

Spotlight Feature

Shipping Animals: travelling with friends

Unless you run a large animal breeding operation, at some point you will probably order animals to be shipped to your laboratory. You will need to ensure that you and your supplier have the appropriate permits for the means of transportation and that the animals are packed in proper shipping containers. A professional breeding operation or animal supply company should know exactly which containers are suitable for each mode of transportation (truck, airplane or train). Depending upon how the animal is to be shipped, the size, shape and material of the container may be stipulated by regulations. National, international and carrier regulations affect which shipment mechanisms are best and which permits are needed.

In the EU, transport and shipment are covered under Council Regulation (EC) No 1/2005 on the protection of animals during transport and related operations. In the UK, transport of animals is also covered by The Welfare of Animals (Transport) (England) Order (WATO) 2006. Transport rules in the EU cover “the transport of live vertebrate animals in connection with an economic activity.” These rules have been in force since 5 January 2007. Information about the rules is available on the Department for Environment, Food and Rural Affairs website <http://defra.gov.uk/animalh/welfare/farmed/transport/eu-transportreg.htm>. Animals travelling internationally by air must be packed to conform to the requirements of the International Air Transport Association. In some countries, any deaths of animals in shipment must be reported to the appropriate authorities. Aside from regulatory compliance, however, there are specific points to consider when ordering animals to be transported to you or preparing animals for transport. Transportation—even up a flight of stairs—may be stressful for the animal. Packing the animal for shipment is stressful itself, as is unpacking at the destination. An immediate concern is how to minimize stress in an intrinsically stressful environment.

To pack a rat

Michael Tordoff, a geneticist with the Monell Chemical Senses Center in Philadelphia, Pennsylvania, US, explains that mice do better when shipped in groups in the same cage, whereas rats don't seem to care if they are alone or in groups. Klaus Kramer of Vrije Universiteit (The Free University) in Amsterdam, The Netherlands, studies acclimatization of animals after stress in shipping. In one experiment, he shipped rats in social pairs

that had been established before the animals were shipped (Lab. Anim. 41, 255–261; 2007). He and his colleagues found that the animals suffered some physiological stress as a result of shipping, but they hypothesised that “psychological stress did not occur because social groups were maintained.” Kramer's work is supported by a major international animal supply company.

Tordoff has used data loggers to obtain information on the temperature, humidity and force in three different dimensions while animals were in transit (Physiol. Behav. 86, 480–486; 2005). Kramer has used telemetry, surgically implanting radio transmitters into the peritoneal area of the animals. These transmitters measured body temperature, heart rate and activity. Data loggers can also indicate whether animals were subjected to environmental extremes during shipment. If the truck driver stops for lunch on a hot summer day, even with environmental controls within the truck, temperatures in the trucks may go much higher than you would like. Thus, when you are bringing animals into or out of your facility, consider the time of the year and the ambient temperature. Tordoff notes that even if a shipper uses air-conditioned, temperature-controlled trucks, “on cold days the temperature goes down quite a lot.” He remarks that temperatures of 4 °C are not unheard of.

You may wish to check with the animal vendor or transporter to find out exactly how your animals will be handled. Ronald Gordon, supervisor of the animal facilities at Wesleyan University in Middletown, Connecticut, US, notes that “you may have an excellent transporter,” who maintains good climate control in the trucks. But that company may subcontract with another company whose controls are not as tight to pick up your animals from the airport. Determine how long the animals will be in transit and whether the trucker is required to take a break during that time. That may leave your animals in a truck by the side of the road and at an inappropriate temperature. In a study to determine whether stress causes flavour aversion in rats, Tordoff noted that in shipping animals to his facility, the driver stopped for a rest for several hours and then off-loaded the truck to another vehicle that reached the lab at exactly 9 AM. Daniel Schwartz, clinical veterinarian with University of Connecticut (Storrs, Connecticut, US) Office of Animal Research Services, has avoided some of these long hauls by having a staff member present in the middle of the night to receive

animal shipments.

Tordoff points out that even among animals with identical genotypes, there are differences in responses to taste preference tests and in development of obesity. “One of the factors, I'm sure, is stress during shipping,” he opines. Tordoff hypothesized that mice would be so sick from travel (although they cannot vomit) that if given a flavoured gel as a water substitute during travel, they would have an aversive memory of the flavour and would avoid it in the future. It turned out that he was wrong. The mice preferred the flavour presented during a trip. “The mice seem to like to travel,” he says.

Acclimatisation

Once the animals reach their destination, the next question is how long it will take them to acclimate to their new surroundings. Quarantine issues aside, this downtime must be planned for—and it may vary from species to species. Kramer writes to Lab Animal Europe, “In general—this is almost a ‘gold’ standard—a 7- to 10-day acclimatisation period is advised after transport. However, in practice, acclimatisation varies from 2 days to 2 weeks.” Rats, he found, take 3 days to acclimate physiologically after shipping. In a recent poster presentation, Kramer and colleagues reported that groups of female guinea pigs shipped by truck required at least 12 days to acclimate.

Soup? Is that soup?

Transport within a facility is also a problem. According to Schwartz, some labs purchase disposable cages, but these tend to be expensive. Others use polyethylene shoebox cages with lids, similar to those one might use in the kitchen to store leftovers. You may also use an isolette inside a cat carrier, but this allows everyone you pass—some of whom may not be involved in animal research—to see that you're carrying an animal and also exposes people who might not normally be near animals to animal allergens. There are two solutions to this problem that allow discreet movement of animals without disturbing them much. The first is putting small animals in small, handled, cardboard take-out containers such as those favoured by Chinese restaurants. The other, which Schwartz prefers, is using the double-bottomed cardboard cups, with fitted cardboard tops that have prepunched holes, used by restaurants to pack take-out orders of soup. These are inexpensive and disposable, yet comfortable and secure enough for a small rodent.



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