**Openness & transparency in animal research: Why and How**

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Abstract

Non-human animal models continue to be indispensable in neuroscience research for the foreseeable future. In recent years, animal-right activists have been increasing the pressure on politicians and policymakers to phase out animal research. To address this pressure, we should adapt our communication habits, to be more open and transparent about (our) animal research and most importantly to expand the methods we use to communicate about our research and increase the extend of this outreach. In this editorial we discuss the why and how of animal research communication.

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*Introduction; the need for animal research and outreach*

Neuroscience research is at an exciting stage where we are gaining unprecedented insights into the deeper principles and workings of the nervous system through a variety of novel techniques that allow us to query detailed mechanisms. However, the study of these mechanisms often requires implementation of invasive methods and can therefore only be carried out in non-human animal models. It is therefore clear to researchers that non-human animal models continue to be indispensable in neuroscience research for the foreseeable future, if we are to continue investigating the nervous system in its natural context [1, 2].

Understanding the basic principles of nervous system development and functions is the critical basis for understanding, preventing and treating neurological and psychiatric diseases. Much of the knowledge towards these directions has been gained through animal research [3-7]. More than 35% of the EU population suffers from nervous system disorders, which significantly burden the lives of individuals as well as their families and loved ones [8]. Importantly, as the world's population ages and grows, the number of deaths and disabilities related to neurological diseases is predicted to increase [9-11]. Nowadays, current improvements in the care and prevention of major neurological illnesses seem insufficient to offset changes in the world's population. Most pervasive brain disorders are highly complex and their etiology often poorly understood. It is therefore imperative to continue our research into the molecular, cellular and circuit underpinnings of their etiologies, as preclinical/clinical studies depend on basic science [12]. Furthermore, even beyond the health sector, insights into how the brain solves complex computational and mechanistic problems, are continuously leading to novel technological developments and engineering solutions such as neuromorphic computing [13]. Thus, gaining new fundamental knowledge has many long-term benefits.

In recent years, animal rights activists have increased their pressure on politicians and policymakers to phase out animal research, leading to prominent petitions such as the European Citizens’ Initiatives in 2021[14] and 2023[15], as well as the 2022 referendum on animal-research ban in Switzerland[16, 17]. So far, these initiatives have been unsuccessful, in part due to quick reactions of the research community and its representatives, including the European Brain Council[18]. However, they highlight that we, the researchers working with non-human animal models or data derived from such animals, can improve our communication and develop an explicitly proactive approach on communicating information about what we do (our research questions) and how we do it (our research methods).

Therefore, in this editorial, we will emphasize the importance of communicating the scientific findings and methods of animal research to the public, and provide guidance on how to do so effectively. We will cover why, historically, researchers have sometimes been less visible in the media than animal activists, and the benefits that will arise from changing that. In order to stay focused, we will refrain from discussing the following two topics: 1. Why non-animal research approaches are valuable but alone insufficient to completely replace non-human, animal neuroscience research, and 2. Why a variety of model species and systems are essential in neuroscience research. Instead, these two topics will be addressed in dedicated follow-up editorials in this editorial series.

*Current advocacy efforts against animal research are more impactful: reasons and reflections*

Historically, researchers working with non-human animals have often preferred to remain in the shadows, due to aggressive campaigns and radical actions of activists in the 80’s, which in some casesput researchers’ lives at risk [19, 20]. Today, however, animal rights activism may not involve physical aggression [17]and researchers no longer need to feel unsafe for acknowledging the use of animal-based methods. Instead, current animal rights activism involves new tactics [17]. Activist organizations are increasingly targeting policymakers and politicians, having secured substantial resources to do so. The top 10 animal rights groups (out of the hundreds that exist) bring in over $700 million dollars per year in donations, while the sole 10 biomedical research advocacy groups (national and federal) have a combined annual income of about $5 million [21]. This is well over a 100:1 spending advantage for groups dedicated to opposing research involving animals [21]. These resources enable them to hire professional communicators and advocates, and to dominate the media and the public debate.

Novel methods and techniques in various scientific fields can attract more attention and therefore often more funding. This can benefit researchers working on current animal-free innovations. In contrast, animal-based research can be portrayed as “old-fashioned” and researchers using animal models as “set in their ways”. For most animal research, including basic and preclinical investigations, there are no adequate, complete animal-free replacements on the horizon. Instead, emerging animal-free innovations – such as organoids and computer models –can significantly reduce the use of animals, but cannot replace them completely especially in research fields such as neurogenetics, behavioral and systems neuroscience (see also [1, 2]).

On the other side of the spectrum, the people who can benefit from animal research often do not have the possibility or opportunity to voice their support; they may either suffer from debilitating brain diseases or may be unaware that they are using drugs or therapies that were directly or indirectly made possible by animal research. Overall, the combination of non-human, animal-model research and its benefits remaining hidden, large resources going to animal rights activists, and the recent excitement about animal-free approaches, has led to an imbalanced communication on animal research. To address this imbalance, we should change our communication habits, to be more open and transparent about (our) animal research.

*Times are changing; the need for transparent communication*

The need for balanced, fact-based, and neutral communication about animal research was addressed early on by national organizations such as Understanding Animal Research (UK), Tierversuche Verstehen (DE), Stichting Informatie Dierproeven (NL) and others (see Table 1). More recently, these efforts have been linked internationally by the European Animal Research Association (EARA), which has grown from an EU-based to a world-wide organization, that centralizes information on animal use and provides advice on communication about animal research. In particular, EARA helps to coordinate national initiatives to establish Transparency Agreements, in which signees join together in pledges for openness and transparency. So far, such agreements exist for the UK, Spain, Netherlands, Belgium, France, Germany, Portugal, Switzerland, New Zealand and Australia, with more in preparation. EARA also works with CARE (Committee Animal Research Europe of FENS), the part of EBC (European Brain Council) and CAR (Committee Animal Research of SfN) [22, 23]. These organizations and initiatives help spread the message that we need to change the way we communicate about research, and can provide material and assistance for advocacy in support of responsible animal research. More importantly they help us centralize efforts to respond quickly, effectively, and collectively, when policies on animal research are put up for a discussion in national or international politics.

We are at a pivotal moment: we, the researchers, are awakening to the urgent need to change the way we communicate about our work. This momentum must be maintained if we, as scientists, are to continue our research and if we, as humanity, believe that animal research can benefit people. We are a decade behind the political campaigns led by animal rights activists, but by actively engaging now and openly explaining what we do and why, we can still ensure that facts and truth prevail, and that the search for new knowledge and advances in the medical and life sciences can continue.

*A way-forward: How to do outreach about animal research*

Each of us can do outreach, even if we have only few resources. A good start can be to attend a media training on animal research (e.g. offered by FENS/SFN and conducted by EARA[21, 23]), ideally taking your institutional press officer with you. This will help to change any potential old-fashioned institutional resistance to transparency. Next, we would recommend evaluating your website (see Box 1), and bringing together other stakeholders and interested researchers at your institution. You might consider contacting and joining professionals such as your national animal communication organization (see Table 1) or EARA.

Open communication and transparency can be implemented in several ways (see Box 2). You can simply ensure that the press releases disseminating your latest research findings always clearly mention the key contributions of animal use. Secondly, sharing images, videos and stories online either on websites or social media channels (Instagram/ Facebook/ Linkedin/ Twitter/ YouTube/ others) can help to balance the content that emerges from online searches. Content can be permanent or part of one-off campaigns such as the annual #BOARD campaign (Be Open about Animal Research Day), the European Researchers’ Night or the national events of Science Weeks. In addition, local initiatives can be organized such as lab tours (for children, the general public, media or politicians) or panel discussions, held in person or online. These are more time-consuming but very effective avenues. Another creative way to engage with local communities is through multimedia art exhibitions, such as the Neuroscience-Art in EDGE Berlin/West where scientists present their laboratory findings in accessible formats for the public, sparking conversations and educating the lay audiences about their research topics.

There are many formats and methods available, and it is important to consider your local community and the audience you want to reach. The key to any initiative is to first assess resources and then choose and plan accordingly. If each institution can conduct 1-2 initiatives per year, a lot can be accomplished collectively.

*Building a solid path: What to consider when conducting animal research outreach*

For the general public, two important questions that need to be addressed are: 1) Why do we need animal research? and 2) Are animals in research treated humanely? For the first question, the answer may seem obvious to most scientists, but we should be aware that this may not be the case for the general public as the background of people in a society can be vastly different. We should always be in a position to provide reasons and evidence on why animal research is necessary (see Introduction section and future editorials in this series). For the second question, researchers should be specific about the efforts made to minimize the number of animals used and the distress experienced by each animal. For both questions, it can be difficult to identify the ethical boundaries of what is acceptable and what is not. As society evolves, so do the ethical rules. Therefore, an important component in our outreach efforts should be to educate the public about the safeguards that are already in place. This is important as our society evolves but it also raises the question of how we adapt. Our research is constantly under legislative scrutiny: from the scientific questions that we can address using animals, to the intricate details of any protocol that involves them. Animal results must adhere to the 3 Rs principle: *Replacement*, *Reduction* and *Refinement* (use of alternative methods to replace animal use, reducing numbers of animals used, and husbandry or experimentation that minimizes pain and distress while maximizing scientific output). Our animal protocols must be approved by committees, that include veterinarians and ethicists. No researcher is allowed to decide alone on what is ethical in their research, our research always complies with evolving ethical rules and each experiment is subject to independent ethical reviews [24]. This should be clearly communicated, as it is obvious to the research community but not to the general public. Specifically, in order to increase public trust in research, the outreach on animal use should also address issues of responsible research, e.g. information on animal numbers combined with positive research outcomes, detailed protocols, and publishing negative results to promote reproducibility and thus decrease animal use in the long-term. In the past, outreach efforts were often curtailed by the fear of backlash from animal right activists. It is important to note, that aggressive or dangerous interactions are nowadays incredibly rare and if they do occur, there are designated organizations to contact (Table1). Newer methods of activism may include informing the public about the animal research taking place at your institution with statistics or numbers, online petitions or mass phone/mail campaigns, releasing undercover film(s) from lab facilities in local/national media, protesting outside animal facilities (or in the nearest city/town from demonstration against other targets). In any case, scientists need to be proactive by being open and transparent about their animal research. By openly publishing the animal numbers used in your facility as well as images/ videos, we can ensure their accuracy, the context, and presentation. For example, we can provide background information that contextualizes why animals were bred but not used (e.g. due to genotyping, gender issues) or why laboratory animals receive a severe rating in distress classifications (e.g. due to foot shocks used to test for post-traumatic stress disorder). We can also link the use of animals to the produced new knowledge and outcomes. It is important to communicate the benefits in a way that is understandable and accessible to the general public. For some outreach activities, it may be helpful to seek expert advice in advance, and to have experienced communicators on hand to help if needed. For example, your social media posts may be met with negative comments. If these become sensitive, the EARA media team can be contacted for advice on possible responses.

Overall, fear of backlash should not deter us from communicating openly about animal research, but it should serve as an indicator that more or better outreach is needed. Openness about animal research is an effective way to bridge the knowledge gap with the public and to gain broader public support [25, 26].

*Conclusion*

We are at an exciting stage of discovery in neuroscience. If we are to continue to gain insights into how the nervous system develops and functions, it is imperative that we all communicate openly and most importantly *more* about animal research, in understandable and accessible ways. This fundamental change in our communication practices will allow us to take prominent part in the public conversation about the future of animal research, bringing in the facts about how animal research is performed (with great care!) and the hard truths about the possibilities of ending animal research in the foreseeable future.

Table 1: National and International Animal Research Outreach Organizations

|  |  |  |
| --- | --- | --- |
| Name | Country | Contact/Website |
| CARE - FENS | EU | <https://www.fens.org/engagement/advocacy/animals-in-research/useful-resources> |
| European Association for Animal Research | EU | https://www.eara.eu/ |
| Animal Research Tomorrow | CH | <https://animalresearchtomorrow.org/en> |
| Gircor | FR | <https://www.gircor.fr/> |
| Tierversuche Verstehen | GE | <https://www.tierversuche-verstehen.de/> |
| Research4Life | IT | <https://www.research4life.it/> |
| Stichting Informatie Dierproven | NL | https://www.stichtinginformatiedierproeven.nl/ |
| Understanding Animal Research | UK | https://www.understandinganimalresearch.org.uk/ |
| CAR – Society for Neuroscience | USA | <https://www.sfn.org/about/volunteer/committees/committee-on-animals-in-research> |
| National Organization for Biomedical Research | USA | <https://www.nabr.org/> |
| Americans for Medical Progress | USA | <https://www.amprogress.org/> |

**Box 1 Key elements of effective webpage on animal research [27]:**

1. **A clear statement on animal research**

This should be early and easily accessible, ideally on the institution’s homepage.

1. **Prominent communication (two-clicks from your main webpage)**

Ideally, the animal care page should be featured prominently on every institutional website. We should be open and transparent about the use of animals and emphasize the message that we have nothing to hide.

1. **Statistics on animal use – at your institution (explaining the numbers)**

Ideally, provide annual animal numbers, with their context. What associated severity and why? What type of research was performed? When were animals bred but not used and why?

1. **Images and videos – of your research and facilities**

Share original images from your facility to contribute to openness and transparency. This also complements to the images found in online searches. We need to have more real images of animal research and less staged, horrific depictions created by extreme activists.

1. **Case studies – featuring use and impact of animal models**

To debunk false images of animal research and the idea of researchers being cold and careless towards animals, it helps to highlight the personal investment of researchers who work with animals and to put the animal work in the context of the scientific output. It is crucial to clarify the knowledge and impact that has been gained from the use of animals.

1. **Additional information (Frequent questions, details on animal welfare measures and** **the 3Rs, links to other information and organizations)**

The general public is often unaware of how animal research and animal welfare are regulated and controlled. The sections description these regulations can be brief and refer to other national or international websites that provide general information for the public.

**Box 2 Ideas about Public Outreach and examples:**

* Webpages with transparent, personalized content on animal research/ lab care, see examples:

<https://www.bf3r.de/en/laboratory_animal_statistics-296465.html>

https://www.embl.org/news/lab-matters/1508-pathways/

<https://www.mpg.de/animal-studies-in-basic-research>

<https://welcome.uoc.gr/2024/03/01/care-and-use-of-laboratory-animals-mice-rats-and-zebrafish/>

* Public outreach events and permanent science exhibition, see examples:
  + *BOARD – Be Open about Animal Research Day* *(European event)*

<https://www.eara.eu/board24>

* + *EDGE Berlin, Germany*

<https://edge-neuro.art/>

* + *European Researchers Night (European event)*

<https://marie-sklodowska-curie-actions.ec.europa.eu/event/2023-european-researchers-night>

* + *Science Week (national events across countries)*

<https://www.britishscienceweek.org/>

<https://berlinscienceweek.com/>

<https://www.scienceweek.net.au/>

* + *The World of Molecular Biology, EMBL Heidelberg*

<https://www.embl.org/about/world-of-molecular-biology/>

* In person tours for public, kids, stakeholders, politicians, policy makers, media, see examples:
* <https://www.stichtinginformatiedierproeven.nl/nieuws/basisscholieren-bezoeken-centraal-dierenlaboratorium-radboudumc/>

<https://www.youtube.com/watch?v=CK78IXTRH0s>

<https://www.youtube.com/watch?v=PUEtwvJljp0>

<https://www.youtube.com/watch?v=SGy1QHPyvtM>

<https://www.youtube.com/watch?v=8TxOeE6XAb0>

* Virtual tours (2D, 3D, interactive….), see examples:

<https://www.esi-frankfurt.de/organization/360tour/>

<https://www.manchester.ac.uk/research/environment/animal-research/virtual-tour/>

<https://speakingofresearch.com/2017/06/14/360-virtual-lab-tour-allows-public-to-look-round-four-british-animal-laboratories/>

https://www.labanimaltour.org/

<https://www.youtube.com/watch?v=jxlFrwNb3Gw&list=PLqgVvHZ5DK6updb0CIiyPQRCgeSjv0pyP&index=4>

* Videos on animal research

<https://www.youtube.com/watch?v=Nd-5bt-SmiQ>

<https://www.youtube.com/watch?v=iA_FfVuTfoM>

<https://www.youtube.com/watch?v=219sZXIs468>

<https://www.youtube.com/@animalevidence>

* Discussions/ panels on transparency and benefits of animal research, see examples:

<https://www.aalas.org/public-outreach/resources>

<https://www.eara.eu/which-animals-are-used-in-research>

<https://www.eara.eu/post/why-it-s-important-to-be-open-about-animal-research-in-portugal-video-of-eara-lisbon-event>

<https://www.felasa2025.eu/>

<https://www.mpiib-berlin.mpg.de/2084617/initiative-transparente-tierversuche-startet>

<https://uni-tuebingen.de/en/research/core-research/cin/mission-methods/animal-research/a-discussion-on-animal-research-held-at-the-cin/>

<https://www.understandinganimalresearch.org.uk/>

<https://www.uu.nl/achtergrond/gebruik-van-proefdieren-wel-of-geen-gouden-standaard>

* Links on animal research legislation

https://www.fens.org/engagement/advocacy/animals-in-research

* Opportunities to engage

<https://www.ed.ac.uk/research-innovation/animal-research/opportunities-to-engage>

<https://www.manchester.ac.uk/research/environment/animal-research/community/>

* Workshops on animal research communication

https://www.mdc-berlin.de/news/news/eara-workshop-communication-animal-research

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