Description

Animal research has been conducted for a very long time. One of the key arguments for animal testing is the fact that we can generate data that will be useful for treating disease in humans. However, the use of non-human subjects for research has often been an area of intense debate. Do we actually need to use animals for medical research or are we simply guilty of speciesism?

Those in favor of using animals in research argue that animals cannot be considered equal to human beings. Therefore, the benefits that humans derive in terms of the data produced from animals used in scientific research outweigh any harm done to the animals. It may be argued that most animals lack our cognitive capabilities and our level of autonomy. This would limit our obligation toward them and would also limit their rights, leading to a form of speciesism.

Ethics in Animal Experimentation

In order to prevent undue suffering, ethical considerations in animal studies are important. Generally, before experiments on animals are conducted, the research protocol must be reviewed by animal ethics committees. The guiding principle of these committees is usually the 3 Rs.

- First, animal experiments must be replaced wherever possible by other methods such as mathematical modeling, or an *in vitro* biological system.
- Second, there must be a reduction in the number of animals used. Only the number required to obtain reliable data must be used in an experiment. A thorough literature search must be done beforehand to prevent duplicating experiments.
- Third, the study must be refined to minimize its overall impact on the animals used.

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There should also be a local animal care committee which ensures that the animals are housed in appropriate facilities. The committee should also determine if animals are needed to test the hypotheses listed. If so, the animal care committee should also determine the appropriate sample sizes and procedures to be used in the experiment. The animals should have access to veterinary care. All personnel who work with the animals should be sufficiently trained in both the experimental procedure and ethical handling of the animals.

Legislation of animal experimentation is based on the idea that it is morally acceptable to conduct these experiments under certain conditions. This illustrates the importance of research ethics which is what drives how these animals should be treated. This includes having a clear rationale for why a hypothesis needs to be tested using animals. There should be a reasonable expectation that the experiment will generate useful data. The study design should also seek to minimize the number of animals used in the experiment while still being statistically appropriate.

All researchers handling the animals used for experimentation should also be trained in handling the particular species in the study. Their pain or discomfort should be minimized. Anesthesia should be used as required and repeated surgical procedures on the same animal should be avoided wherever possible. The humane treatment of the test animals should be incorporated into the study protocols and aseptic techniques should be used whenever possible. Only skilled personnel should perform surgical procedures and anesthetization of the animals in the study.

The national centre for the replacement, refinement, and reduction of animals in research (NC3Rs) has issued ARRIVE (Animal Research: Reporting of In Vivo Experiments) guidelines are intended to improve the reporting of research using animals. This checklist provides information that needs to be provided in the different section of the manuscript such as experimental animals, study design, experimental procedures, housing and husbandry, ethical statements, and more.

The Middle Ground

There are those who oppose experiments on animals, arguing that the data we obtain from animals is not always applicable to humans anyway. There are also those who argue that we are guilty of speciesism when we justify animal research since it advances human medicine. The middle ground in using non-human subjects is to highlight the importance of ethics. The arguments for animal testing often surround the benefits derived from the data these experiments generate. It is critical, however, that we adhere to the highest ethical standards when conducting animal experiments. It should also be noted that often journals do not publish data that has not been obtained in with appropriate ethical considerations.

Category

1. Publishing Research
2. Understanding Ethics

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