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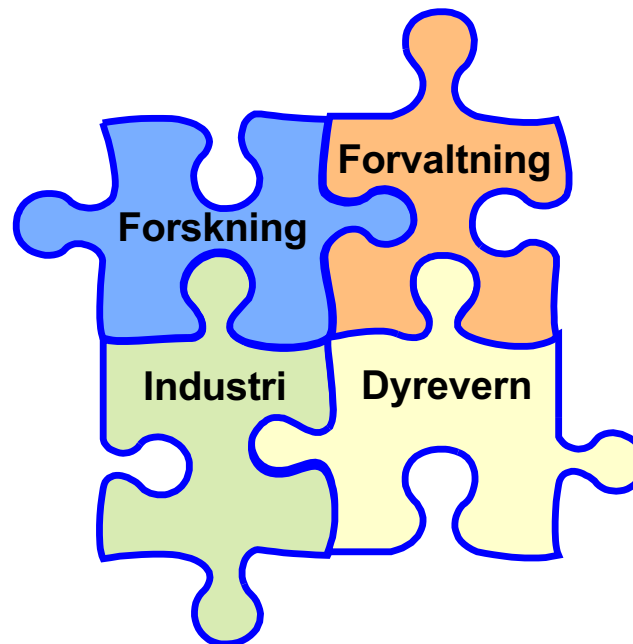
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Norecopa er Norges nasjonale **konsensus**-plattform,

som skal fremme alle **de tre R'ene**:

Replacement, Reduction and Refinement

Styret representerer:



Stiftet i 2007

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- En selvstendig medlemsorganisasjon, med eget organisasjonsnummer
- Årsmøtet er det høyeste organet
- Basisfinansiering fra LMDs tilskudd til Veterinærinstituttet (spleis med NFD): en sekretærstilling og 500.000 til drift
- De fleste forskningsinstitusjoner er medlemmer
- Noen få individuelle medlemmer
- Målgruppen er forskere og forsøksdyrpersonell - ikke samfunnet forøvrig
- *En liten organisasjon i Norge – men godt kjent i det internasjonale forsøksdyrmiljøet*

norecopa.no : en oppdatert oversikt over globale 3R-ressurse



The screenshot shows the norecopa.no website interface. At the top, there is a blue header with the norecopa logo and navigation links: About Norecopa, Alternatives, Databases & Guidelines, Education & training, Legislation, Meetings, More resources, News, and PREPARE. Below the header, there is a horizontal menu with various topics: Anaesthesia and analgesia, Animal facilities, Animal welfare organisations, Blood sampling, Culture, Email discussion lists, Environmental enrichment, Ethics, Experimental design and reporting, Harmful procedures, Health and safety, Health monitoring, Humane endpoints, Humane killing, Journals, Literature searches and systematic reviews, Organisations, Reporting guidelines, and Severity classification. A breadcrumb trail shows the current page: norecopa.no / More resources / Experimental design and reporting. A text box highlights the statistics: ca. 9,000 nettsider and 350.000 treff i året. The main content area features the title "Design and reporting of animal experiments" and a paragraph stating: "This page supplements advice given in Section 4 of the PREPARE guidelines. PREPARE covers all aspects of design (including animal and facility related issues)." On the right side, a search filters sidebar is visible, containing sections for "Search filters" (Order by: Relevance, Typo tolerance: Default), "Database" (a list of 10 databases with counts), "Browse the databases" (a list of 7 categories with counts), and "Search in the databases" (a list of 6 search criteria).

ca. 9,000 nettsider
350.000 treff i året

Design and reporting of animal experiments

This page supplements advice given in [Section 4 of the PREPARE guidelines](#). PREPARE covers all aspects of design (including animal and facility related issues).

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Search filters

Order by:
Relevance

Typo tolerance:
Default

Database

- 3R Guide database (403)
- Classic AV's database (118)
- European Commission inventory of 3Rs Education & Training Resources (567)
- European Commission inventory of 3Rs Knowledge Sources (807)
- European Commission inventory of NAMs for Respiratory tract diseases (280)
- NAL records (1688)
- NORINA database (3141)
- TextBase database (1501)
- Website (761)

Browse the databases

- eBooks (286)
- Free (199)
- Held at NMBU Oslo (contact Kristine Hansen, 67 23 21 89) (431)
- Key products (68)
- On loan (6)
- Reviewed (85)

Search in the databases

- All Text
- Title
- Author
- Publisher
- Supplier
- Record Number

Hva driver Norecopa med?

Mest med spredning av informasjon om 3R, f.eks.

- ✓ I 2021: 39 presentasjoner i 17 land - *ingen i Norge (hvorfor?)*
- ✓ PREPARE-sjekklisten oversatt til 33 språk
- ✓ PREPARE: egne faner for fiskeforskere
- ✓ Refinement Wiki
- ✓ Norecopa er aktiv i EU3Rnet og COST Action for å øke samarbeid i Europa
- ✓ Interaktivt kart over 3R-sentre og forsøksdyrorganisasjoner
- ✓ Bokkapitler, artikler og kronikker, nyhetsbrev
- ✓ Deltagelse i andres Forskningsrådsprosjekter
- ✓ Lobbyering for et fysisk 3R-senter og øremerkede 3R-forskningsmidler
- ✓ Behov for et diskusjonsforum?
- ✓ Konsensusmøter – forslag?



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[Fish 2005](#) | [Wildlife 2008](#) | [Fish 2009](#) | [Agricultural animals 2012](#) | [Field research 2017](#) | [Past meetings](#) | [Meetings Calendar](#) | [An informal guide to arranging a scientific meeting](#) | [Presentations](#)

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norecopa.no/meetings/meetings-calendar

Webinar and Meetings calendar

- ▶ [The influence of age on experimental outcomes and animal care](#), webinar (Paul Potter), 29 November 2022
- ▶ [SGV 2022 Meeting \(Swiss Laboratory Animal Science Association\)](#), Lausanne, 29-30 November 2022
- ▶ [Refinement in rodent neurosurgeries](#), Zurich/online, 30 November 2022
- ▶ [ACURET workshop and conference](#), Aberdeen, 1-2 December 2022

December 2022

- ▶ [How can alternatives to animal testing bring benefit to chemical industry](#), webinar (Barbara Birk), 1 December 2022
- ▶ [Replacement methods for the diagnostics of botulinum neurotoxins: Challenges and recent progress](#), webinar (Brigitte Dorner), 1 December 2022
- ▶ [The culture of care within the Directive 2010/63/EU](#), webinar (Susanna Louhimies), 2 December 2022

+ nettsider med innspilte webinarer

Innspilte webinarer **sortert etter PREPARE**

1. [Literature searches](#)
2. [Legal issues](#)
3. [Ethical issues, harm-benefit assessment and humane endpoints](#)
4. [Experimental design and statistical analysis](#)
5. [Objectives and timescale, funding and division of labour](#)
6. [Facility evaluation](#)
7. [Education and training](#)
8. [Health risks, waste disposal and decontamination](#)
9. [Test substances and procedures](#)
10. [Experimental animals](#)
11. [Quarantine and health monitoring](#)
12. [Housing and husbandry](#)
 - > [Terrestrial animals](#)
 - > [Aquatic animals](#)
13. [Experimental procedures](#)
 - > [Terrestrial animals](#)
 - > [Aquatic animals](#)
 - > [Anaesthesia and analgesia](#)
14. [Humane killing, release, reuse or rehoming](#)
15. [Necropsy](#)

Other topics:

- A. [Planning animal research in general](#)
- B. [Improving reproducibility](#)
- C. [Sentience](#)
- D. [In vitro methods](#)
- E. [Publishing animal research](#)
- F. [Miscellaneous presentations](#)

norecopa.no/PREPARE



PREPARE



The PREPARE Guidelines Checklist Planning Research and Experimental Procedures on Animals: Recommendations for Excellence

Adrian J. Smith¹, R. Eddie Clutton², Elliot Lilley³, Kristine E. Aa. Hansen⁴ & Trond Brattelid⁵
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PREPARE consists of planning guidelines which are complementary to reporting guidelines such as ARRIVE¹. PREPARE covers the three broad areas which determine the quality of the preparation for animal studies:

1. Formulation of the study
2. Dialogue between scientists and the animal facility
3. Quality control of the components in the study

The topics will not always be addressed in the order in which they are presented here, and some topics overlap. The PREPARE checklist can be adapted to meet special needs, such as field studies. PREPARE includes guidance on the management of animal facilities, since in-house experiments are dependent upon their quality. The full version of the guidelines is available on the Norecopa website, with links to global resources, at <https://norecopa.no/PREPARE>. The PREPARE guidelines are a dynamic set which will evolve as more species- and situation-specific guidelines are produced, and as best practice within Laboratory Animal Science progresses.

Topic	Recommendation
(A) Formulation of the study	
1. Literature searches	<input type="checkbox"/> Form a clear hypothesis, with primary and secondary outcomes. <input type="checkbox"/> Consider the use of systematic reviews. <input type="checkbox"/> Decide upon databases and information specialists to be consulted, and construct search terms. <input type="checkbox"/> Assess the relevance of the species to be used, its biology and suitability to answer the experimental questions with the least suffering, and its welfare needs. <input type="checkbox"/> Assess the reproducibility and translatability of the project.
2. Legal issues	<input type="checkbox"/> Consider how the research is affected by relevant legislation for animal research and other areas, e.g. animal transport, occupational health and safety. <input type="checkbox"/> Locate relevant guidance documents (e.g. EU guidance on project evaluation).
3. Ethical issues, harm-benefit assessment and humane endpoints	<input type="checkbox"/> Construct a lay summary. <input type="checkbox"/> In dialogue with ethics committees, consider whether statements about this type of research have already been produced. <input type="checkbox"/> Address the 3Rs (replacement, reduction, refinement) and the 3Ss (good science, good sense, good sensibilities). <input type="checkbox"/> Consider pre-registration and the publication of negative results. <input type="checkbox"/> Perform a harm-benefit assessment and justify any likely animal harm. <input type="checkbox"/> Discuss the learning objectives, if the animal use is for educational or training purposes. <input type="checkbox"/> Allocate a severity classification to the project. <input type="checkbox"/> Define objective, easily measurable and unequivocal humane endpoints. <input type="checkbox"/> Discuss the justification, if any, for death as an end-point.
4. Experimental design and statistical analysis	<input type="checkbox"/> Consider pilot studies, statistical power and significance levels. <input type="checkbox"/> Define the experimental unit and decide upon animal numbers. <input type="checkbox"/> Choose methods of randomisation, prevent observer bias, and decide upon inclusion and exclusion criteria.

Topic	Recommendation
(B) Dialogue between scientists and the animal facility	
5. Objectives and timescale, funding and division of labour	<input type="checkbox"/> Arrange meetings with all relevant staff when early plans for the project exist. <input type="checkbox"/> Construct an approximate timescale for the project, indicating the need for assistance with preparation, animal care, procedures and waste disposal/decontamination. <input type="checkbox"/> Discuss and disclose all expected and potential costs. <input type="checkbox"/> Construct a detailed plan for division of labour and expenses at all stages of the study.
6. Facility evaluation	<input type="checkbox"/> Conduct a physical inspection of the facilities, to evaluate building and equipment standards and needs. <input type="checkbox"/> Discuss staffing levels at times of extra risk.
7. Education and training	<input type="checkbox"/> Assess the current competence of staff members and the need for further education or training prior to the study.
8. Health risks, waste disposal and decontamination	<input type="checkbox"/> Perform a risk assessment, in collaboration with the animal facility, for all persons and animals affected directly or indirectly by the study. <input type="checkbox"/> Assess, and if necessary produce, specific guidance for all stages of the project. <input type="checkbox"/> Discuss means for containment, decontamination, and disposal of all items in the study.
(C) Quality control of the components in the study	
9. Test substances and procedures	<input type="checkbox"/> Provide as much information as possible about test substances. <input type="checkbox"/> Consider the feasibility and validity of test procedures and the skills needed to perform them.
10. Experimental animals	<input type="checkbox"/> Decide upon the characteristics of the animals that are essential for the study and for reporting. <input type="checkbox"/> Avoid generation of surplus animals.
11. Quarantine and health monitoring	<input type="checkbox"/> Discuss the animals' likely health status, any needs for transport, quarantine and isolation, health monitoring and consequences for the personnel.
12. Housing and husbandry	<input type="checkbox"/> Attend to the animals' specific instincts and needs, in collaboration with expert staff. <input type="checkbox"/> Discuss acclimatization, optimal housing conditions and procedures, environmental factors and any experimental limitations on these (e.g. food deprivation, solitary housing).
13. Experimental procedures	<input type="checkbox"/> Develop refined procedures for capture, immobilisation, marking, and release or rehoming. <input type="checkbox"/> Develop refined procedures for substance administration, sampling, sedation and anaesthesia, surgery and other techniques.
14. Humane killing, release, reuse or rehoming	<input type="checkbox"/> Consult relevant legislation and guidelines well in advance of the study. <input type="checkbox"/> Define primary and emergency methods for humane killing. <input type="checkbox"/> Assess the competence of those who may have to perform these tasks.
15. Necropsy	<input type="checkbox"/> Construct a systematic plan for all stages of necropsy, including location, and identification of all animals and samples.

References
 1. Smith AJ, Clutton RE, Lilley E, Hansen KEA & Brattelid T. PREPARE: Guidelines for Planning Animal Research and Testing. *Laboratory Animals*, 2017, DOI: 10.1177/0023677217724823.
 2. Kilkenny C, Browne WJ, Cuthill IC et al. Improving Bioscience Research Reporting: The ARRIVE Guidelines for Reporting Animal Research. *PLoS Biology*, 2010; DOI: 10.1371/journal.pbio.1000412.

Further information
<https://norecopa.no/PREPARE> | post@norecopa.no | [@norecopa](https://twitter.com/norecopa)

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- 3-Ethical issues, harm-benefit assessment and humane endpoints
 - 3a Construct a lay summary.
 - 3b In dialogue with ethics committees consider whether statements about this type of research have already been produced.
 - 3c Address the 3Rs (Replacement, Reduction, Refinement) and the 3Ss (Good Science, Good Sense, Good Sensibilities).
 - 3d Consider pre-registration and the publication of negative results.
- 4-Experimental design and statistical analysis

- 5. Have the experiments been carried out before, and is any repetition justifiable?
- 6. What [approaches to reduce distress](#) have been considered?

3a Construct a lay summary.

- General principles
- For fish researchers

- 1. Have national or local research ethics committees already produced statements relevant to the research being planned? Consideration should also be paid to the broader context of the research. For example, research directed at increasing the productivity of farming at the expense of individual animal welfare, or wildlife research.

Linker til retningslinjer og vitenskapelige artikler fra hele verden om f.eks. blodprøvetaking, smertelindring, humane endepunkter, eksperimentelt design

- 2. Have the experiments been carried out before, and is any repetition justifiable?
- 3. Will the project undergo pre-registration and will negative results be published, to avoid publication bias?
- 4. Does the proposed study have a clear rationale and scientific relevance, and what will be the next step if the hypothesis is supported or rejected?
- 5. Have the experiments been carried out before and is any repetition justifiable?
- 6. What [approaches to reduce distress](#) have been considered?
- 7. Will the project undergo pre-registration and will negative results be published, to avoid publication bias?

Many more [links to resources on ethics are available here](#). Details about pre-registration of animal studies and reporting of critical incidents are to be found in the section on [Experimental Design and Statistical Analysis](#).

Harm-Benefit Assessment

Powerpoint-samling om de 3 R'ene



ccac.ca

The 3Rs of Russell and Burch:

Replacement, Reduction & Refinement

Adrian Smith

adrian.smith@norecopa.no

[@adrian_3r](#)

With some material from:

Smith AJ & Richmond J (Forthcoming). The Three-Rs.
In: *The UFAW Handbook on the Care and Management
of Laboratory and Other Research Animals*. 9th edition.
Richardson CA and Golledge HDR (eds).
Oxford: Wiley-Blackwell.

Lastes ned fra norecopa.no/3Rs

version 14.11.22 14.05 CET



Databases & Guidelines

Published lists of resources are difficult to search and quickly become outdated. Lists on a website are easier to search, but do not enable the use of filters or intelligent search engines.

Norecopa has therefore constructed four databases, which together with all the text on this website can be searched simultaneously using the search field at the top of every page.

- > [3R Guide](#): a global overview of **databases, guidelines, information centres, journals, email lists, regulations and policies** which may be of use when planning experiments which might include animals. [A quick overview of all the guidelines can be accessed here.](#) Norecopa has written several of these, including [the PREPARE guidelines for planning animal research and testing](#).
- > [NORINA](#): a global overview of audiovisual aids and other items which may be used as **alternatives or supplements to animals in education and training** at all levels from junior school to University, including [dissection alternatives](#) and surgical simulators.
- > [TextBase](#): a global overview of **textbooks and other literature within laboratory animal science** and related topics.
- > [Classic AVs](#): a subset of NORINA covering **audiovisual aids that are based on older technology**.

These databases are updated regularly. [Please give us feedback](#) if you discover errors or omissions.

The Norecopa website also includes four other collections:

- > [NAL](#): a collection of literature references relating to [the 3Rs](#) from the US National Agricultural Library
- > European Commission datasets:
 - ▶ [3Rs Knowledge Sources](#): over 800 resources collected by the Commission in 2016
 - ▶ [3Rs Education and Training Resources](#), over 560 items collected in 2018
 - ▶ [Non-animal models for respiratory tract diseases](#), over 280 models identified in a literature review of over 21,000 publications

Here is [an alphabetical global list of all the databases](#) cited on the Norecopa website.

norecopa.no/databases-guidelines

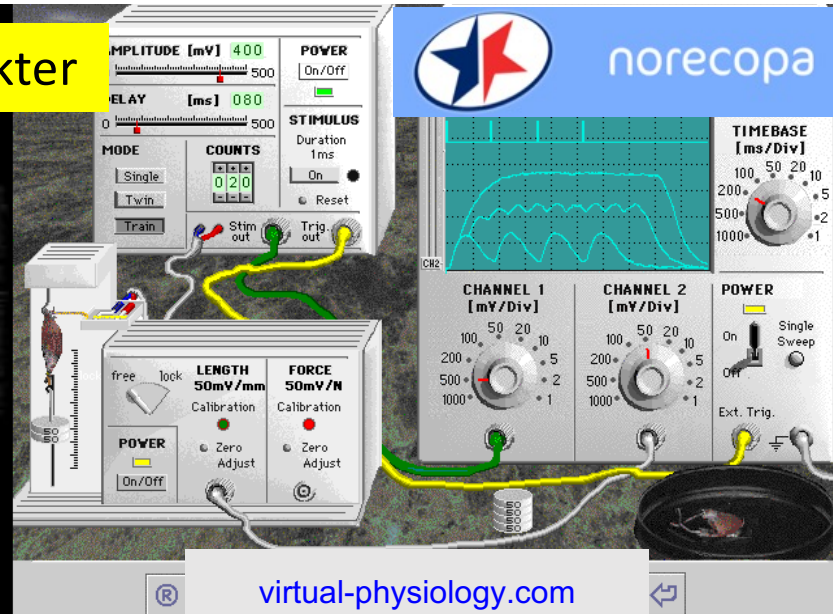
lenker til over 70 andre databaser



NORINA database: ca. 3.000 produkter



3dglasshorse.com



virtual-physiology.com



rescuecritters.com



limbsandthings.com

TextBase:

1.500 bøker relatert til
forsøksdyrfaget

norecopa.no/textbase

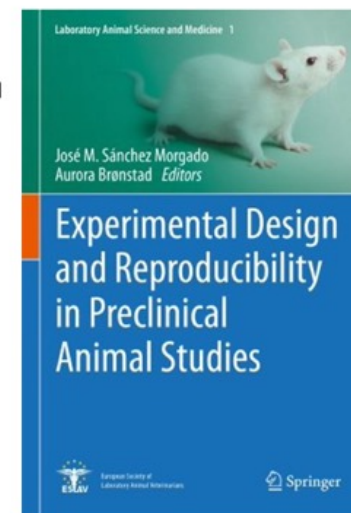
Experimental Design and Reproducibility in Preclinical Animal Studies

By José M. Sánchez Morgado & Aurora Brønstad (Eds.)

Record number: 8619d

This book provides grounds on how to plan and conduct animal experiments that can be reproduced by others. It touches on factors that may impact the reproducibility of animal studies including: the animal genetic background, the animal microbial flora, environmental and physiological variables affecting the animal, animal welfare, statistics and experimental design, systematic reviews of animal studies, and the publishing process.

The book addresses advanced undergraduates, graduate students and all scientists working with animals.



norecopa.no/textbase/experimental-design-and-reproducibility-in-preclinical-animal-studies

3R-Guide (400 retningslinjer om dyreforsøk)

norecopa.no/3r-guide



Working Party Report

Guidance on the severity classification of scientific procedures involving fish: report of a Working Group appointed by the Norwegian Consensus-Platform for the Replacement, Reduction and Refinement of animal experiments (Norecopa)

P Hawkins (Convenor), N Demisson, G Goodman, S Hetherington, S Llywelyn-Jones, K Ryde* and A J Smith*

*Present Address: Department, NERC, Woburn, Bedfordshire, UK; *Present Address: Norecopa, Norecopa, Norway

Abstract
The severity classification of procedures using animals is an important tool to help focus the implementation of refinement and to assist in reporting the application of the 3Rs (replacement, reduction and refinement). The recently revised Directive that regulates animal research and breeding within the European Union requires Member States to ensure that all procedures are classified as 'non-recovery', 'recovery' or 'severe', using assignment criteria set out by the European Commission (EC). However, these are based upon terrestrial species, so are of limited relevance to fish users. A Working Group set up by the Norwegian Consensus Platform for the 3Rs (Norecopa) has produced guidance on the classification of severity in scientific procedures involving fish, including examples of 'sub-lethal', 'mild', 'moderate', 'severe' and 'upper threshold' procedures. The aims are to complement the EC guidelines and help to ensure that suffering which is effectively predicted and minimized. Norecopa has established a website (www.norecopa.no) collating where more information on severity classification for procedures using fish, including field research, will be made available.

Keywords: Fish, harm-benefit assessment, humane endpoints, refinement, severity

Laboratory Animals 2011; 1-6. DOI: 10.1255/lja.2011.010181

AVMA Guidelines for the Euthanasia of Animals: 2020 Edition*

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*The AVMA Panel on Euthanasia developed the content of the guidelines, with support from its working groups. The panel is required to do a comprehensive review and update of the report at least every 10 years, although more frequent major revisions are possible based on substantive information gained from new research and experimental with practical implementation. To ensure the guidelines remain as up-to-date as possible, interim revisions (updates) subsequent to the full review are necessary where a major revision is also recommended.

A Gold Standard Publication Checklist to Improve the Quality of Animal Studies, to Fully Integrate the Three Rs, and to Make Systematic Reviews More Feasible

Carlijn R. Hooijmans, Marlies Leenaars and Merel Ritsema-Hoitinga
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Summary— Systematic reviews are generally regarded by professionals in the field of evidence-based medicine as the highest level of medical evidence, and they are already standard practice for clinical studies. However, they are not yet widely used nor undertaken in the field of animal experimentation, even though there is a lot to be gained from the process. Therefore, a gold standard publication checklist (GSPC) for animal studies is presented in this paper. The items on the checklist have been selected on the basis of a literature analysis and the resulting scientific evidence that these factors are decisive in determining the outcome of animal studies. In order to make future systematic reviews and meta-analyses of animal studies possible, to allow others to replicate and build on work previously published, decrease the number of animals needed in animal experimentation (reduction), improve animal welfare (refinement) and, above all, improve the quality of scientific papers on animal experimentation, this publication checklist needs to be used and followed. We have discussed and optimized this GSPC through feedback from interviewees with regard to the field of animal experimentation. From these interviews, it became clear that scientists will adopt the GSPC when journals demand it. The GSPC was compared with the current instructions for authors from nine different journals, selected on the basis that they featured a high number of publications on animal studies. In general, the journals' demands for the description of the animal studies are so limited that it is not possible to repeat the studies, let alone carry out a systematic review. By using the GSPC for animal studies, in general, the journals' demands for the description of the animal studies are so limited that it is not possible to repeat the studies, let alone carry out a systematic review. By using the GSPC for animal studies, it is of major importance that journal editors become convinced of and adopt these recommendations, because only then will scientists follow these guidelines to the full extent.

Key words: animal experimentation, meta-analysis, publication checklist, scientific quality, systematic review

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Guiding Principles for Preparing for and Undertaking Aseptic Surgery

2nd Edition – April 2017

Background

An effective prediction of the effects of a research protocol on the animals concerned helps to ensure that any pain, suffering or distress they may experience will be effectively anticipated, recognized and alleviated. This is essential not only for animal welfare but also for scientific validity, because physiological and behavioural responses to suffering can significantly affect data quality. Severity classification is thus an important tool to help focus the implementation of refinement, including monitoring its progress, and to assist in reporting the application of the 3Rs (replacement, reduction and refinement) of Russell and Burch, which is now an integral part of the legislation on animal research and testing in many countries. Predictive of severity are also fundamental to the harm-benefit assessment undertaken by bodies such as regulatory authorities and ethical committees when deciding whether or not a project should be licensed or funded.

There may also be a legal requirement to predict and classify severity. For example, the new Directive regulating animal use within the European Union, which must be implemented within all Member States by January 2013, requires the severity of each procedure to be classified on the basis of the degree of pain, suffering, distress or lasting harm expected to be experienced by an individual animal during the course of the procedure, with the aim of enhancing transparency, facilitating the project authorization process and providing tools for monitoring compliance. Member States will have to ensure that all procedures are classified as 'non-recovery', 'mild', 'moderate' or 'severe' on a case-by-case basis, using the assignment

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...to ensure that any pain, suffering or distress they may experience will be effectively anticipated, recognized and alleviated. This is essential not only for animal welfare but also for scientific validity, because physiological and behavioural responses to suffering can significantly affect data quality. Severity classification is thus an important tool to help focus the implementation of refinement, including monitoring its progress, and to assist in reporting the application of the 3Rs (replacement, reduction and refinement) of Russell and Burch, which is now an integral part of the legislation on animal research and testing in many countries. Predictive of severity are also fundamental to the harm-benefit assessment undertaken by bodies such as regulatory authorities and ethical committees when deciding whether or not a project should be licensed or funded.

There may also be a legal requirement to predict and classify severity. For example, the new Directive regulating animal use within the European Union, which must be implemented within all Member States by January 2013, requires the severity of each procedure to be classified on the basis of the degree of pain, suffering, distress or lasting harm expected to be experienced by an individual animal during the course of the procedure, with the aim of enhancing transparency, facilitating the project authorization process and providing tools for monitoring compliance. Member States will have to ensure that all procedures are classified as 'non-recovery', 'mild', 'moderate' or 'severe' on a case-by-case basis, using the assignment

Introduction

A systematic review (SR) is a literature review focused on a single question which aims to identify, appraise, select and synthesise all available high-quality research evidence relevant to that question (1). SRs are generally regarded by evidence-based medicine professionals as the highest level of medical evidence, and they are already standard practice in clinical studies. However, SRs are not yet widely used nor undertaken in the animal experimentation field, although there would be a lot to be gained from the process. A systematic approach to incorporate all available relevant literature into the design of an animal experiment is a prerequisite for research which is of high scientific quality. Good science, from a scientific as well as an animal welfare point of view, is the basis of the book, *The Principles of Humane*

Experimental Technique, by Russell and Burch (2). In this book, they recommended that the Three Rs principles (*Refinement, Reduction and Replacement*) should be applied wherever possible in animal studies. Besides producing high-quality research, SRs of animal experiments will result in direct implementation of the Three Rs. SRs may provide the proper argumentation to decide which animal model will give the best answer to the (clinical) research question (3, 4) and to detect whether there are gaps in scientific knowledge that require new animal experiments (*replacement and refinement*). This will also aid in preventing unnecessary duplication of animal experiments (*reduction*), and thus discourage unnecessary animal use and time loss. A SR of animal studies will also lead to a better interpretation of the already existing scientific results from animal experiments, through which a better



Culture of Care - omsorgskultur

The International Culture of Care Network
norecopa.no/coc

Et ønske om å forbedre:

- dyrevelferd
- vitenskapelig kvalitet
- omsorg og respekt for medarbeiderne
- åpenhet om dyreforsøk for alle parter, inkl. samfunnet



Communication and the Culture of Care

Penny Hawkins, RSPCA Research Animals Department
on behalf of the International Culture of Care Network*

Effective two-way communication between scientists and animal technologists is essential for a good Culture of Care
The European Commission suggests the 'development of formal and informal communication channels, for mutual benefit with respect to science and animal welfare'
Here are some examples from International Culture of Care network members

Regular meetings

Scheduled meetings for scientists, animal technologists, vets, unit managers and AWERB members



Regular refresher/update meetings for all organised by NTCO



Special events

Duo-talks: researcher talks about their science, and animal technologists talk about techniques and animal care within the project



ELH organises an **informal meeting** for all, in which anyone can raise welfare issues



Building communication into existing processes

Each study has a **pre-start** and **wash-up** meeting involving everybody



Three Rs improvements reported to AWERB & shared at external user meetings



Other ideas

A **'boxless'** event: anyone can submit 'out of the box' ideas to improve practice



A **staff survey** for all e.g. how much do you agree with statements such as 'in our group we listen to each others' ideas about animal welfare'



*norecopa.no/culture-of-care



Centres

- [Replacement](#) i
- [Reduction](#) i
- [Refinement](#) i
- [ecopa](#) i

Associations

- [ACURET](#) i
- [AFLAS \(includes South Korea\)](#) i
- [Culture of Care Network](#) i
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- [EU-NETVAL](#) i
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Clicker training

Clicker training is an operant conditioning based on positive reinforcement. When the animal offers the desired behavior, a *click* or another distinctive sound (secondary reinforcer) is delivered and within the following few seconds the reward is presented (primary reinforcer)^[1]. The *click* bridges the time between the desired behavior and the presentation of the reward^[1]. A target stick providing a visual guide for the animal can be used for the training.

Animals are usually trained individually, though it is also possible to perform clicker training in a groups, e.g. in mice, rats, and rabbits. For rats, it was demonstrated that they learned tasks by observing the clicker training of their cage mates^[2].

Clicker training can be used to train animals in a stress-free way. The following behaviours are examples for what this technique can be used for:

Mice: entering a tunnel, following a target stick, climbing on the palm of the hand^[3]

Rats: following a target stick, voluntarily change to a cage, observational learning^[2]

Rabbits: following a target stick, rearing/standing up to inspect the abdomen, approaching a human, being touched and lifted by a human, trimming nails, coming on command

Pigs: Pigs can be easily trained to cooperate if they are treated empathetically and desired behavior is reinforced by providing food stuff in form of treats and apple juice^[4].



Clicker training with mice using a target stick. *Left:* The mouse is following the target stick and is climbing on the experimenter's hand. If the hand is lifted, the mouse will remain on the palm of the hand. *Right:* The mice are trained in a group. Two mice are following the target stick on the palm of the experimenter's hand.

- ¹ ^{1.0} ^{1.1} Feng, Lynna C.; Howell, Tiffani J.; Bennett, Pauleen C. (1 August 2016). "How clicker training works: Comparing Reinforcing, Marking, and Bridging Hypotheses". *Applied Animal Behaviour Science*. **181**: 34–40. doi:10.1016/j.applanim.2016.05.012. ISSN 0168-1591.
- ² ^{2.0} ^{2.1} Leidinger, Charlotte Sophie; Kaiser, Nadine; Baumgart, Nadine; Baumgart, Jan (25 October 2018). "Using Clicker Training and Social Observation to Teach Rats to Voluntarily Change Cages". *JoVE (Journal of Visualized Experiments)* (140): e58511. doi:10.3791/58511. ISSN 1940-087X. PMC 6235608. PMID 30417890.
- ³ Leidinger, Charlotte; Herrmann, Felix; Thöne-Reineke, Christa; Baumgart, Nadine; Baumgart, Jan (6 March 2017). "Introducing Clicker Training as a Cognitive Enrichment for Laboratory Mice". *JoVE (Journal of Visualized Experiments)* (121): e55415. doi:10.3791/55415. ISSN 1940-087X. PMC 5408971. PMID 28287586.
- ⁴ "Positive Reinforcement Training in Large Experimental Animals" (PDF).

Experts for clicker training in mice and rats: TARC, Mainz, Germany

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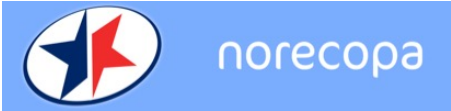
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Please share this newsletter with your colleagues and friends!

Norecopa maintains [an international Webinars and Meetings Calendar](#), which is updated several times a week, with links to [recorded webinars and events here](#).

You will find shortcuts to several other key resources on [our front page](#).

We continue to maintain a list of resources related to the Covid-19 pandemic and about preparedness in general: [Be PREPARED](#). Let us know if you have additions.

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This newsletter contains the following items (if some links do not work, check that your mail program has opened the whole of the newsletter):

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- [Overview: The rise of European 3R centres](#)
- [Quality assurance of Norecopa's website](#)
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- [Resources from the RSPCA](#)
- [European overview: Non-animal methods in science](#)
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