



# Ethics of Using Animals for Research

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## I. INTRODUCTION

Animal research has been conducted for an awful while. one of the key factors for animal experimentation is the indisputable fact that we can create data that may be beneficial for treating diseases in humans. But, the employment of research without human subjects has frequently been a district of key argument[1]. Various types of animal research have added to our knowledge of several diseases. It has also contributed a major part to much scientific research in the past few years. People worldwide benefited from this research, which is also used to create new treatments and medicines[2]. There is a specific restriction on the use of animals in research. No scientist wants to use animals and cause them unethical misery if there is a chance to avoid it.

Humans have reaped enormous benefits from animal-assisted scientific study, with nearly all medicinal breakthroughs for the last century relying on experimentation with animals. Specific use of animals in scientific study has allowed for advancements in the treatment of diabetes, leukemia, and heart surgical transplants, among other things. The majority of scientists believe that the benefits of using animals in research justify their uses [3]. Laboratory Animals was born out of a growing interest in standard animal models and a major perspective on the use of animals. Science, a field that can be characterized as a science subject, was a part that could be defined as science in the 1950s which is an interdisciplinary discipline of science that contributes to the understanding of the world animal welfare and the quality of animal research[4].

Any animal science research should have practical and attainable goals of enhancing our knowledge of the species of interest in terms of its functioning, performance, health, and welfare. These outcomes can be viewed as evidence of the research's 'benefits.' Animals, on the other hand, may suffer as a result of the experimental technique itself and poor housing or husbandry conditions. The 'cost' to animals can be described as any pain, anguish, or other types of suffering that an animal suffers as a result of the research, at any stage of its life. The conflict between the researcher's goals and the welfare of the animals involved in the study has the potential to arise. Before beginning the research, the basis for doing so must be founded on a systematic examination[5].

## II. DESCRIPTION

The ethical limitations of the use of animals in various research are numerous. In some circumstances, it is thought that animals can be used for enhancing human life, and other animals. But, there is also a fact that animals have their moral value like others. Generally, we should treat them equally as a human on an ethical basis.[6].

These are generally the possible reasons:

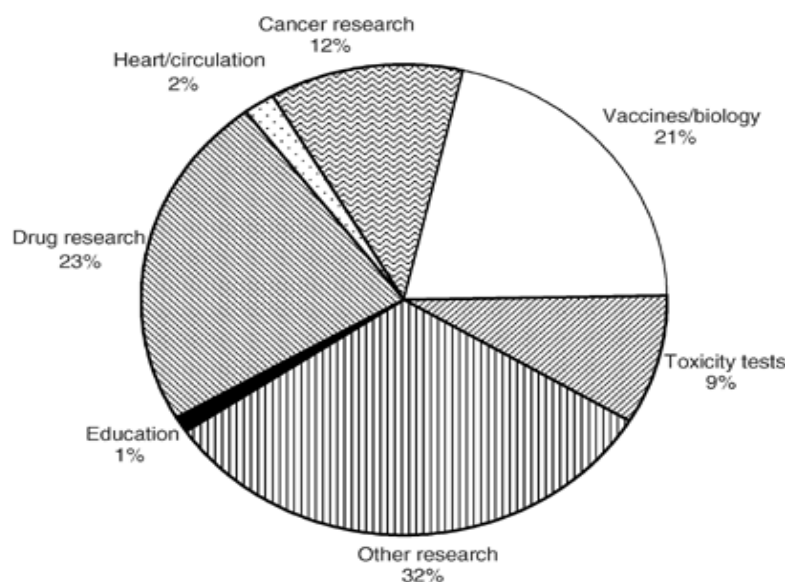
- The moral value of animals must be honored.
- Animals can also feel pain, and should not be harmed.
- When we are using animals in research, it reflects our views and moral values to others.

All of the possible reasons are taken into a recommendation responsible for creating the moral criticism of using animals for research. The term called 3R (Replace, Reduce, and Refine) should be the key parameter in

every field of experiments. At the time of doing any laboratory experiments, this rule needs to be followed strictly[7].Using this method the harm to animals can be minimized effectively at all stages of research. Understanding the Particular assessment of positivity linkedwith animal experiments is critical because the experiment results are always hypothetical for analysis.

The standards of the experiment protocol must be updated in response to scientific advancements resulting from the emergence of moral concerns. Genome technology opens up novel possibilities due to the trend of using genetic engineering in research. Engineered animals, i.e. Gene manipulation, require a double intervention: first, altering the genetic material of the animal, and second, using the animal as a research subject[8]. This technology can change our perspective toward every animal before doing research. The dignity of all animals should be treated in an equal manner so that it will create a more meaningful approach to society. This can be followed as a useful approach to scientific research without causing harm to the animals.

In the 20th century, the advancement of medicinal biotechnology such as pharmacology, toxicology, and immunology triggered an increment of using animals for research. In the year 1980, due to public recognition and rigorous values on the animal, the ethics committees for animals have been established[7,9].



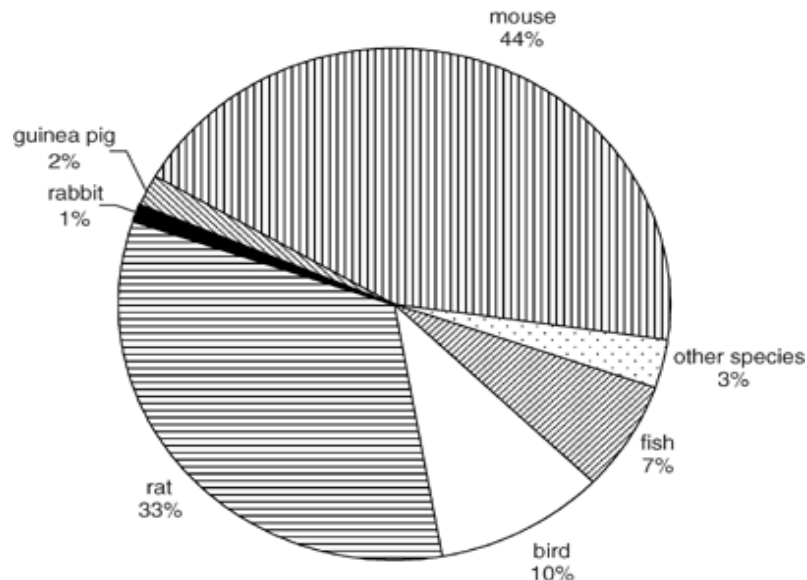
(Figure.1 Distribution of animals for different types of research)

The use of animals has increased again in recent decades, owing primarily to the development of engineered animals. The number of mice used by more than 23% per year for a different purpose. So there was a sudden surge in these animals in research. It was due to the large number of mice required to create each cell line, such as invitro breeding, fertilization, creating zygotes, and pseudo-pregnant recipient females as shown in Figure 1.[8]

The Laboratory Animal Science was established in 1950. It is a series of law disciplines of science that contributes to the standard of animal models and their welfare. Their law was implemented due to the rising demand for high-standard animals for research and the ethical laws associated with it. Laboratory Animal Science is concerned with the biological animals and their necessity in the ecosystem not limited to genetics associated with microbiology. It includes the disease diagnosis and treatment for the diseases like anesthesia, analgesia, and euthanasia, as well as better options for various experiments.

### III. INTERPRETATION

The viewpoint is that every animal has a right to life, which people should not take away. It's unclear if proponents of this viewpoint would grant rights to any organism that showed symptoms of retaliating against mistreatment. They would argue, however, that once rights to good treatment have been recognized, they must be respected[10]. Others believe that, while giving animals rights is improper because human rights are firmly rooted in a social framework, people still have obligations to the animals in their care and should guarantee that their wellbeing is good. The justifications for rights and obligations are sometimes viewed as absolutes, superseding all other moral claims.



(Figure.2 Animal species distribution for different types of research)

Although various standardization methods were discovered that were beneficial, used in the previous time, specified the fact that an animal-friendly environment meets the needs of the animal in every aspect. When it comes to environmental enhancement and affordable housing, order to increase the animals' well-being, has been acknowledged[11]. The distribution curve describes the majority of animals that are used for the animal for different types of research purposes. Before the experiment, statistics, like power inspection, need to be considered for the prediction of the numerical value of animals.

Ethical controversy is always associated with animal research as it was recently added to different scientific studies. Due to the ethical question of whether the animals can be used for medical research, there are specific limitations to using the animals. The data generated by animal research cannot be directly implemented in human beings. But the animals suffer a lot due to slight headaches, body pain, and hallucinations[12]. Furthermore, the necessity of specific animal experiments, like aesthetic testing, LD 50 tests, military tests, and teaching, might be defended.

The epistemic critique of using animals strikes at the heart of the scientific basis for animal studies, arguing that these procedures are simply not the greatest scientific standards available at the moment. Because, as previously stated, the case in support of animal experiments is based on professional ethics, in which ethical obligations are derived from epistemic norms, the rejection of professional standards is a powerful claim[13]. From an anti-speciesist perspective, however, the epistemic argument's seeming strength becomes a weakness. The epistemic critique is frequently overly broad, and it runs the risk of repeating the errors of its opponents. There are instances where animals can pass on their knowledge to humans. Because this argument challenges a pro-animal experiment perspective on an empirical level, it may fail in cases where animal models are useful.

Animals are rarely suitable models for the human body due to their differing anatomical and physiological features, as is well known and predicted. As a result, attempting to infect animals with diseases was not beneficial for them. So many cases, the outcome can be dangerous, causing mortality to humans while also failing to do that had a negative value on animals[14]. A drug called *Thalidomide* was studied on animals and experimented with to be safe, but it caused disastrous results for humans. Alternatives to the exploitation and mistreatment of animals have been created by several companies and scientists. There is a comprehensive list of websites, organizations, and periodicals. Finding alternatives and putting them to use in research is a difficult task. Many laboratories and pharmaceutical corporations have created computer-based software applications to replace laboratory animals[15].

Education is another area where animal alternatives are investigated. Experiments that include surgery on live animals at the graduate or professional level must be avoided to protect the animal species. Demonstration of such a thing should be a theoretical animal model basis. Several educational institutions currently teach animal experiments to students using various types of models. Similarly, several science

institutions have banned the use of healthy animals and restricted the use of healthy animals in medical training[16].

Alternatives to using animals for demonstration, like three-dimensional virtual models, video recordings, and dummy models, have as been demonstrated as equally beneficial. Humane education laws exist in several jurisdictions, requiring teachers to teach pupils about the importance of animals and birds in the natural world, as well as the importance of treating all animals with kindness, justice, and protection. Dissection choice law exists in several states, allowing students to choose between dissection and other educational options[17].

#### IV. CONCLUSION

Even though the Directive makes no specific provision for the specific laws regards to animal ethics regulatory committees, numerous nations have such legislation in place, which is dedicated to reviewing moral and ethical elements of live animal experiments. The laboratory research should be conducted ethically. This will almost certainly be beneficial for animal research. Because animal well-being is a necessity for every experiment. It includes critical strategies to reduce animal pain and increase its moral value.

The goal of such regulatory bodies is to conduct a legislative review of the experiment ideas that have been submitted. Only if the study is beneficial to outweigh than only the animal experiments should be granted permissible. Their unique function for the scientific ideas as human models highlights the necessity of live animals in future scientific experiments. Although alternatives to animal research offer utility in some areas of research, it was proven during the discussion of the process from discovery to a drug that a great deal has been accomplished through the use of live animals in research in the past.

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