# Transportation as major life-event in rats: Effects on welfare and limits of adaptation

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## Transportation of laboratory rodents

Transportation is a major stressor in the life of a laboratory rodent. Nevertheless, very little is known about the size of the effect of transportation on the animal and how long it takes for the animal to restore. At the same time, the effects of a stressor on research-results can be radical. Most experiments make use of an acclimatization-period after transport to decrease the influence of transportation on results, but the duration of this acclimatization-period is scarcely based on scientific research. This research project aims on the physiological and ethological effects of transportation on small laboratory rodents.

Article 5 of Appendix A of the European Convention for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes (ETS no 123) states *'....even if the animals are seen to be in sound health it is good husbandry for them to undergo a period of acclimatization before being used in a procedure. The time required depends on several factors, such as the stress to which the animals have been subjected which in turn depends on several factors such as the duration of the transportation and the age of the animal. This time shall be decided by a competent person'*.

The question that arises is that even if one is confident about the health status of incoming animals, one still has to decide how long animals should be maintained in the quarantine area so that they can fully acclimatize. In general, animals subjected to the environmental changes occurring during transportation (housing in transport boxes, several hours of travel, final placement in a new facility, exposure to new animal caretakers and procedures) react with changes in their physiology, such as body weight, plasma hormonal levels, heart rate and blood pressure changes [2,5,7-11].

To foster good scientific practice, animals should be used only in experimental procedures after adaptation to their new situation and stabilization of their physiological parameters.

When measurements of physiological parameters are performed using conventional measurement techniques which include procedures like handling, immobilizing or anesthesia , the results must be interpreted with caution as these conventional techniques also have effects on the animals [3]. Radio-telemetry provides a method to obtain accurate and reliable physiological measurements from conscious, freely moving animals [3,4]. It can be used to obtain objective data on acclimatization time and as a tool for defining accurate stabilization periods for laboratory rats following transportation.

By getting more information about transportation-stress, we aim to decrease the variation in research-results and thereby decrease the number of animals needed to get significant results. Secondly, we aim to increase the welfare of laboratory rodents during and after transportation.

## Current research

The current research involves both physiological and behavioural measurements in laboratory rats before and after van transportation. Data acquired with bloodpressure-transmitters are blood-pressure, heart rate, respiratory rate and activity. Besides these parameters, home-cage behaviour, bodyweight and faecal [1,6] and plasma-corticosteron were measured. Specific scientific questions that were asked before executing this research were:

- What is the difference in physiology and behaviour in laboratory rats before and after van transportation?
- What is the difference in physiology and behaviour in transported laboratory rats compared to non-transported rats?
- How long does it take an animal to restore these parameters?

Preliminary telemetry and behavioural data will be presented during this presentation

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