Laws and regulations for research using live animals

Are we allowed to use animals in research in Norway??

- No person may carry out biological research on animal
  – without a special license.

- § 21. Use of animals in research
  – Animal welfare act (“Dyrevernloven”)

Aurora Brønstad - Veterinarian PhD
Head of Animal Facilities - University of Bergen
What are criteria for license to animal research??

- A license may be given if the aim is to find out what kind of disease animals or people suffer from,
- or if the purpose is to prevent or eradicate disease.

- § 21. Use of animals in research
  - *Animal welfare act (“Dyrevernloven”)*

What are criteria for license to animal research??

Experiments with animals may only be carried out for the acquisition of knowledge, taking legitimate or social considerations

- *The regulation on animal experimentation*
  - (“forsøksdyrforskriften”)*
What are criteria for license to animal research??

- Approved protocol
- Approved training
- Approved animal facility
- No alternatives available
- Painkillers must be used
- Quality controlled

  - *The regulation on animal experimentation*
  - (*forsøksdyrforskriften*)

How should experiments on animals be performed??

- The animals must not be subjected to unnecessary suffering
- Experiments are to be thoroughly planned, carried out and quality controlled in order to ensure that the minimum number of animals are used

  - *The regulation on animal experimentation*
  - (*forsøksdyrforskriften*)
Laws and regulations for research using live animals

- Animal welfare act (“Lov om dyrevern”)
- The regulation on animal experimentation – (“Forskrift om forsøk med dyr”)
- European convention – Mars 18th 1986 – appendix A
- http://www.uib.no/dyreavd/soknader_tips.htm

Animal welfare act - “Lov om Dyrevern”

§ 2. General information concerning treatment of animals.

Animals must be treated well, and consideration must be given to instincts and natural needs to avoid the animal suffering unnecessarily.

For all animals (farm animals, pets, lab animals ++)
§ 21. Use of animals in research

No person may carry out biological research on animal without a special license.

A license may be given if the aim is to find out what kind of disease animals or people suffer from, or if the purpose is to prevent or eradicate disease.

The Norwegian Regulation on Animal Experimentation

norw. ”Forsøksdyrforskriften”

Pronounced by Ministry of Agriculture 15. january 1996 in accordance with the Animal Welfare Act of 20. december 1974 nr. 73 on animal rights § 22 og § 30,

http://www.lovdata.no/for/sf/ld-19960115-0023.html
Chapter I. General Provisions

§ 1. Aims

The aim of the regulation is to ensure that animals governed by the Regulation receive correct treatment and are not subjected to unnecessary pain and suffering.

§ 2. Area of application

The Regulation regulates experimentation with animals, and in addition the breeding, rearing, and keeping of animals that are to be utilized in experiments. The regulation applies even though tranquilizing, sedative or analgesic preparations are used ..... including experiments conducted on totally anaesthetized animals that are euthanized whilst still under anesthesia.

(“acute procedure” “akutt forsøk”)
§ 3. Definitions
The following definitions apply in this regulation:

**Laboratory animal:**
Living mammals, including embryonic forms and fetal stages, birds, fish, reptiles, amphibians, with their free-living immature stages, and decapods. Fertilized eggs are exempted from the Regulation.

**The National Animal Research Authority (norw: Utvalg for forsøk med dyr/forsøksdyrutvalget FDU):**
A publicly appointed committee with the authority to consider, approve, and inspect experiments with animals that fall within the bounds of the regulation.

**Laboratory animal unit:** a locality approved by the National Animal Research Authority for use in animal experimentation.

**Field experiment:** an experiment not conducted in an approved laboratory animal unit.
§ 4. Approval of a laboratory animal unit

- A laboratory animal unit is to be approved by the National Animal Research Authority before the unit comes into operation.
- An approval notice issued by the Authority is to be displayed at a prominent location in the unit.

§ 6. Approval of a competent person within the unit or company

Every laboratory animal unit must appoint a competent person ("ansvarshavende").

This person must be approved by the National Animal Research Authority after application by the unit or company.

The competent person is required to possess a university or college education with a scientific background that the authority finds appropriate, and with experience in animal experimentation.
§ 7. Requirement for permission

All persons wishing to conduct experimentation involving animals, which is covered by the Regulation, must obtain permission from the National Animal Research Authority or from a person delegated by the authority.

Animal experiments, with the exception of field experiments, may only be carried out in facilities approved by the Authority.

§ 8. General requirements for permission to experiment on animals

Experiments with animals may only be carried out for the acquisition of knowledge, taking legitimate or social considerations.

For experiments that may be assumed to cause pain... special demands to the scientific or practical value of the experiment must be made.

Permission for the use of animals in experimentation must only be given if other scientifically acceptable methods that do not require the use of animals are not possible in practice.
§ 11. The functions of the competent person

The competent person is committed to ensure that:

All activities involving laboratory animals in an institution or company comply with the relevant laws and regulations...

Persons planning to undertake animal experiments shall send an application to the competent person on a designated application form...

The competent person ... send the National Authority a copy of the application bearing the project number

Experimentation must not begin before the experimental design is approved by the National Animal Research Authority or the competent person.

Contact your "ansvarshavende" to get username and password
Should the competent person be in doubt as to whether the experiment falls within the framework of the approval document provided, or for other reasons finds it difficult to make a decision concerning a case, the application together with a statement by the competent person is forwarded to the National Animal Research Authority for a decision.

The competent persons’ own experiments must always be approved in advance by the National Animal Research Authority.

Plans for experiments that are assumed to cause prolonged or significant pain, are to be handled exclusively by the National Animal Research Authority.
Chapter III. Care of animals and planning and carrying out an experiment

12. Care and supervision of animals

All animals used in, or intended to be used in experimentation are to be provided with housing and environmental conditions, freedom of movement, and feed and water necessary for their health and prosperity.

The housing and environmental conditions must satisfy the guidelines of Appendix A in the Council of Europe Lab Animal Convention of March 18 1986.

The animals have to be inspected daily and attended and checked carefully as often as necessary. This means that a shift system must be established outside normal working hours.

"Care"

Care covers all aspects of the relationship between animals and man.

Sum of material and non-material resources provided by man to obtain and maintain an animal in a physical and mental state where it suffers least, and promotes good science.

Starts from the moment the animal is intended to be used in procedures, including breeding or keeping for that purpose, and continues until it is humanely killed or otherwise disposed.
§ 12. Care and supervision of animals cont.

Persons who care for or supervise lab animals must have received a form of training approved by the Mattilsynet.

Each lab animal facility that does not have its own veterinarian as competent person, must enter into contact with a named veterinarian....who must fulfill the standard of competence required by Mattilsynet.

§ 13. Planning and conducting an experiment

Persons who conduct or plan to conduct experiments must have received a form of training approved by the Mattilsynet.

Experiments are to be thoroughly planned carried out and quality controlled in order to ensure that the minimum number of animals are used.

The animals must not be subjected to unnecessary suffering.
“Training approved by Mattilsynet”

- 80 hours training (FELASA C)
  - 35 h theory
    - Legislation, anesthesia, paint treatment, humane endpoints, biology, genetics, design of experiments, housing of animals, application process, ethics, health-hazards alternatives to use of animals +++
  - 3 working days practical training
  - 24 h home work and exam

http://www.uib.no/dyreavd/kurs.htm

§ 14. Painful experimentation

Should an experiment that is assumed to be painful **anesthesia must be used**

When it is assumed that an animal feels pain, analgesic drugs shall be given

Should unforeseen pain not be treatable, the animal must be euthanized (killed) immediately

Blood sampling from the heart…may only be conducted under total anesthesia. The animal should be kept anesthetized until it is euthanized
§ 15. Reuse of experimental animals

Animals that have been used in experiments
- must not be used in new experiments that might produce anything more than insignificant pain

§ 16. Euthanasia of lab animal

Euthanasia of lab animals must be carried out that the animal should not be subjected to unnecessary suffering

Euthanasia of animals and methods of euthanasia must be considered a part of the approved experimental design
# Chapter IV. Record keeping, marking of and the origins of laboratory animals

## § 17. Record keeping

All lab animal units are required to maintain a log book. It should contain information on the receipt of animals, the supplier, species, number and usage, all with reference to a project number.

The journal is to be kept for at least 3 years.

<table>
<thead>
<tr>
<th>Log books and record keeping</th>
</tr>
</thead>
</table>

## § 18. Marking of dogs and cats

Dogs and cats are to be marked individually. Marking should be permanent and is to be done as soon as the animal is weaned.

Marking must cause the animal least possible discomfort.

A record should be kept to identify each dog or cat.

<table>
<thead>
<tr>
<th>Dogs and cats</th>
</tr>
</thead>
</table>
§ 19. Requirements concerning origin of lab animals
The following species must be acquired from an approved breeding/rearing unit or supply unit

<table>
<thead>
<tr>
<th>Norwegian name</th>
<th>Latinsk betegnelse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mus</td>
<td>Mus musculus</td>
</tr>
<tr>
<td>Rotte</td>
<td>Rattus norvegicus</td>
</tr>
<tr>
<td>Marsvin</td>
<td>Cavia porcellus</td>
</tr>
<tr>
<td>Syrisk hamster</td>
<td>Mesocricetus auratus</td>
</tr>
<tr>
<td>Mongolskørkenrotte</td>
<td>Meriones unguiculatus</td>
</tr>
<tr>
<td>Kanin</td>
<td>Oryctolagus cuniculus</td>
</tr>
<tr>
<td>Hund</td>
<td>Canis familiaris</td>
</tr>
<tr>
<td>Katt</td>
<td>Felis catus</td>
</tr>
</tbody>
</table>

Mattilsynet may add new species to this list
Stray animals can not to be used for experimentation

Chapter V. Administrative regulations

§ 24. Annual reports

Any institution, company or person who has received permission to conduct experiments on living animals shall send a report to the National Animal Research Authority within mars 1 each year, documenting the experiments that have been conducted previous year.
Application process §7

Application → "ansvarshavende"

Approved → "ansvarshavende"

Rejected → "ansvarshavende"

Approved → Sent to FDU

Rejected → Sent to FDU

Copy to FDU

Revision

Comments - No comments

Stop the project

The project can start
(buy animals, book operation room etc.)

writing report to "ansvarshavende"/FDU

painful
controversial
doubt
incompetence §11

Break !!
§ 2. Area of application

The Regulation regulates experimentation with animals, and in addition the breeding, rearing, and keeping of animals that are to be utilized in experiments.

The regulation applies even though tranquilizing, sedative or analgesic preparations are used in an experiment, including experiments conducted on totally anaesthetized animals that are euthanized whilst still under anesthesia. ("ACUTE PROCEDURE")
Procedures that are not animal experiments according to the definition in the regulations (§2)

- Treatment and surgery conducted as part of a clinical veterinary procedure, which uses a recognized method.

- Simple marking of animals (with ink pen, ear piercing, but not tail or toe cutting or tattoos)

- Withdrawal of blood samples (small volumes, superficial vein) and collection of natural secretions or excretions (urine, faeces, salvia, not metabolic cages) ... not be reason to assume that the experiment will affect the animals' normal way of life, or cause other than slight pain or discomfort of a highly temporary nature.
Universitetet i Oslo vil klippe en tå av hver mus for å skille forsøksdyrene fra hverandre.

Forskerne har siktet forskningsutvalget og fått tillatelse til å bruke metoden.

- **Enkel metode**
  Ti mus er i hvert kur. En manger en tå på venstre bakben, en manger litet på høyre bakben. En manger "tallo" på samme ben.
  Såk kan forskerne enkelt vite hvem som er hvem.

  Anton Krag i Dyrevernalliansen, sitter i forskningsutvalget og var den eneste der som stemte «nei» til tåklipping.

- **Smertefri og problemer**
  - Det er nøye som tyder på at tåklipping kan medføre smerte. Det er ihvertfall ikke tvil om at gjør det på vasks dyr, og dette er snakk om nyfødte individer.
  - Det kan også påvirke oppførselen til dyret. Mus er veldig glad i å klister, og kan få problemer med at. Vi kan også anta at de får problemer med å støtte seg selv, hever Anton Krag.

http://www.eks.no/artikkelliste/bokstaver/N/Norecopa.php
8. Konklusjon


Norecopas styre mener at dette prinsippet også bør gjelde for ville dyr og fisk. Amputasjoner bør ikke aksepteres som rutine metoder og det bør søkes spesielt fra Forsøksdyrutfalget om tillatelse til å bruke dem. Mindre invasive teknikker som krever mindre DNA bør derfor alltid benyttes til rutine genotyping. Det presiseres at dyrevernorganisasjoner har et prinsipielt standpunkt om at amputasjoner må forbys.

Procedures that are not animal experiments according to the definition in the regulations (§2)

-Experiments having to do with breeding/rearing, feeding and environment (domestic and aquatic animals) should there not be reason to assume that the experiment will produce a non-physiological state in the laboratory animal.

Borderline cases: GMO animals, immune deficient?, diabetic animals?, hypertensive animals?

All breeding procedures involving invasive tissue sampling from tail or toes

In any case of doubt, the Norwegian Animal Research authority will decide whether an experiment is encompassed by the regulation.
§ 5. Approval and registration of breeding, rearing, and supply activities

Breeding and supply activity, and the person responsible for this activity, must be approved by and registered with the National Animal Research Authority.

§ 10. Permission for field experimentation

Upon receipt of an application, permission to conduct a field experiment, or other experiments not conducted in an approved laboratory animal facility,

Permission can be granted for up to 2 years at a time.
Application process – field experiments

Application

- Sent to FDU
- Approved
- Rejected
- Complain

The project can start – max 2 years

writing report to FDU

European Convention
from 15 July 2007, this appendix is to be replaced by the revised Appendix A

- The physical facilities
- The environment and its control
  - Ventilation
  - Temperature
  - Lightening
  - Noise
  - Alarms
- Education and training
- Care
- Species Specific section

Download from
http://www.uib.no/dyreavd/soknader_tips.htm
FDU expert opinions

- I tillegg til vedtak i enkeltsaker behandler Forsøksdyrutvalget også saker av prinsipiell karakter.
- 02.06.04 Giftighetstesting på fisk i petroleumsvirksomheten
- 26.08.03 Utsætting av LO50 - akutt giftighets testing
- 21.07.03 Veiledning for beredskapsvakten utenom ordinær arbeidstid ved Forsøksdyravdelinger
- 21.07.03 Uppgift av smågnagere i metabolismebur
- 11.12.02 Forsøksdyrutvalgets policy ved smertevoldende dyreforsøk
- 11.12.02 Bruk av eter til bedøvelse
- 10.05.02 Bruk av inpraperitoneale radiosendere
- 10.05.02 Avlivningsmetoder for nyfødte smågnagere
- 10.05.02 Produksjon av monoklonale antistoffer (MAbs)
- 10.05.02 Avlivningsmetoder for nyfødte smågnagere

FDU states that housing animals in metabolic cages is stressful and suboptimal for the animals

Guidelines for housing in metabolic cages MC

- Housing of animals in MC is defined as experiments since they are small and suboptimal for housing
- The number of animals and duration of time in MC have to be justified
- Housing of animals in MC should be as short as possible.
- Continuous housing in MC for more than 7 days have to be approved by FDU (NARA)
- MCs have to be large enough to offer the animals space for standing, laying down, resting and moving in a natural manner
- The animals need a habituating period and only be handled by trained personnel
- Housing in MC can only be performed under conditions satisfying the demands of Appendix A in European convention

FDU has made expert opinions on specific topics
http://www.mattilsynet.no/fdu/prinsippavgjørelser/
• FDU (NARA) does not recommend the use of ether as anesthetic due to animal welfare reasons
• For cases where there is no alternative, use of ether will only be approved after giving a satisfying justification in the application
• Ether can only be used for field experiments
• **Disadvantages with use of ether**
  • Unpleasant induction (cough, increased secretions and pharyngeal spasms)
  • Ether may activate conical infections and cause lethal infections
  • This risk of infection is esp. relevant for wild animals
  • Ether can cause explosion

**SUM UP**
Laws and regulations for research using live animals

• Animal welfare act
  – Lov om dyrevern”
• The regulation on animal experimentation
  – (”forsøksdyrforskriften)
• European convention
  – Mars 18th 1986 appendix A+B
• FDU expert opinions - guidelines
AIM 1 of 3

- Overview of relevant laws on regulations for animal research in Norway, Europe, US and Some Asian countries
- Animal welfare act (Dyrevernloven) is the legal authority for all treatments of animals in Norway.
- Detailed knowledge of Regulation on animal experimentation (Forsøksdyrforskriften) including:
  - The criteria forgetting a license to use animals in research and application procedure in a lab animal facility and in field experiment

AIM 2 of 3

- The aim of the regulation, area of application, definitions in the regulation, demands to an approved animal facility, The function and duties of FDU (NARA) The function and duties of the competent person, the standard application system (FOTS)
- Legal demands to care and supervision of laboratory animals. Where do you find more detail on housing?
- Legal demands to planning and conducting experiments including demands to training of personnel.
AIM 3 of 3

- Special demands to painful experiments.
- Regulation of reuse of animals in research
- Killing of laboratory animals
- Record keeping
- Marking of dogs and cats
- Origin of animal
- Annual reports – how are data collected

- Knowledge of FDU expert opinions and implications of these