

The 9 to 5 Rodent – Time for Change?

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Rodents, particularly mice and rats, are the most commonly used laboratory animals. Scientific procedures are usually performed on rats and mice under bright, artificial lighting during normal working hours. This corresponds to the human working day, when nocturnal species would normally be inactive. Both time of day and light quality can have significant effects on rodent behaviour and physiology, presenting both scientific and animal welfare issues.

For example, performing behavioural tests during inactive periods may produce abnormal results due to cognitive deficits, lack of motivation to perform the task or physiological responses to the stress of being disturbed during the resting period. This is an ethical issue, because data quality may be negatively affected to the extent that the results are invalid. It may also be an animal welfare issue, if procedures are experienced as more stressful than if they were done during the animal's natural active phase.

It is essential to consider potential effects of the time of day and lighting conditions, when scientific procedures or routine husbandry are performed, on the welfare of mice and rats and on data quality. Although the effects of using mice and rats during their subjective 'night' are not yet fully understood, it is good practice to apply the precautionary principle and minimise any potential harms and confounds. Ideally, both husbandry and experimental procedures should be conducted at times of day when the animals would be active, and under naturalistic lighting conditions. As an example, some facilities 'time-shift' mice and rats, so they can have some deep sleep before the start of the human day. Some changes to husbandry and lighting protocols require resources and time to implement, but an immediately achievable change to help address issues with scientific validity would be for authors to include details of lighting regimes in publications, discussing the potential impact on data quality if necessary.