

	UQ Animal Ethics Committee - Standard Operating Procedure LAB_039 Handling and Restraint in Rats and Rat Neonates (Expires December 2027) Institutional author: UQ Biological Resources AEC Reviewed & Approved: December 2024	Version 4
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LAB_039 Handling and Restraint in Rats and Rat Neonates (Expires December 2027)

I. OBJECTIVE

To describe the standard procedures for handling and restraint of rats used in UQ research projects, also reflecting the procedure used to trainer workers across UQ by UQBR.

NB: The use of (*) indicates this statement is dependent on the facility procedures

NB: The use of () indicates this statement is dependent on AEC Approvals**

II. DEFINITIONS

Competent - “the consistent application of knowledge and skill to the standard of performance required regarding the care and use of animals. It embodies the ability to transfer and apply knowledge and skill to new situations and environments.”¹

III. COMMENTS / RECOMMENDATIONS

- Rats habituated to handling can normally be picked up easily by grasping them around the shoulders. It is very important to habituate rats to good handling to avoid bites, which can be severe.
- Picking up rats by the tail is stressful for the rat and should be avoided if at all possible. For rats that are not amenable to handling, and where risk to the handler is high, quick tail handling is acceptable. For example, a simple cage transfer for only a few seconds. The tail should always be held at the base, near the body to prevent tail injuries.
- Tickling is one method that can be used to habituate rats to handling – for more information and resources, visit NC3Rs [rat tickling pages](#).
- In the case of a rat bite occurring, return the rat safely to its cage. The welfare of the animal must also be considered at this time, be prepared to avoid unnecessary injury to the rat (e.g. by dropping the animal).

IV. SAFETY AND COMPLIANCE

- Possible risks include mouse bite injury, spills, exposure to infectious agents and psychosocial harm.
- The person undertaking this task must ensure all relevant approvals are in place, training has been undertaken and risk assessments have been performed. If unsure, consult your supervisor.
- Facility protocols should be followed.

¹ NHMRC, 2013, *Australian code for the care and use of animals for scientific purposes*, National Health and Medical Research Council (NHMRC).

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V. TRAINING CONSIDERATIONS

- All animal handling and restraint must be performed by appropriately trained personnel who have been deemed to be competent in the procedure.
- Training for in handling and restraint may be undertaken on cadaver animals until competent.
- Further training should be undertaken on live animals.

VI. EQUIPMENT

- PPE * *Minimum PPE is gloves and gown, additional PPE may be required based on facility or additional risk e.g. working with infectious animals.*
- Disinfectant *
- Change station/Bio-safety cabinet *
- Facility approved restraint device*
- Towel for restraint*

VII. PREPARATION

- Check AEC approvals to ensure the correct procedure and personnel are approved for the planned work.
- Check cage cards, animal records and identification to ensure the correct animals are handled.

IV. PROCEDURE

Handling Procedure – Three steps

1. Rodents can be gently moved/scooped out of the cage by supporting the body with the dominant hand under the body/armpits while supporting the back legs including the tail.
If moving rats by the base of the tail, it is important to lift only at the base of the tail, this is the most supportive part of the tail that will carry the weight of the rodent.
2. The rat can then be placed onto/into desired space
Surfaces include – Cage lid, cage wire or bench. Specific procedures may require a restraint device.
3. Ensure the rodent body is supported wherever possible during handling to minimise stress
This is important to distribute the weight of the animal evenly. If the body of the rodent is not supported, it will struggle or circle in the air and could cause injury to the animal or handler. The handler should remain calm and prevent any unexpected movements while handling the mice to minimise stress to the animal.

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Figure 1 Appropriate handling in rats.

Restraint Procedure – Physical Restraint Claw Grip and Crossover Methods

1. Handle the rat using the steps above. This should be completed on a surface that the rodent can grasp be supported.
2. Cradle the rat in the nook of your dominant forearm so you can restrain with your non-dominant hand. This will allow use of the dominant hand for the procedure.
3. Hold the rat's head between the index and middle finger (see figure 2 below)
This is a gentle approach to position fingers and avoid startling the rat.
 - a. Claw Grip - Place remaining fingers firmly under the elbows straightening fingers towards the head
 - b. Crossover Grip - Place remaining fingers firmly on the arms and gently apply pressure to create the crossover grip.
These different restraint methods are used to complete various procedures. Fingers can be placed over the shoulders or under the neck to prevent crushing the chest and to allow the rat to continue breathing. Ensure the restraint around the neck and chest is not too tight. Loosen the grip held to provide relief. Ensure the tongue or eyes of the rodent do not stick out. If this occurs the restraint is too tight and the animal should be immediately released.

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4. After the procedure release rat into home cage or holding cage.

Be careful not to drop rats from any height into the cage, place them gently back in the box with all feet on the ground before releasing grip.




Figure 2 Appropriate physical restraint – Claw grip method



Figure 3 Appropriate physical restraint – Crossover grip method

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Restraint Procedure – Using a rat sock or towel

1. Gently encourage the rat to enter the rat sock or towel (see figure 5).

Prolonged restraint should be avoided. Maintain hygiene of the rat sock or towel to avoid cross-contamination and exposure to stress pheromones. Rodents will commonly urinate or defecate when stressed. If the rodent appears distressed immediately release and perform a welfare check

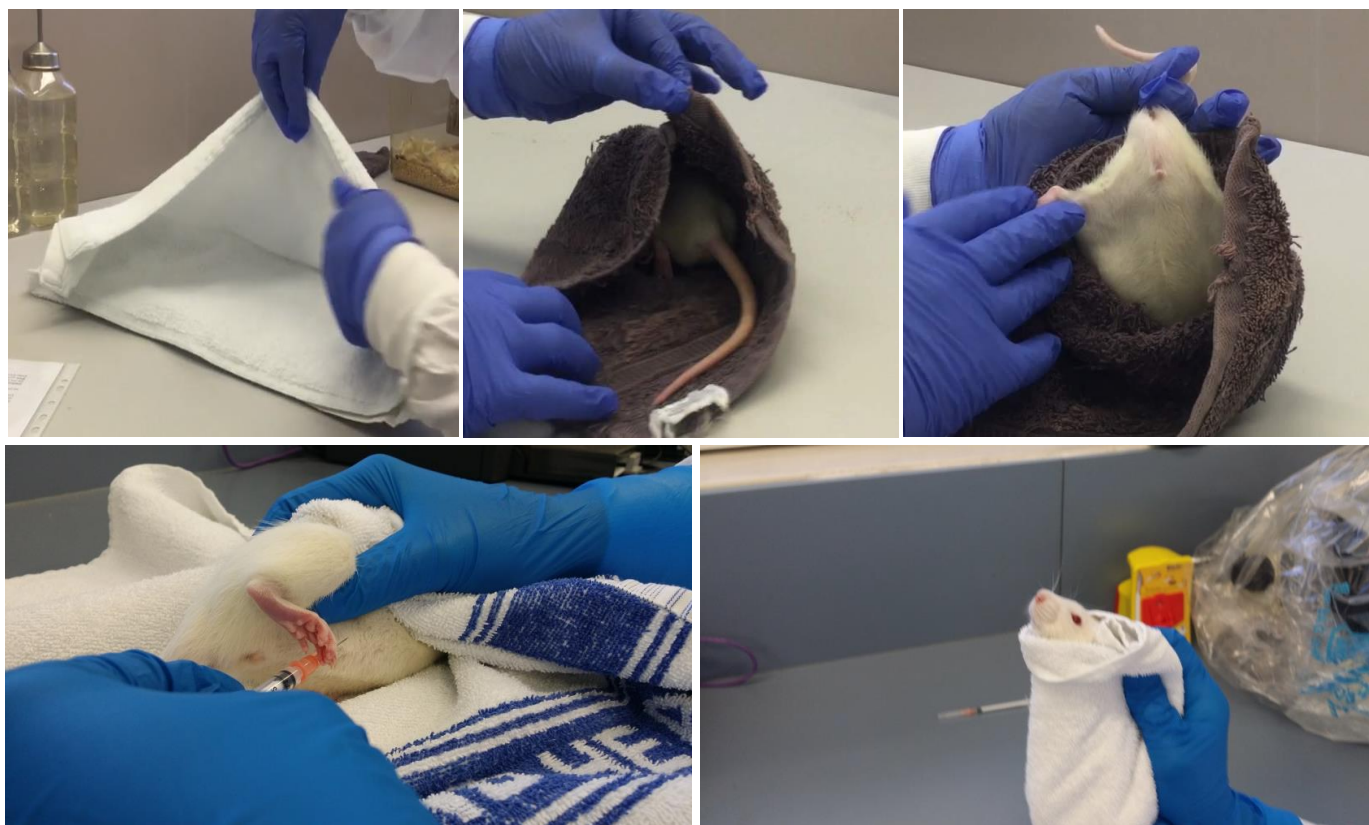


Figure 4 Appropriate use of a rat sock or towel.

Handling Procedure - Neonates

1. Neonates can be gently picked up and held in your gloved hand.

Be wary of odour transfer. Ensure gloves are clean and dry when handling multiple litters. Ensure gloved hands are not wet with disinfectant when handling hairless neonates.

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Restraint Procedure - Neonates

1. Grasp the loose skin behind the neck. The skin along the back may also be grasped when the neonate is large enough.
This should be enough skin to gently immobilise the neonate. When restraining pups ensure the skin across the chest is not too tight. Loosen the skin held to provide relief. If you notice the slowing of movement or consciousness, immediately release the pup.
2. Alternatively cup the neonate in your hand to support the body with the extremity exposed for a procedure, e.g. a foot or tail.
3. Ensure the neonate’s body is supported wherever possible during handling to minimise stress.
Be wary of odour transfer. Ensure gloves are clean and dry when handling hairless litters.

VIII. BIBLIOGRAPHY

1. National Health and Medical Research Council (NHMRC) 2008, *Guidelines to promote the wellbeing of animals used for scientific purpose*, viewed 11 April 2019, <https://www.nhmrc.gov.au/about-us/publications/guidelines-promote-wellbeing-animals-usedscientific-purposes>

Version #	Reviewing AEC (note: all other relevant AECs ratify the approval)	AEC Review Date	Approval To Date
[#]		[DD/MM/YYYY]	

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