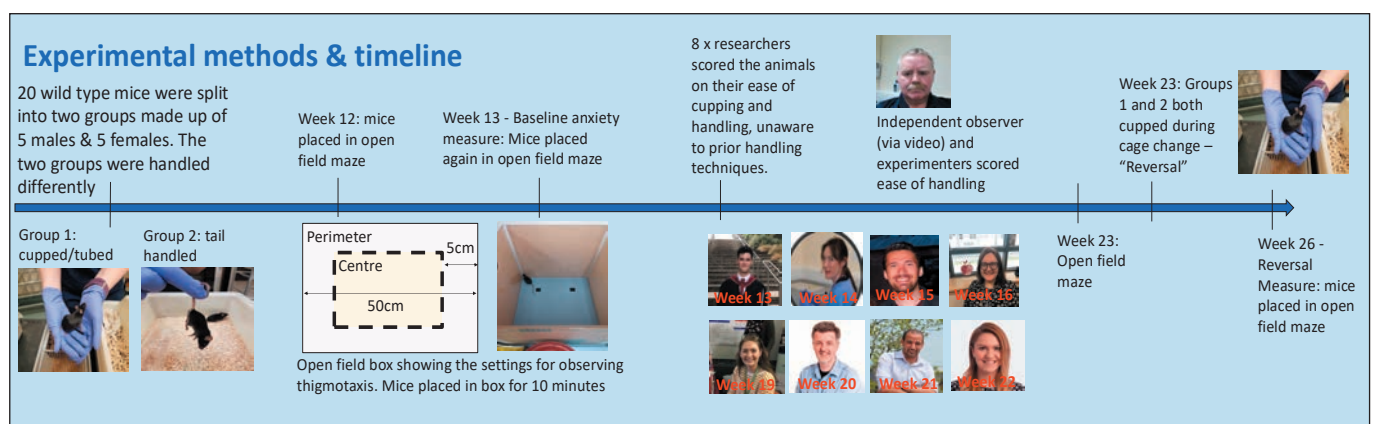
### Aim 3:

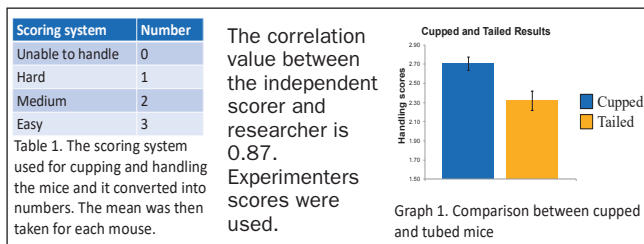
Investigate whether there are mouse-specific sex differences in response to tube vs tail handling.

### Aim 4:

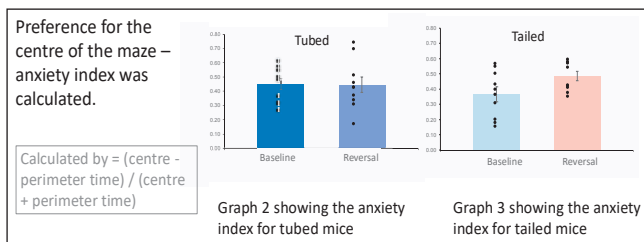
Investigate whether there are experimenter-specific sex differences in ease of handling of tubed vs tailed mice.

## Experimental methods and timeline

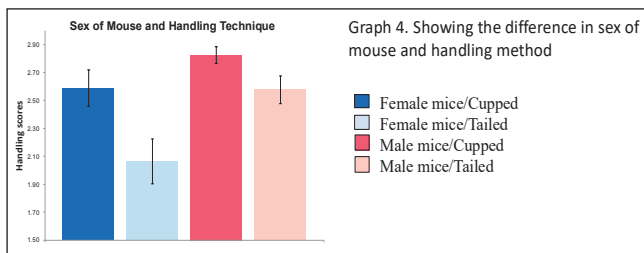




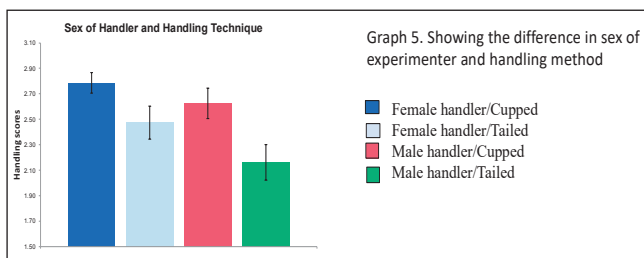
**Figure 1.** Tubed vs Tailed ease of handling.



**Figure 2.** Tubed vs Tailed anxiety index.



**Figure 3.** Male vs Female mice.



**Figure 4.** Male vs Female experimenters.

## Discussion and conclusions

### Anxiety measures

A common method to analyse anxiety in mice uses their natural tendency to be in contact with vertical surfaces (thigmotaxis). By observing the time spent in the centre against the time spent in the perimeter of an open field maze, an anxiety index (preference for the centre of the maze) can be calculated. For tubed mice the anxiety index remains the same for the baseline and reversal measure. For tailed mice time in the centre increased after reversal indicating reduced anxiety.

## Handling

Male cupped mice are the easiest to handle. Tubed mice are easier to handle than tailed mice for both sexes of mouse. Female handlers scored both male and female mice easier to handle than male handlers.

This data indicates that tubing mice is worthwhile as the mice become easier to handle and their anxiety levels are lower. If an experiment involves female mice the improvement in ease of handling is likely to be highest. Increased benefits in ease of handling may be seen by male handlers.

## Acknowledgements

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## References

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