

**Danish 3R-Center and Danish National Committee:
Conclusions from taking a
closer look at the animals
exposed to the highest level
of severity in Denmark**

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Board member:

- ▶ The Danish National Committee for the Protection of Animals used for Scientific Purposes
- ▶ The Danish 3R-Center

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Agenda

- ▶ Tasks in The Danish National Committee & The Danish 3R-Center
- ▶ Animals reported as “severe suffering” in Denmark
- ▶ Conclusions

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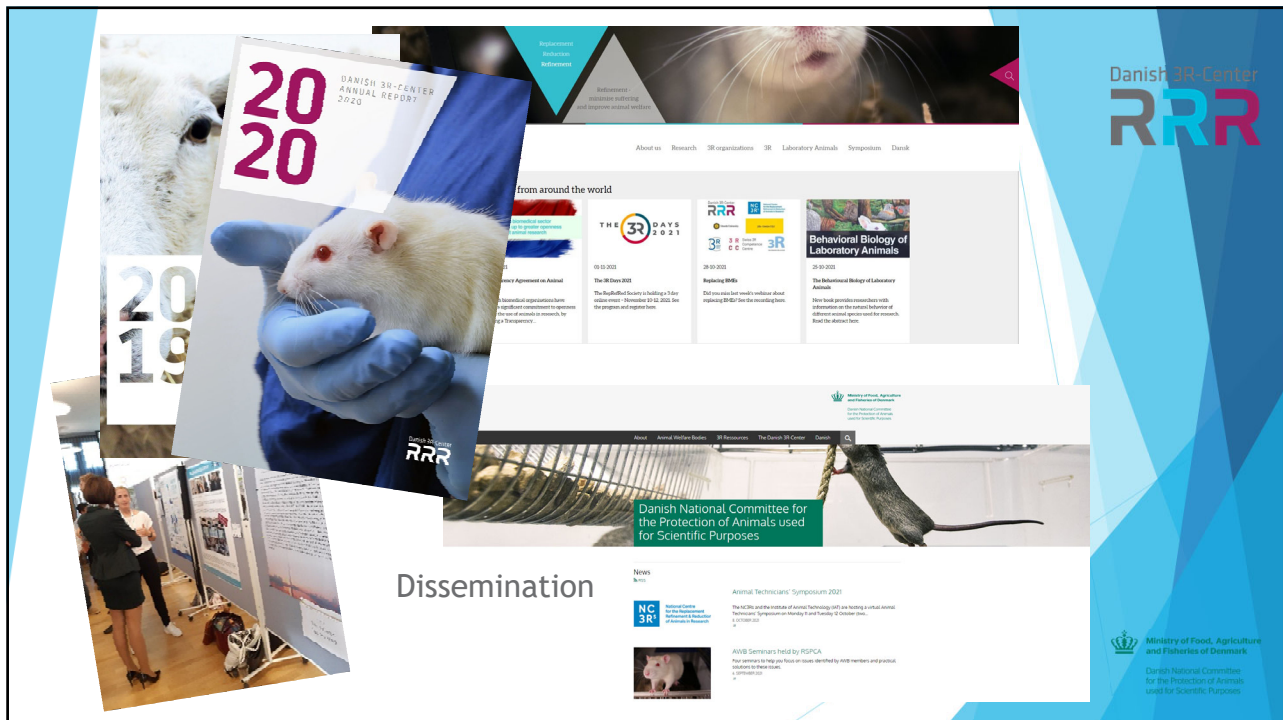
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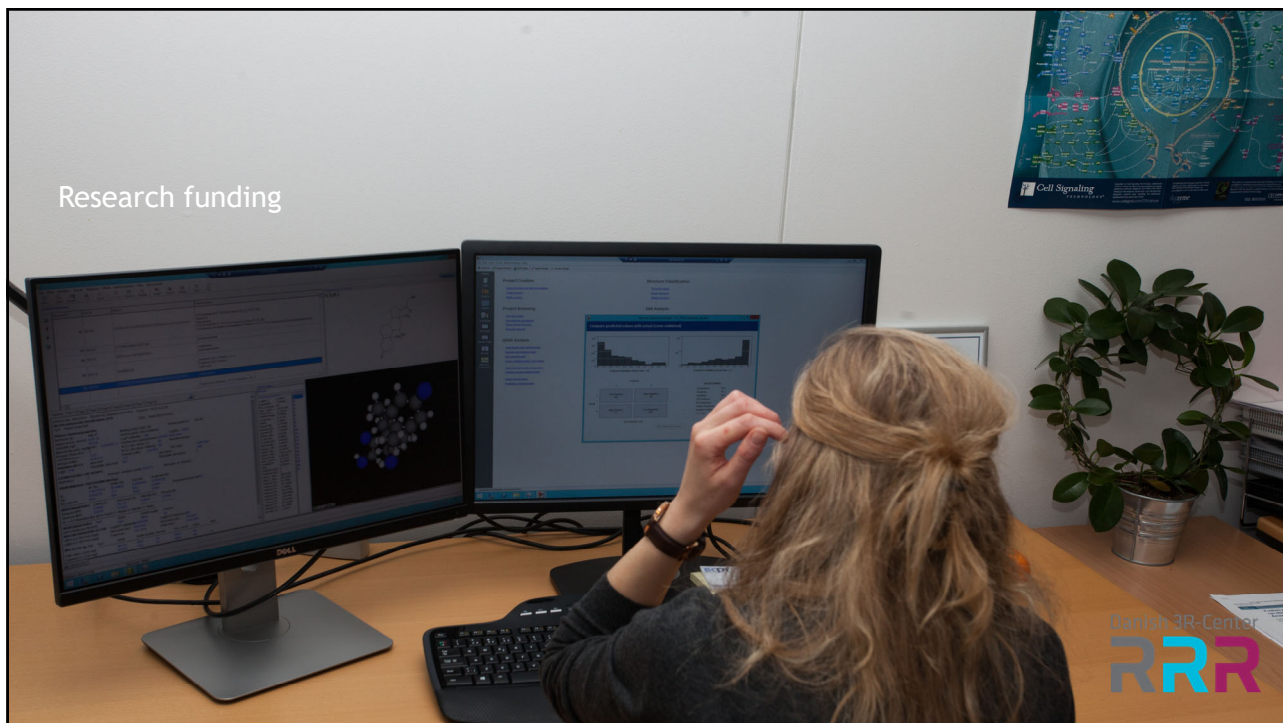
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Cooperation

Danish 3R-Center
RRR

NC
3R^s

National Centre
for the Replacement
Refinement & Reduction
of Animals in Research

 Utrecht University

3Rs – Centre ULS

3R
Replace
Reduce
Refine

3 R
C C

Swiss 3R
Competence
Centre

3R
THE SWEDISH 3RS CENTER

Danish 3R-Center
RRR

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Recommendations and statements

A higher number of laboratory animals in Denmark is not necessarily negative (2018)
Comments by the Danish National Committee for the Protection of Animals used for Scientific Purposes (DANAPOL) to the Danish National Committee for the Protection of Animals used for Scientific Purposes (DANAPOL) on the number of laboratory animals used nationwide

Experimental animals with the highest degree of suffering in 2021
For several years, the Danish 3R-Center has been focused on the experimental animals suffering severely as a result of experimental procedures. The reason for this is that the 3R-Center is responsible for the number of animals used in these procedures. Due to the EU Directive on the protection of animals used for scientific purposes, all experiments must be classified according to the degree of suffering that the animal experiences and do not recover consciousness afterwards as a result of the procedure. The severity category represents the group of animals that experience the most suffering in regard to what is allowed by the Animal Experiments Act. The number of animals inflicted with the highest degree of suffering can be seen in Table 1.

Animal species	2020	2019
Mice	1,587	1,740
Rats	279	349
Pigs	4	4
Cows	130	81
Sheep	80	12
Other fish	235	235
Total	2,368	2,351

Laboratory animals used in 2017
The number of laboratory animals used in 2017 is stated as 236,100, which is related to the level at which it has been since 2012. With the above change

The Danish 3R-Center thinks that a broader understanding of the concept of Replacement of experiments on animals is needed (2019)
The Board of the Danish 3R-Center

Only years have passed since William Russell and Rex Leach introduced the 3Rs in The Principles of Humane Experimental Technique (1959). The principles have been particularly successful, considering that they are currently integrated into animal research legislation in many countries.

Quite a number of scientific reports conclude that the volume of information currently available per laboratory animal used is far greater than was the case in 1959, which is one of the fundamental features of Replacement. The housing of laboratory animals has also vastly improved, leading to a reduction in the number of animals used. In addition, a number of measures have been taken to reduce the number of animals used, such as the use of non-animal methods. Approval procedures for new animals and methods have been improved, and the use of animals has been reduced. This is exemplified by the adoption of the 3Rs in the Danish Experiments Act. The Danish 3R-Center organizes seminars and workshops for researchers to reduce the level of knowledge.

Yet research itself has changed, and research results are in far greater demand than previously. Research is becoming more complex and the need for more information is increasing. This means that the use of animals is still necessary. However, the use of animals should be reduced as much as possible. The Danish 3R-Center is working to achieve this by promoting the use of non-animal methods and by encouraging researchers to use the 3Rs in their research.

Recommendations regarding animal experiments
From the National Committee for Laboratory Animals and Experiments, Denmark

In 2020, the European Union Directive on the replacement of animals in research (EU Directive 609/2020) introduced a comprehensive ban on the use of animals in research. This is a significant step towards the replacement of animals in research. The Danish 3R-Center is working to achieve this by promoting the use of non-animal methods and by encouraging researchers to use the 3Rs in their research.

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<https://3rcenter.dk/om-3r-centeret/udtalelser>

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Number of animals reported as severe in Denmark

	2014	2015	2016	2017	2018	2019	2020
Total # of animals	202.609	244.411	273.224	238.537	254.848	258.020	261.750
# of "severe animals"	2.929	2.168	4.597	1.762	2.909	4.118	3.787
% "severe animals"	1.5	0.9	1.7	0.7	1.1	1.6	1.5

<https://en.3rcenter.dk/laboratory-animals/species-and-severity>

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The number and type of animals that were reported to the Animal Experiments Inspectorate as having experienced severe suffering in 2015 and 2019

Animal species	Number of animals	
	2015	2019
Mice	1,387	1,746
Rats	279	149
Rabbits	4	4
Pigs	130	91
Cows	0	12
Zebrafish	80	62
Other fish	229	2,054
Total	2,168	4,118

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Conclusions

- The research groups reported very thorough prospective discussions with a lot of dialogue prior to obtaining the animal experimentation permit from the Inspectorate.
- The use of animals in the severe category can be categorised into two subgroups:
 - a) Disease models for especially painful conditions in humans
 - b) Statutory investigations with unknown endpoints.
- In some circumstances it may be possible to obtain an earlier and more humane endpoint for the animals if monitoring is intensified and refined.
- Establishment of network's where research groups working with fish or with the same type of animal models (e.g., the Experimental Autoimmune Encephalitis, AEA, model in mice) can share ideas and discuss if it is possible to achieve an acceptable research yield while inflicting a lower category of suffering on the animals.
- The importance of ensuring an ongoing dialogue with Danish agencies (e.g., the Danish Medicine agency and the Danish Environmental Protection Agency) who can seek to influence international bodies on statutory requirements for using animals.

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Acknowledgements

- ▶ Axel Kornerup Hansen
- ▶ Lisbeth Knudsen
- ▶ Rasmus Normann Nielsen

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Thanks for your attention



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**ANIMAL PROTECTION
DENMARK**



Ministry of Environment
and Food of Denmark



Ministry of Food, Agriculture
and Fisheries of Denmark

Danish National Committee
for the Protection of Animals
used for Scientific Purposes