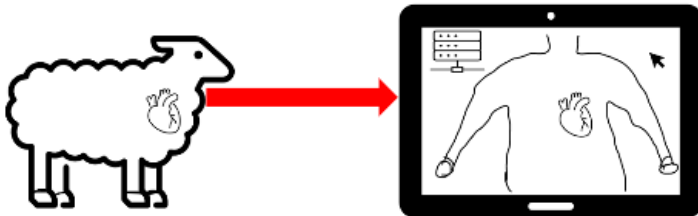


The 3Rs of Ethical Animal Research

What are the 3Rs?

Replacement, Reduction, and Refinement are fundamental principles of research involving animals. The [Australian code for the care and use of animals for scientific purposes](#) states that these principles should be applied to all stages of care for animals used for scientific purposes.

Replacement: Methods that allow for the aims to be achieved without the use of animals.



Refinement: Methods that ensure any pain or distress to animals is minimised and animal wellbeing is enhanced.



Reduction: Methods that allow for comparable results with less animals or more information to be gathered from the same no. of animals.

What are some important considerations when applying the 3Rs?

The 3Rs framework ensures that animal use is ethical, humane, and responsible including whether:

- Alternative methods exist to achieve the research aims, including virtual simulations, existing databases or research, or reviewing established studies that can replace the use of animals in the research design.
- The proposed no. of animals is necessary to achieve the aims and ensure good statistical results or whether the number can be reduced for equivalent outcomes.
- Appropriate and effective procedures are included in the project design to ensure that animal wellbeing is always supported.

Key things to check when completing your ethics project application

- Have I applied the 3R's throughout the lifetime of the animal (e.g. acquisition, transport, breeding, housing, husbandry, project procedures/activities, fate on project completion)?
- Have I included evidence justifying animal use based on the 3Rs?
- Has the project's design and the application of the 3Rs been reviewed at every stage to ensure best practice?

Resources

- [ARRIVE Guidelines](#)
- [Code of Practice for the Housing and Care of Laboratory Mice, Rats, Guinea Pigs and Rabbits](#)
- [Guidelines for the generation, breeding, care and use of genetically modified and cloned animals for scientific purposes](#)

Further information

[LTU Research Animal Ethics Procedure](#)



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