Ethics, Efficacy, and Decision Making in Animal Research

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Ethics, Efficacy, and Decision Making in Animal Research

Ethics: Is it right or wrong, good or bad?

Efficacy: Does it produce the desired effect?
Does it work or not?

Decision Making: When opinions differ about the ethics and efficacy of animal research, who gets to decide if the proposed animal research will be done?

Ethics of Animal Research

Do ethics/morality impose any limits on how humans treat other sentient creatures?

Is there any hope of arriving at an ethical consensus about animal research?

Are ethics only peoples' subjective moral beliefs and sentiments or can logically disciplined analysis based on defensible propositions be applied in ethical reasoning or argumentation?

The Ethical Dispute

The ends justify the means

vs

Cruelty to animals is always wrong

Ethics of Animal Research

Advances in our understanding of evolutionary biology and animal psychology present ethical challenges to moral anthropocentrism, instrumentalism, and dualism, as well as the moral orthodoxy of utilitarianism in which humans view themselves as ethically justified in choosing to sacrifice animals' interests in the event of a conflict with their own, e.g. "bacon is yummy, so who cares about the pig."

Ethics of Animal Research

Is human uniqueness a morally relevant justification for animal research?

- All animals are unique in their own ways
- Some differences are morally irrelevant
  - i.e. skin color, sex, gender orientation, race, national origin, and upbringing

Is sentience more ethically relevant than species differences?

If human uniqueness includes greater capacity for moral agency (distinguishing right from wrong), doesn't this imply that we should be morally sensitive to other sentient beings?

Efficacy of Animal Research

Does animal research advance science?

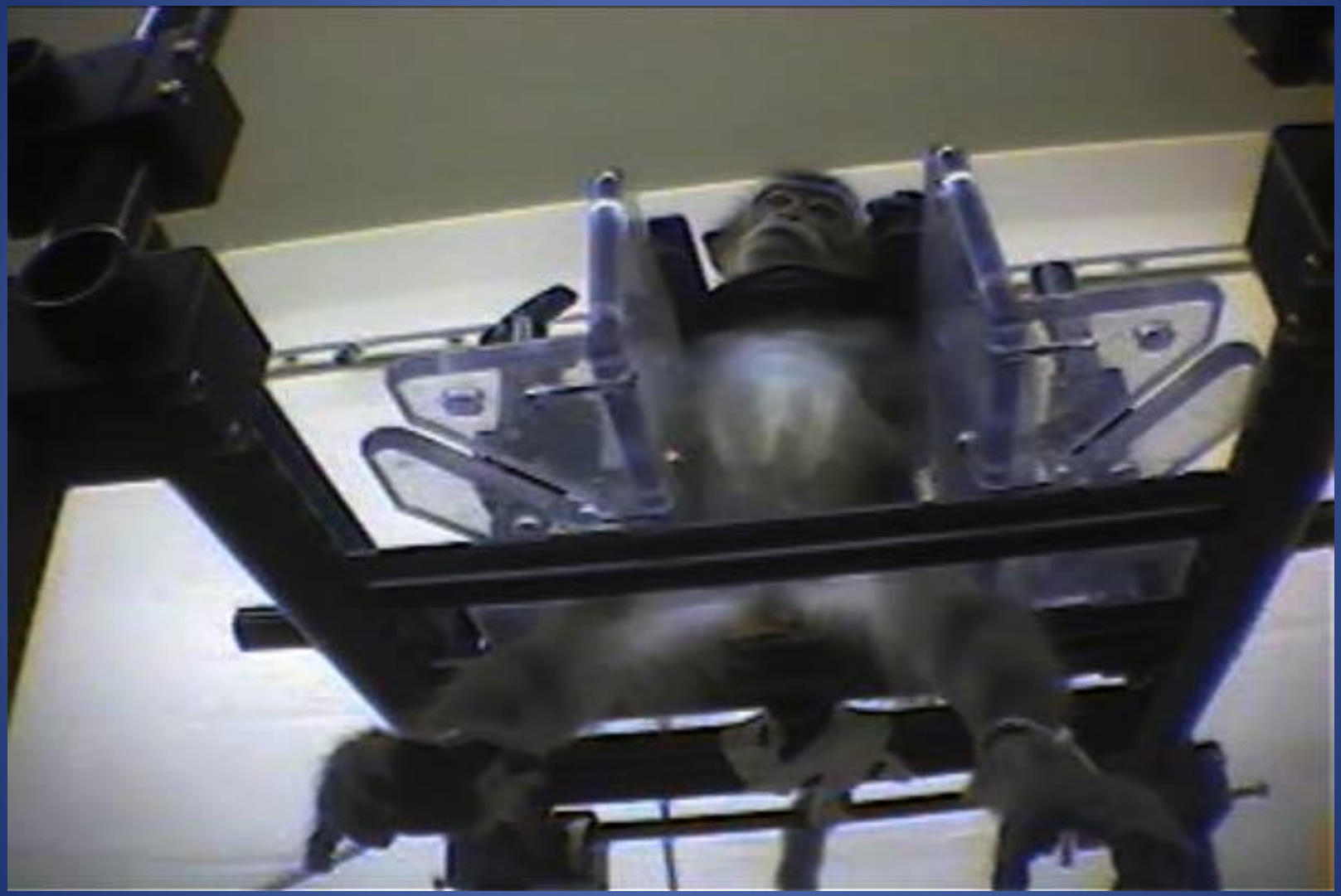
Can or should the efficacy of animal research as a means for advancing science be analyzed in isolation from its ethical cost, or would doing so be like analyzing slavery as an economic system for generating wealth without considering its morality?

Does animal research lead to improved human health care?

Efficacy of Animal Research As Basic Science

UCSF neuroscience research on eye movements using non-human primates

1. Implantation of titanium plates and bone screws for head restraint
2. Implantation of bilateral eye coils into sclera
3. Implantation of cylindrical recording chamber in skull with screws and cement
4. Implantation of chronic stimulating electrodes into cerebellum (monkey awake)
5. Implantation of chronic stimulating electrodes into vestibular apparatus in mastoid bone
6. Vision distorting spectacles worn for up to 12 weeks
7. Fluid restriction to produce dehydration “work ethic”
8. “Collars can be hooked with a pole to allow us to escort them to a specifically designed primate chair”



UCSF Neural Control of Eye Movement studying smooth pursuit and vestibulo-ocular reflex

Putative clinical justifications for basic neuroscience research appearing in grant application

"this may allow us to find the cause and ultimately the cure for many diseases of learning and memory such as Alzheimer's disease"

And, later:

"shedding light on the normal functions of pathways that are compromised in many strokes and motor disorders and potentially leading to new therapies for assisting in recovery from strokes"

Efficacy in Animal Research in Improving Human Healthcare

Extrapolating from Animals to Humans

Reviewing data from the Collaborative Approach to Meta-Analysis and Review of Animal Date from Experimental Studies (CAMARADES), the author found that serious bias in animal studies make it:

"nearly impossible to rely on most animal data to predict whether or not an intervention will have a favorable clinical benefit-risk ratio on human subjects".

- Ioannidis, John PA. "Extrapolating from animals to humans." *Science translational medicine* 4.151 (2012): 151ps15-151ps15.

Efficacy in Animal Research in Improving Human Healthcare

Animal research in medical sciences: Seeking a convergence of science, medicine, and animal law

A review article and meta-analysis, 248 references, cites multiple studies documenting the failures of animal models to translate to human benefit:

- HIV/AIDS vaccine
- Stroke
- Traumatic brain and spinal cord injury
- Amyotrophic lateral sclerosis
- Multiple sclerosis
- Alzheimer disease
- Menopausal hormone therapy
- Cancer
- Drug development and testing

Pippin, John J. "Animal research in medical sciences: Seeking a convergence of science, medicine, and animal law." *S. Tex. L. Rev.* 54 (2012): 469.

Efficacy in Animal Research in Improving Human Healthcare

Can animal data translate to innovations necessary for a new era of patient-centered and individualized healthcare? Bias in pre-clinical animal research.

A review article and meta-analysis, 123 references, found bias throughout AR in design, reporting, publication, funding, and validation leading to misleading results which have needlessly involved thousands of patients in failed clinical trials.

- 89% of AR cancer studies touted as “landmark results” in top tier journals could not be replicated
- Only 5% of AR inspired clinical trials should have been tested in humans

Human disease for which AR models have been non-predictive of clinical outcomes:

- Oncology (cancer)
- Immunology
- Psychiatry
- HIV
- Hepatitis C
- Prion

Green, Susan Bridgwood. "Can animal data translate to innovations necessary for a new era of patient-centred and individualised healthcare? Bias in preclinical animal research." *BMC medical ethics* 16.1 (2015): 1.

If there is no hope of an ethical consensus about animal research, might there be hope for a consensus about its efficacy in improving human healthcare?

Probably not.

“A man sees what he wants to see and disregards the rest.”

– Paul Simon

Or, as psychological studies have proven….

1) Humans are biased towards seeing ourselves as less biased than average. (Pronin et al, 2004)

2) Decision-influencing thoughts and feelings exist outside our conscious awareness or control. (Heffernan, 2009)

3) We are twice as likely to seek information that supports our current view as we are to consider an opposing idea. (Hart, 2009)

4) When facts are presented which might lead us to change our minds we scrutinize them more skeptically and require more evidence from them than we do for facts that allow us to believe our favored conclusion. (Pyszcynski, 1985. Ditto, 1992)

5) When groups of like-minded people get together, they make each other's views more extreme rather than less. (Sunstein, 2009)

6) In arriving at consensus in like-minded groups, opinions sought and shared are those that reinforce rather than challenge the favored conclusion. (Tesser, 1972)

7) Groupthink discussions render participants blind to alternatives that are obvious to outsiders. (Heffernan, 2009)

What about the people who pay for animal research?

Laws are codified ethics, and all constraints imposed on animal researchers originated from public outrage over exposés of animal cruelty in research, none came from the biomedical research industry itself.

Public Attitudes Toward Animal Research

Public opinion polling informs us that most people occupy an ethical middle ground, with approval of animal research contingent upon animals not suffering too much and only in the service of research likely to advance human healthcare. People also express different attitudes towards animal use depending on the species involved and are less supportive of research using dogs, cats, and non-human primates than research with mice, rats, and fish.

-Ormandy, Elisabeth H., and Catherine A. Schuppli. "Public attitudes toward animal research: a review." *Animals* 4.3 (2014): 391-408.

Who gets to decide if the ends justify the means?

IACUCs (mandated by the US Congress in 1985) are enjoined to "respect public concern about the treatment of animals in research" and when reviewing animal use protocols take into account a US government principle that "procedures involving animals should be designed and performed with due consideration of their relevance to human or animal health, the advancement of knowledge, or the good of society."

But IACUCs do not make ethical cost-benefit analyses, and the relevance of proposed animal research to human disease is immaterial in their deliberations.

IACUCs approve 98% of all animal research proposed. On average, 67% of IACUC members are animal researchers, 15% are institution veterinarians hired to support animal research, and 93% of IACUC chairs are animal researchers.

-LA Hansen, JR Goodman, A Chandna. Analysis of Animal Research Ethics Committee Membership at American Institutions. Animals 2012, 2, 68-75.

-LA Hansen. Institution Animal Care and Use Committees Need Greater Ethical Diversity. Journal of Medical Ethics 2013, 39: 188-190.

Legislation for the Protection of Animals Used for Scientific Purposes

Within Member States of the EU, guiding principles underpinning the use of animals in scientific research are found in Directive 2010/63, entered into force across all member states in January 2013.

Reduced to its simplest form, language in the preamble to Directive 2010/63 is a statement that scientific procedures involving the use of animals are implicitly undesirable and should be curtailed.

Is there any hope for the animals?

The arc of moral progress and legal precedence:

- Bear baiting
- Bull baiting
- Dog fighting
- Cock Fighting
- Crush Videos
- AWA/IACUC
- Animal Cruelty Felonies in all 50 states
- CA Prop 2
- EU Directive 2010/63
- European Union Ban on Vivisection of Great Apes
- Swiss Supreme Court Decision
- Oklahoma State Ban
- New Zealand restrictions on some types of animal testing
- NIH ends experimentation on chimpanzees 2015

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