

Office of Research Support and Compliance

Vice President for Research, Scholarship and Creative Endeavors

Guidelines for Acclimation of Newly Acquired Research Animals

The University of Texas at Austin Institutional Animal Care and Use Committee

These guidelines have been written to assist faculty, staff, and students in performing vertebrate animal procedures in a humane manner and complying with pertinent regulatory requirements. Under some circumstances deviations from these procedures may be indicated but such variances must be approved in advance by the IACUC.

The purpose of this guideline is to establish the minimum acceptable acclimation period for animals arriving at University of Texas, Austin (UTA) and ensure that newly arrived animals are provided an adequate period to stabilize to their new environment. The goal of acclimation is to allow animals to recover to a stable physiological and behavioral baseline prior to experimentation. This guideline applies to all animals used for research, teaching, and training at UTA.

Section A – Definitions

Section B – Background

Section C – Guidelines for the use of prolonged restraint and protocol considerations

Section D – Considerations

Section E – References

Section A – Definitions

Acclimation: This term refers to the process/period during which newly arrived research animals are allowed to fully recover from shipping and adjust to new surroundings, feed, light/dark cycles, cage/pen mates, and personnel prior to being used on research, teaching, or testing protocols. It also provides a period for physiologic, psychological, and nutritional stabilization prior to use.

Quarantine: Quarantine is the separation of newly received animals from those already in the facility until the health and possibly the microbial status of the newly received animals have been determined with the goal of minimizing the chance for introduction of pathogens into an established colony. Quarantine periods for animals may vary in duration based on the species, the source and health status of the incoming animals, and regulatory requirements. This guideline does not address quarantine and researchers are encouraged to contact UTA Vetstaff for further information on quarantine requirements for specific situations.

Section B – Background

Transportation unavoidably causes stress in animals and can lead to changes in an animal's physiological status that begins during transportation and persists for some period thereafter. Utilizing transported animals before their physiological status normalizes can have considerable and unintended effects on research data, as stress associated with transportation has been shown to have widespread impacts on physiological systems in laboratory animals including changes in the cardiovascular, endocrine, immune, central nervous and reproductive systems (3, 5-14, 17).

According to the Guide for the Care and Use of Laboratory Animals (15) and the Guide for the Care and Use of Agricultural Animals in Agricultural Research and Testing (16), newly received animals should be given a period for physiologic, psychological, and nutritional stabilization before their use. Acclimation periods are essential for incoming animals to recover from the stress of shipment and adjust to the housing environment prior to experiencing additional manipulations. In addition, animals may manifest signs of underlying medical conditions during this early period, which can then be detected by animal care personnel and addressed by the veterinary staff prior to research, teaching or training use. It is generally accepted that acclimation results in a more stable physiological and psychological state, and subsequently, more reliable scientific data.

The acclimation period is NOT a replacement for the quarantine period, although they may run concurrently. Quarantine periods and conditions are species-specific and defined by the UTA veterinary staff. Quarantine periods are generally longer than acclimation periods, and involve species-specific disease testing prior to release into the general housing population.

Section C – Guidelines for the use of prolonged restraint and protocol considerations

Rodents, Non-mammalian vertebrate species:

- Rodent non-mammalian vertebrate species should have a minimum acclimation period of 3 days (72 hours) prior to use in any experimental manipulation.
- Non-survival surgery or other terminal non-survival procedures can be performed the day after arrival. However, the PI is advised to consider the effect that shipping stress may have on the experimental data.
- Euthanasia and tissue harvest may be performed on the day of arrival.

Non-rodent mammals and wild-caught species:

- Non-rodent (Voles, rabbits, ferrets, birds, and livestock species) should have a minimum acclimation period of 7 days prior to major survival surgery or protocol interventions involving sensitive parameters. An additional quarantine period may be required by the veterinary staff for wild-caught species.
- A minimum period of 3 days (72 hours) is recommended for minor procedures (e.g., minor surgery). However, the PI is advised to consider the effect that shipping stress may have on the experimental data.
- Non-survival surgery or other terminal non-survival procedures for any species are allowed on the day after arrival.
- Euthanasia and tissue harvest may be performed on the day of arrival.

Section D – Considerations

- All newly received animals require the species-specific acclimation period described above (which begins at the time the animal arrives at the UTA facility) prior to experimental use.
- Transportation between UTA facilities may cause stress, and investigators should consider the impact of intra-campus transport upon research, teaching and training outcomes when determining the timeline for experimentation.
 - Researchers are encouraged to ascertain how physiologic changes associated with transport may affect the specific research to be conducted as well as the length of time necessary for confounding physiologic changes to normalize. Longer periods for acclimation, conditioning, and/or training of animals may be prudent for specific protocols based on individual research needs.
- No experimental manipulations or breeding may be performed during the acclimation period. Only

health assessment/intake exams by the UTA veterinary staff, and administration of medically necessary treatments may occur during the acclimation period.

- Any deviations from this guideline requires IACUC approval. Experimentally necessary exceptions to the acclimation period may be approved when scientific justification is provided as part of an approved animal use protocol or protocol amendment.

Section E – References

1. Obernier JA, Baldwin RL. Establishing an appropriate period of acclimatization following transportation of laboratory animals. ILAR J. 2006;47(4):364-9
2. NRC [National Research Council] 1996. Guide for the Care and Use of Laboratory Animals.
3. FASS [Federation of Animal Science Societies] 1999. Guide for the Care and Use of Agricultural Animals in Agricultural Research and Testing.
4. NRC [National Research Council] 2006. Guidelines for the Humane Transportation of Research Animals
5. Aguila HN, Pakes SP, Lai WC, Lu YS. The effect of transportation stress on splenic natural killer cell activity in C57Bl/6J mice. Lab Anim Sci. 1988 38: 148-151
6. Landi MS, Kreider JW, Lang CM, Bullock LP. 1982. Effects of shipping on the immune function in mice. Am J Vet Res 43: 1654-1657
7. McGlone, JJ et al. Shipping stress and social status effects on pig performance, plasma cortisol, natural killer cell activity, and leukocyte numbers. J Anim Sci 1993 Apr 71(4):888-96.
8. Hicks TA et al. Behavioral, endocrine, immune, and performance measures for pigs exposed to acute stress. J Anim Sci 1998 Feb 76(2):474-83.
9. Murata H, et al. Influence of truck transportation of calves on their cellular immune function. Nippon Juigaku Zasshi 47: 823-827.
10. Tuli Js et al. Stress measurements in mice after transportation. Lab Anim 1995 29:132-138.
11. Bean-Knudsen DE and Wagner, JE. Effect of shipping stress on clinicopathologic function in F344/N rats. Am J Vet Res 1987 Feb. 48(2): 306-8.
12. Rowland RT, et al. Transportation or noise is associated with tolerance to myocardial ischemia and reperfusion injury. J Surg Res 89: 7-12.
13. Knowles TG, et al. Effects on cattle of transportation by road for up to 31 hours. Vet Rec 145: 575-582.
14. Capdevila, S et al Acclimatization of rats after ground transportation to a new animal facility. Lab Anim 2007, Apr 41(2):255-61.
15. Guide for the Care and Use of Laboratory Animals, National Research Council, 2011.
16. Guide for the Care and Use of Agricultural Animals in Agricultural Research and Teaching, Federation of Animal Science Societies, 2010.
17. Arts, Johanna WM, et al. "The impact of transportation on physiological and behavioral parameters in Wistar rats: implications for acclimatization periods." ILAR journal 53.1 (2012): E82-E98.

Approval Date	Change(s) Approved
	•
	•