

## Nonhuman animals in biomedical research

Biomedical experiments often rely on the use of nonhuman animals as test subjects. This research sometimes leads to important medical and scientific advances, but it also often exposes research subjects to disease, injury, and/or death without the possibility of consent, and without the promise that this research will be used to benefit nonhuman animal populations.

There are many examples of nonhuman subjects experiments that seem to have led to important medical and scientific breakthroughs. For example, experimental surgery conducted on the brains of monkeys led researchers to discover a new treatment for Parkinson's disease, which has now helped as many as 200,000 humans to greatly increase their quality of life.<sup>1</sup> Granted, this kind of research can sometimes lead us astray as well, due to differences between human and nonhuman bodies. And at least some of the progress that we have made as a result of this kind of research might have occurred either way.<sup>2</sup> Still, it is plausible that nonhuman subjects research has done substantial good for humans.

However, there are also many risks and harms that researchers impose on nonhuman subjects that they would never impose on human subjects (even if those humans were cognitively relevantly similar to nonhumans). For instance, in 1987 Mortimer Mishkin and Tim Appenzeller lesioned the brains of monkeys in order to learn how different structures in the brain contribute to forming memories. They did learn new information about memory in the process. However, this study left its research subjects neurologically impaired and unable to form memories.<sup>3</sup> And this outcome is not at all uncommon: The vast majority of nonhuman subjects experience disease, injury, and/or death as a result of their involvement in biomedical research.

Regulations in the U.S. require most research facilities to have an Institutional Animal Care and Use Committee (IACUC).<sup>4</sup> These committees review all research proposals that would use animal models and conduct inspections in research facilities. In particular, IACUCs aim to ensure that researchers use animal models only in worthwhile experiments, that researchers use animal models only when alternatives are unavailable, and that when researchers do use animal models, they avoid causing unnecessary harm (though in practice, many IACUCs treat these criteria as compatible with imposing disease, injury, and/or death on nonhuman subjects since they see these harms as a necessary part of worthwhile experiments).<sup>5</sup>

However, critics of animal research claim that we need to do more in order to treat nonhuman subjects ethically. In the case of humans, most people believe that we should never knowingly and willingly inflict impairment or death on research subjects without the possibility of consent, no matter what we might learn as a result. In these cases, most people think, these harms are simply too high a price to pay.

### Discussion Questions

1. How should we compare the value of scientific knowledge with the wellbeing of research subjects?
2. Are we justified in treating nonhuman subjects differently than cognitively relevantly similar human subjects? Why or why not?
3. Are we justified in treating some nonhuman subjects, such as primates, differently than others, such as mice? Why or why not?

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<sup>1</sup> <https://speakingofresearch.com/facts/medical-benefits>

<sup>2</sup> <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4594046>

<sup>3</sup> <https://www.ncbi.nlm.nih.gov/pubmed/3589645>

<sup>4</sup> <http://www.nationalaglawcenter.org/wp-content/uploads/assets/crs/RS22493.pdf>

<sup>5</sup> <https://grants.nih.gov/grants/olaw/Guide-for-the-Care-and-use-of-laboratory-animals.pdf>

