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## Fasting in rodents

### Norecopa's recommendations

1. It is unrealistic to assume that one standard can be made for all cases where fasting is required, but the physiological and behavioural consequences of fasting in the species and age group in question should always be assessed.
2. In all cases where fasting is proposed, for example prior to oral gavage, the real need for fasting, the degree and length of the deprivation period and the potential consequences for the animals should be investigated thoroughly, if necessary by means of pilot studies if the literature is scarce. This assessment should be made by persons who know the animal species (and preferably the individuals themselves) well.
3. Sudden unexpected food deprivation should be avoided. Gradual adaptation to periods with limited or no access to feed are probably tolerated much better.
4. The deprivation period should if possible be during the daytime, when rodents normally eat less food. Adequate emptying of the gastrointestinal tract may well be achieved after 6-8 hours' fasting, enabling the experiment to start during the afternoon or evening the same day, avoiding the need for overnight fasting.
5. Food deprivation of 15 hours or more should be considered as an animal experiment and permission should be applied for in the normal manner. *This should also apply to periods of food deprivation where there is a real danger that the animals may be fasted for 15 hours or longer, for example in situations where unexpected delays may occur.* Notwithstanding this guideline, the local competent person (animal welfare officer) should still have the authority to decide whether or not a period of food deprivation falls within the definition of an animal experiment or within the bounds of an 'unnecessary burden' on the animals.
6. All food deprivation (regardless of length) should be considered to be an exception rather than the rule, and weighty scientific arguments should be present before it is allowed. Arguments based on tradition or convenience for the personnel, to avoid working out of normal hours, are inadequate.
7. The final decision should be made in cooperation with the animal technicians, researchers, attending veterinarian and the local ethical committee.

8. Conflicting interests between study design and animal welfare should be discussed. It should always be clear who has the final word if consensus cannot be reached. Under the Norwegian system, this should be the local competent person (*ansvarshavende*) or, if necessary, the Norwegian Animal Research Authority (*Forsøksdyrutvalget*). The animals should be given the benefit of any doubt arising in these discussions.
9. Some source of energy (for example, a sugar solution) should be given to the animals wherever possible in the food deprivation period, to satisfy the animals' energy needs.
10. Adequate care and observation of the animals should be undertaken. Studies involving food deprivation should be carried out in periods with adequate staffing (technical and scientific), to enable fastest possible reactions in cases where the animals' behaviour is unexpected.
11. Welfare indicators (e.g. weight loss, glycogen reserves in hepatic cells), preferably using continuous data, should be identified and used actively to follow the effects of food deprivation on the animals.

One or more humane endpoints must be established and used actively during the experiment, especially if the animal approaches the limits for these parameters that were set before the start of the experiment.

These recommendations are a summary of an 11-page position statement which may be accessed here:

<https://norecopa.no/fasting>