
Examined attitudes toward the treatment of animals in 47 undergraduates who studied laboratory-based biology in high school and 31 undergraduates who did not study biology in high school. Data indicate positive attitudes toward animals for both groups, but those who had not studied biology had more favorable attitudes.


A total of 302 undergraduates in the social sciences and the humanities, at two Australian universities, were given a questionnaire designed to explore public attitudes toward animal suffering. The results, though preliminary, strongly suggest that attitudes may be in great part supportive of animal welfare and animal rights. However, as reflected in the answers to the questionnaire, actual behavior does not always follow suit. The recommendation is made that the animal welfare/animal rights movement should perhaps place more emphasis on raising people’s awareness of the inconsistencies between their attitudes toward animals and their behavior concerning them.


No abstract available.


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This study reports on the results of a 63 item questionnaire examining attitudes to experimentation on animals. Over 250 young Britons (average age 20 years) completed the questionnaire and gave various personal details (apart from their name). Subjects seemed strongly against animals being used in product testing and in favour of stricter controls on laboratories using animals. The standard deviation in responses to each item was fairly high (nearly always over 1.5 on a 7 point scale) indicating a reasonable spread of responses. Despite various factor analytic rotations, the results seemed to suggest that attitudes to animal experimentation are uni-dimensional (simple pro - anti) as against multi-dimensional. These attitudes did correlate predictably with a number of demographic variables particularly sex, political orientation and whether people were vegetarians or not. Females more than males, left-wing more than right-wing, and vegetarians more than non-vegetarians were more strongly against animal experimentation. Alpha co-efficients suggested that the scale would be useful in further research. Results are discussed in terms of the debate on animal experimentation that continues to rage particularly among psychologists.


263 university students completed a questionnaire about animal research, to assess the impression created by animal rights activists that there is a growing opposition in this country to the use of animals for research. Data show that most Ss were concerned about pain and suffering in animals but the majority appreciated and supported the need for using animals in research.


The ideological underpinning of the animal welfare/animal rights movement is not a recent development, but rather the result of a revolutionary change in Western man’s perception of the natural world between 1500 and 1800. In 1500, these basic perceptions were
as follows: (1) the world was created for man's sake and all other species were subordinate to his wishes, (2) man's stance toward other species was essentially that of subjugation or conquest, (3) humans were absolutely unique and separate from the rest of creation. By 1800, these basic perceptions had been fundamentally altered to reflect the following: (1) the world did not exist for nor was it created for man alone, (2) man's stance toward the natural world and especially toward other animals was that of stewardship, and animals were within the sphere of moral concern, (3) man was a superior animal, although the basis for this superiority was not entirely clear, and was related to all other animals through physiologic similarities and the powers of feeling and sensation.


Laws designed to control the practice of experimentation on living animals have a central purpose: “to reconcile the needs of science with the just claims of humanity”. This purpose was outlined by the UK Royal Commission on the Practice of Subjecting Live Animals to Experiments, the first enquiry of its kind, which led to the earliest law in the world controlling the practice, the Cruelty to Animals Act 1876. Since that time, legislation to control animal experiments has been enacted in many countries throughout the Western world. But a century of heated debate on this thorny topic has resulted only in changes to the details of such laws and to their administration, not to their fundamental purpose and scope. This remains everywhere the same as that of the UK 1876 Act—to restrict experimentation within what society deems to be acceptable limits while causing least harm to free scientific enquiry.


A questionnaire about ethical considerations in experiments involving animals or human subject populations consisting of students, mental patients or prison inmates was administered, to 73 undergraduate students enrolled in several psychology classes. For the most part the questionnaire was completed without difficulty, and the results were that most subjects did not differentiate among the human populations, and that human and animal experiments were judged by different ethical standards. For humans, the principal considerations were for the protection and safety of the subjects while for animals they pertained to the design and conduct of the experiment.


The distribution of a typology of basic attitudes toward animals in the American population is explored through the personal interviews with the 3.107 randomly selected persons in the 48 contiguous states and Alaska. Data is presented on the prevalence of these attitudes in the overall American population and among major social demographic and animal activity groups. In addition, results are presented on American’s knowledge of animals as well as their species preferences. Finally, in formation is presented on perceptions of critical wildlife issues including endangered species, predator control, hunting, trapping, marine mammals and wildlife habitat protection.


No abstract available.


This book addresses practical and philosophical issues regarding the use of animals in biomedical research, testing and teaching. It does so with the aim of presenting facts and arguments to encourage scientists to reconsider their views about animal experiments.


For centuries, opposition has been directed against the use of animals for the benefit of humans. For more than four centuries in Europe, and for more than a century in the United States, this opposition has targeted scientific research that involves animals. More recent movements in support of animal rights have arisen in an attempt to impede, if not prohibit, the use of animals in scientific experimentation. These movements employ various means that range from information and media campaigns to destruction of property and threats against investigators. The latter efforts have resulted in the identification of more militant animal rights bands as terrorist groups. The American Medical Association has long been a defender of humane research that employs animals, and it is very concerned about the efforts of animal rights and welfare groups to interfere with research. Recently, the Association prepared a detailed analysis of the controversy over the use of animals in research, and the consequences for research and clinical medicine if the philosophy of animal rights activists were to prevail in society. This article is a condensation of the Association’s analysis.


Stung by the spreading incidence of vandalism of biomedical research laboratories in the name of more humane treatment of experimental animals, government leaders and scientists have joined the American Medical Association and others in the battle and are beginning to strike back. At the annual meeting of the Federation of American Societies for Experimental Biology, Louis W. Sullivan,
MD, secretary of the US Department of Health and Human Services, called for legal action against those animal rights advocates who, by threats of intimidation and bombings, have "created a veritable siege mentality among research scientists."

An essential book for all those who conduct animal-based research or are involved in education and training, as well as regulators, supporters, and opponents alike. This fully updated third edition includes discussion of genetically altered animals and associated welfare and ethical issues that surround the breeding programmes in animal based research. The book discusses the origins of vivisection, the advances in human and non-human welfare made possible by animal experimentation, moral objections, and alternatives to the use of animals in research. It also examines the regulatory umbrella under which experiments are conducted in Europe, USA and Australasia. The author highlights the future responsibilities of researchers who will be working with animals, and offers practical advice on experimental design, literature search, consultation with colleagues, and the importance of the ongoing search for alternatives.

No abstract available.

No abstract available.

Bernard Rollin explains why and how scientists have been so cavalier about animal use, animal pain, and the moral questions they raise. He explores the damage caused by this position, both morally and scientifically; for it is not only the animals used in research which have suffered, but science itself, given that failure to take animal feelings into account has been shown to distort experimental results. In this book Bernard Rollin traced the development of changing attitudes towards animals and shows how growing social concern about the way in which we treat them is forcing science to turn back to the common-sense view.

No abstract available.

The last 3 decades have witnessed major challenges, both theoretical and practical, to the traditional dogma that science is value neutral. On the theoretical side, these challenges have issued from a variety of sources, most notably the work of Kuhn [1] and Feyerabend [2] in the philosophy of science, but also from reasoned critiques of individual sciences by such thinkers as Szasz [3] and Chomsky [4]. The practical sources of skepticism about value-free science are well-known—research into nuclear energy, recombinant DNA studies, research on human subjects and on the nature of intelligence, and space exploration have all been severely criticized as fundamentally fraught with questionable value assumptions. Perhaps the most far-reaching of these concerns in terms of its potential effect on science as it is now conducted is the question of the morality of using animals in scientific research. The issue is as old as biological research itself and has surfaced many times in the history of science. Most often, it has appeared as an emotionally based antivivisectionism, typically espoused by people unsophisticated in the sciences and often given to lurid exaggeration and distortion. Recently, however, the question has been raised on a much more rational basis and increasingly by people who are not only scientifically knowledgeable but are often themselves scientists who offer constructive.

In research employing animals we commonly do things to them which would be grossly immoral to do to humans. This paper discusses three possible justifications for so treating animals: (a) it is violating the autonomy of rational beings which makes actions immoral, and animals are not autonomous; (b) due to our participation in the human community, we have special obligations to humans that we do not have to animals; and (c) human life is morally more worthy than animal life. The conclusion of this discussion is that none of these three propositions justifies the routine sacrifice of animal interests for human benefit. Particular attention is paid to the idea that human life is morally more worthy than animal life, because I believe that to be the most common justification for our sacrifice of animal interests in research. The claim of greater worth is considered and criticized from both utilitarian and Kantian perspectives, and the inference from superior worth to being entitled to exploit one's inferiors is also criticized. The paper concludes by recommending a governing principle for research with animals which would bring that research into line with the rejection of hierarchical worldviews, social orders, and value systems which characterizes modern moral progress.
The use of animals for research and teaching has now become an issue of great concern in the United States. In contrast to the legislative systems in Britain, Scandinavia and many European countries, American scientists can pursue research projects with relative freedom. Recent activities in the United States may effect this practice and future animal experimentation may be subjected to restriction and control by legislation. Events leading to this possibility are similar in many ways to those in 19th century Britain prior to the passage of the Cruelty to Animals Act in 1876 (which licenses scientists, regulates experimentation and carries out inspections). Historically, it seemed that the immediate effect of the 1876 act was to decrease the number of scientists who could conduct experiments on live vertebrate animals in Great Britain and hence the number of experiments and animals. Yet, antivivisection activity in Britain did not decrease but continued toward its goal of abolishing all research with animals. By 1882, the medical scientific community established the Association for the Advancement of Medicine by Research which began to advise the Home Secretary on licensing scientists. This was a turning point for British science since large numbers of qualified investigators were licensed, the number of animal experiments increased, and experimental medicine and science in the United Kingdom soon became dominant. Thus, although the antivivisection movement in Britain did not ultimately halt animal research, it did raise the consciousness of scientists, the government, and the general public about the need for humane treatment of research animals and the limits to which those animals should be used.

This analysis extends the notion of occupational stigmatization beyond traditionally low-status, marginal workers to scientists and technicians who conduct biomedical research on animals. Like many “dirty” workers, animal research personnel report that they see themselves as stigmatized by others and sometimes manage information about themselves and their work to avoid unpleasant interactions with those who disapprove of what they do. While information may be managed about their occupational identity through concealment or cautious disclosure, these practices suggest guilt and create a dilemma for some. Nevertheless, the use of information control strategies often seems imperative in the face of a threatening “other,” defined as either reproaching, confrontive, dangerous, and/or distorting.


No abstract available.


Animal Care Committees (ACCs) at Canadian universities and research centers operate under the aegis of the Canadian Council on Animal Care (CCAC) and its guidelines for the humane care and treatment of animals in teaching, research, and testing. All Canadian universities have at least one active committee. The committees are expected to assume an educative role beyond the provision of information concerning housing, maintenance, and appropriate conditions for the treatment of animals in research. This includes critical examination of the serious ethical issues involved in animal research within the context of the principles and practices endorsed by the CCAC. One-day animal care courses provided by ACCs at three Canadian universities are described. Comparisons are made between the content and structure of curricula and the ways these relate to the teaching and research mandate in each institution, focusing particularly on the teaching of ethics in each course. The implications for heightening awareness of ethical issues in animal research and improving the effectiveness of these courses are discussed.


The use of animals in psychological research and teaching raises complex scientific, social, and ethical questions. Indeed, the animal rights movement has specifically targeted behavioral research for its invasive procedures and often trivial or repetitive results. The response of the psychological establishment—particularly the American Psychological Association—has been to adopt a defensive posture and to trivialize the concerns of animal protectionists. However, a growing number of psychologists are expressing reservations about animal research on both scientific and ethical grounds. We discuss the dimensions of this debate and offer practical suggestions for the protection of animals in psychology, beginning with the provision of choice for students who object to the use of animals in classroom or laboratory demonstrations. We also advocate a shift from laboratory-based invasive research to minimally manipulative naturalistic studies.


Past research suggests that public support for the use of animal models as means to improve the human condition is present but many individuals have expressed ambivalence. In the present study, various sectors of the academic community (students and faculty) as well as the general population, were surveyed to assess their positions on the need for, and value of animal research, the value of psychological research in which animals are employed, and the respondents’ consummatory habits. The results suggested that more information needs to be provided about the role of animal experimentation, including a discussion of the benefits produced by using animals to answer psychological questions.


Four hundred and ninety-five people completed a questionnaire in which they rated 35 specific examples of uses of different species of animals on a 5-point scale of acceptability/unacceptability. Ratings depended on both the particular example used (medical...
research, behavioral research, product-testing research, use for educational purposes, use for luxury garments, or animals as pests) and the species involved. Examples using dogs, cats, or monkeys were rated less acceptable than those using rats or mice, nonmammalian vertebrates, or invertebrates. Examples in which animals were used to make luxury garments were rated the most unacceptable and educational uses of animals and behavioral research were the most acceptable. Ratings of examples were very consistent within individuals, leading to the conclusion that a person's attitude toward animals may represent a unitary characteristic. Gender, age, pet ownership, and religious affiliation were all significantly related to attitude toward animals, as determined by averaging responses to the 35 examples together for each respondent, but all of these variables combined accounted for less than 5% of the variability in ratings.


Although gender differences in attitudes toward animal research have been reported in the literature for some time, exploration into the nature of these differences has received less attention. This article examines gender differences in responses to a survey of attitudes toward the use of animals in research. The survey was completed by college students and consisted of items intended to tap different issues related to the animal research debate. Results indicated that women were more likely than men to support tenets of the animal protection movement. Likewise, women were more likely than men to favor increased restrictions on animal use and were more concerned than men about the suffering of research animals. Analysis of item contents suggested that women endorsed items reflecting a general caring for animals, were more willing than men to make personal sacrifices such as giving up meat and medical benefits in an effort to protect animals, and were more likely than men to question the use of animals in research on scientific grounds. Men, on the other hand, tended to emphasize the potential benefits arising from the use of animals in research.


This study set out to ascertain the beliefs and knowledge about animals and animal experimentation of over 200 students all applying to read psychology at University. The subjects completed a modified and extended version of the Furnham and Pinder (1990, The Psychologists, 10, 444–448) attitude to animals scale. They also indicated their knowledge about the amount and type of experimentation done in Great Britain. Finally they indicated what they believed that six groups of animals (rodents, cats, primates, insects, birds and dogs) were capable of, in terms of thought (e.g. 'what another animal is thinking'; 'what happened to them yesterday') emotion (e.g. 'happiness'; 'sadness'; 'joy') and behaviour (e.g. 'unselfishly'; 'dishonourably'). The results were similar to those reported by Furnham and Pinder (1990) but subjects' knowledge of experimentation was poor.


In two studies, we used the Ethics Position Questionnaire (EPQ) to investigate the relationship between individual differences in moral philosophy, involvement in the animal rights movement, and attitudes toward the treatment of animals. In the first, 600 animal rights activists attending a national demonstration and 266 nonactivist college students were given the EPQ. Analysis of the returns from 157 activists and 198 students indicated that the activists were more likely than the students to hold an "absolutist" moral orientation (high idealism, low relativism). In the second study, 169 students were given the EPQ with a scale designed to measure attitudes toward the treatment of animals. Multiple regression showed that gender and the EPQ dimension of idealism were related to attitudes toward animal use.


Animal rights movements have increased the scope and intensity of their activities over the past decade. While it is generally assumed that doctors and other members of the health care professions favour the use of animals for science, few data are available. Student protests in various medical schools against use of animals in teaching laboratories indicated further need for objective data. A questionnaire about attitudes to the use of animals for teaching purposes was distributed to all the medical students at the Ben-Gurion University of the Negev, present during classes on a given day. All students present (200) returned the questionnaire (70% of the student body). Also queried were attitudes towards related subjects. A high percentage of medical students surveyed had significant reservations about animal experimentation for teaching purposes and about the preferential priority for human life over that of animals. These attitudes, if confirmed, have serious implications for educators both in the health fields and otherwise.


Four hundred and twenty-two adults completed a postal questionnaire in which they provided information regarding pet ownership and their attitudes toward 13 issues involving the use of animals. Over 63% of the sample owned a household pet, with the dog being the most common. Household pets were more commonly owned by respondents who were married, younger than 65 years of age, living in detached houses, or with a child/children present in the home. Most concern was expressed toward those types of animal uses which lead to death or injury, especially dog fighting. Females expressed more disagreement than males with most of the uses of animals examined. Dog owners expressed more approval off-hunting and hare-coursing than non-dog owners, and horse owners expressed more approval off-hunting than non-horse owners. This study reveals that some of the ways in which people use animals
are considered more acceptable than others, and suggests that it is incorrect to group different kinds of animal use into one broad category. The authors argue that future years may see a shift in the way society uses animals, from manipulation toward care for their well-being.

**Herzog, H., & Dorr, L. (2000).** Electronically available surveys of attitudes toward animals. *Society & Animals, 8*(2), 183-190. [PDF](http://example.com)

Much of the research on attitudes toward non-human species has been conducted with non-representative samples. Largely ignored in the literature on human/animal interactions are surveys conducted by commercial polling organizations using large probability samples of Americans. Many of these surveys contain information relevant to attitudes about animals and animal welfare issues. This information is available to researchers electronically at little or no cost through organizations such as the Roper Center for Public Opinion Research and the National Opinion Research Center.


The authors examined the relationship between personality and attitudes toward the treatment of animals by administering the Sixteen Personality Factor Inventory and the Animal Attitudes Scale to 99 college students. The personality scales were only weakly related to attitudes about animal welfare issues. Two personality factors, sensitivity and imaginativeness, were significantly correlated with attitudes towards animals. Gender and sensitivity explained 25% of the variance in attitudes, with most of the variance accounted for by gender.


To examine the relationship among gender, sex role orientation, and attitudes toward the treatment of animals, 144 male and 222 female college students were administered the Bem Sex Role Inventory, a Likert-scale questionnaire designed to assess attitudes toward animal welfare issues, and a measure of perceived comfort touching animals of a variety of species. There were significant gender differences on all of the animal-related measures with the exception of self-reported comfort touching positively perceived animals. Gender and the expressive (feminine) dimension of sex role orientation accounted for a significant proportion of the variation in attitudes toward animal welfare issues and comfort with other species. Correlations between the masculine and feminine dimensions of sex role orientation were related in opposite directions on all animal attitude measures.


In recent years, the issue of experimentation upon nonhuman animals has become the subject of media attention. One aspect of the media presentation is the status attributed to claims-makers on either side of the issue. Research suggests that perceived expertise of the source of arguments can play a role in attitudes formed by audiences. This study examines mainstream print and broadcast media presentation of the status of individuals quoted regarding the issue of animal experimentation. Those supporting continued experimentation are significantly more likely to be presented as professionals or experts. Attitude formation is discussed in light of these findings.


What are the moral and ethical dimensions of animal research? What obligations do we have toward our animal subjects? In this important new book, students, researchers, and interested general readers will find a non-intimidating, readily comprehensible introduction to all the principal ethical issues and arguments in the animal experimentation debate. Vaughan Monamy covers the history and ethics of experimentation; discusses the moral status of animals and the obligations of researchers; and introduces alternatives to animal research. Although the work is aimed at those involved in the conduct, support, and teaching of animal-based research, its clarity of style will reach lay people and experts with equal ease. Monamy does justice to both the arguments that support and oppose animal experimentation, making this a balanced and objective study of a critical issue in contemporary biomedical science.

**Miele, J., Tingley, L., Kimball, R., & Broïda, J. (1993).** Personality differences between pro- and antivivisectionists. *Society & Animals, 1*(2), 129-144. [PDF](http://example.com)

We examined the possibility that opinions on the animal rights debate reflect differences in personality. Our survey of 1055 college students compared scores on the Myers-Briggs Type Inventory and other personality measures with scores on the Animal Research Survey. We found people supportive of animal experimentation more likely to be male, masculine, conservative and less empathic than those opposed to it. Animal rights advocates were more likely to support vegetarianism and to be more ecologically concerned. They also indicated less faith in science. Students likely to encounter animal experimentation in their studies (psychology, biology majors) tended to oppose animal experimentation more than others. Intuitive and feeling types were more opposed to animal experimentation than were sensate and thinking types. Extraverted-sensate and extraverted-thinking types were more likely to favor animal experimentation than were extraverted-intuitive and extraverted-feeling types. Implications of these results are discussed.

Increased concern for animals, among scientists as well as the public, is changing the ways in which animals are used for research and safety testing.


Despite its obvious intersection with classic fear-inducing stimuli, like rotting teeth and diseased lungs, disgust as a discrete emotion has been all but ignored in the persuasion literature. This study marks an initial effort to explore the effect of disgust as the dominant emotion evoked by a persuasive appeal on attitude change. 134 college students viewed one of four versions of a two-sided refutational video message arguing in favor of animal experimentation. Visuals in the video's counterargument section were manipulated to show more or less disgusting images of animal experimentation. Visuals in the video's rebuttal section were manipulated to show more or less emotional images defending the medical research position. Results suggest that disgust can be the most dominant emotion elicited by a persuasive message and that disgust may either enhance or inhibit attitude change, depending on the context in which the emotion is used. Further research should consider more specifically the conditions under which disgust may induce persuasion and the cognitive processes through which such effects might occur.


Laboratory animals, being vulnerable subjects, need the protection provided by adequate ethical review. This review falls primarily to Institutional Animal Care and Use Committees. A review committee's first duty is to identify which procedures ethically are unacceptable irrespective of any knowledge that might be derived. Examples are provided. These projects should be disapproved. Then, "on balance" judgments are assessed that weigh the animal harms against the potential benefits to humans. Several countries (but not the United States) use a classification system for ranking the degree of animal pain and distress. This type of assessment is essential for careful ethical analysis. Another way to enhance ethical discussion is to strive for a more balanced perspective of different viewpoints among members of decision making committees. Inclusion of representatives of animal welfare organizations and a greater proportion on nonanimal researchers would likely achieve this objective.

Paul, E. S., & Podberscek, A. L. (2000). Veterinary education and students' attitudes towards animal welfare. *Veterinary Record*, 146(10), 269-272. [http://dx.doi.org/10.1136/vr.146.10.269](http://dx.doi.org/10.1136/vr.146.10.269)

Veterinary students at two British universities in their first preclinical, first clinical and final years of study, completed questionnaires designed to assess their attitudes towards the welfare of animals. These attitudes were divided into their two constituent components: emotional (emotional empathy with animals) and cognitive (belief in the sentence of animals). Analyses of variance revealed that the year of study was significantly related to the perceived sentence of dogs, cats and cows, with students in their later years of study rating them as having lower levels of sentience. The female students rated themselves as having significantly higher levels of emotional empathy with animals than did the male students. There was also a significant interaction between sex and year of study, the female students maintaining relatively high levels of empathy throughout the three years, whereas the male students showed lower levels of empathy in their later years.


Young adults' attitudes toward the use of animals in scientific research were examined by using data from the Longitudinal Study of American Youth (LSA Y). A structural equation model was estimated using LISREL8 to examine the development of these attitudes. Gender was found to have the greatest total effect on opposition to animal research, while feminist attitudes had the second greatest total effect. Feminist attitudes, 10th grade science achievement, adult scientific literacy, general attitudes toward science, partisan affiliation, and number of early home influences each explained part, but not all of the gender difference in attitudes about scientific research.


A comparative analysis was made of the public's attitudes toward the use of animals in scientific research in 15 different nations. The intensity of opposition to animal research was found to vary from relatively low levels in Japan and the United States to much higher levels in France, Belgium, and Great Britain. More women than men were opposed to animal research in all 15 nations. Scientific knowledge, or the lack of knowledge, was not found to have a consistent relationship with attitudes toward animal research. Concern about the environment was found to be related to opposition to animal research in some western European nations, in particular West Germany. Cluster analysis was used to group the nations into four patterns based on intensity of opposition, level of opposition, gender differences in opposition, and the relationship between attitudes toward animal research and both environmental concern and scientific knowledge.

To examine the relationship among gender, sex role orientation, and attitudes toward the treatment of animals, 144 male and 222 female college students were administered the Bem Sex Role Inventory, a Likert-scale questionnaire designed to assess attitudes toward animal welfare issues, and a measure of perceived comfort touching animals of a variety of species. There were significant gender differences on all of the animal-related measures with the exception of self-reported comfort touching positively perceived animals. Gender and the expressive (feminine) dimension of sex role orientation accounted for a significant proportion of the variation in attitudes toward animal welfare issues and comfort with other species. Correlations between the masculine and feminine dimensions of sex role orientation were related in opposite directions on all animal attitude measures.


American society uses millions of animals each day for food, recreation, and a variety of other purposes, yet psychologists—in contrast to other social scientists—have devoted very little attention to studying how people think about their use of animals. In this article, I propose that many factors supporting the use of animals are psychological in nature and are therefore legitimate topics for psychological research. After a brief review of research on attitudes toward the use of animals, I discuss several psychological factors that enable people to harm animals for human benefit: (1) structural variables that dissociate consumptive practices from the infliction of harm, (2) mechanisms that reduce personal conflict when dissociation is threatened, (3) ingroup-outgroup biases, and (4) factors relating to the perceived similarity of animals and humans. Throughout, the emphasis is on opportunities for empirical research rather than ideological or philosophical arguments concerning animal rights.


The controversy today regarding the use of animals in research appears on the surface to be a strongly polarized struggle between the scientific community and the animal protection movement. However, there is a wide range of opinions and philosophies on both sides. Mistrust between the factions has blossomed while communication has withered. Through the 1960s, 1970s and early 1980s, the animal movement grew in numbers and financial resources, and developed much greater public recognition and political clout. The research community paid relatively little attention to the animal movement for much of this period but, alarmed by several public relations coups in the 1980s, it has become more vociferous and has shifted from a reactive defense to a proactive, aggressive offense.


The heart of a pig may soon beat in a human chest. Sheep, cattle, and mice have been cloned. Slowly but inexorably scientists are learning how to transfer tissues, organs, and DNA between species. Some think this research is moving too far, too fast, without adequate discussion of possible consequences: Is it ethical to breed animals for spare parts? When does the cost in animal life and suffering outweigh the potential benefit to humans? In precise and elegant prose, *The Scalpel and the Butterfly* explores the ongoing struggle between the promise offered by new research and the anxiety about safety and ethical implications in the context of the conflict between experimental medicine and animal protection that dates back to the mid-nineteenth century. Deborah Rudacille offers a compelling and cogent look at the history of this divisive topic, from the days of Louis Pasteur and the founding of organized antivivisection in England to the Nazi embrace of eugenics, from animal rights to the continuing war between PETA and biomedical researchers, and the latest developments in replacing, reducing, and refining animal use for research and testing.


This study was undertaken to establish patterns of use of animals in selected schools, and teachers' attitudes to such use. Statistics on live animal studies and dissections were received from 34 of the 106 schools approached. It was notable that 16 species of animal were used for dissection, and that cost was the major factor which limited dissections in these schools, with animal welfare and teacher preferences as secondary considerations. Most of the dissections were performed by 16–17-year-old students, and teachers believed that dissections should be restricted to this age group. All of the 34 selected schools that responded to the survey reported ongoing dissection work, and 85 per cent of the respondents indicated that activities with or observations of living animals were undertaken. Seventeen species were utilized live but these were largely Invertebrates, and only two schools used higher mammals.


This book is the result of a three-year study undertaken by a multidisciplinary working party of the Institute of Medical Ethic (UK). The group was chaired by a moral theologian, and its members included biological and ethological scientists, toxicologists, physicians, veterinary surgeons, an expert in alternatives to animal use, officers of animal welfare organizations, a Home Office Inspector, philosophers, and a lawyer. Coming from these different backgrounds, and holding a diversity of moral views, the members produced the agreed report as a result of detailed and rigorous discussions. The book sets out facts about animal experiments and about animal abilities to experience pain, distress and anxiety. There is a detailed examination of the moral claims related to the benefits likely to accrue from animal research, and of strategies for weighing these benefits against the harm caused to animals, in order to decide whether particular research projects ought or ought not to proceed. This leads to consideration of the statutory and non-statutory controls which safeguard standards in such research. The final section explores a variety of philosophical arguments about the use of
animals in research, and offers a philosophical justification for the Working Party's more practical conclusions. Written in clear, non-technical language, this book is accessible to lay people as well as to scientists. It is the first such document to emerge from a meeting of people with such widely differing views on this highly controversial subject, and represents a major contribution towards informing and raising the quality of contemporary debate. The book is unique in drawing together material and ideas never before found in one volume. It will interest a broad spectrum of readers, from ethicists and animal rights advocates to scientific researchers and laboratory administrators, along with general readers concerned about this compelling issue.


This article reports the results of a questionnaire study of the attitudes of university undergraduate students to various uses of animals. The majority of students objected to the killing of animals to make luxury clothing, but accepted the killing of animals for food. Many students disapproved of circumstances which confine animals. About one-sixth of biology students objected to animal dissection; about two-thirds disapproved of animal experimentation in general terms. However, students apparently employ the idea of 'necessity' in making judgments, so that fewer students objected to animal experimentation for medical research.


This is the report of the thirty-third of a series of workshops organised by the European Centre for the Validation of Alternative Methods (ECVAM). ECVAM's main goal, as defined in 1993 by its Scientific Advisory Committee, is to promote the scientific and regulatory acceptance of alternative methods which are of importance to the biosciences and which reduce, refine or replace the use of laboratory animals. One of the first priorities set by ECVAM was the implementation of procedures which would enable it to become well-informed about the state-of-the-art of non-animal test development and validation, and the potential for the possible incorporation of alternative tests into regulatory procedures. It was decided that this would be best achieved by the organisation of ECVAM workshops on specific topics, at which small groups of invited experts would review the current status of various types of in vitro tests and their potential uses, and make recommendations about the best ways forward (1). In addition, other topics relevant to the Three Rs concept of alternatives to animal experiments have been considered in several ECVAM workshops.


An animal rights attitude survey of 46 statements on various issues related to animal rights was given to 112 freshmen who were near the end of their first college course in introductory psychology and to 63 junior and senior psychology majors. A factor analysis yielded a multidimensional structure with attitudes toward animal research, nonresearch, environment, and evolution as factors. Beginning psychology students had a more negative attitude toward animal research than did psychology majors; however, psychology majors displayed a more positive attitude toward the environment and toward animal rights issues not involving animal research.


Six hundred and fifty children, aged between 11 and 15 years, from an urban and a rural area, completed a questionnaire in which they were provided information regarding their attitudes towards 13 issues involving the use of animals. Information regarding the pets the children owned was also obtained. The child's sex (male, female), age (11–15 years), and residence area (urban, rural) were related to pet ownership, and, including pet ownership, to attitudes towards the use of animals. Over 90% of the sample owned a pet, with the dog being the most common. More pets were owned by children from rural than urban areas. With regards to the animal-use issues, all the children discriminated between animal uses that lead to death of or injury to the animal and those regarded as exploitation. Children disagreed more with uses leading to the animal's death or injury. Females expressed more disagreement than males, and children from urban areas expressed more disagreement than children from rural settings. The study revealed pet ownership to be high among school children. This was matched by a high concern over activities leading to the animal's death or injury, indicating that strong attitudes to animal use are formed early during development. Early education may be important in shaping these attitudes.

Woodman, Richard. (1999). Explanations shift attitudes to animal experiments. *BMJ (Clinical research ed.)*. 318. 1438. [https://doi.org/10.1136/bmj.318.7196.1438a](https://doi.org/10.1136/bmj.318.7196.1438a)

Attitudes on animal experimentation shift dramatically when people are told about the potential medical benefits, according to results of a major new poll. Sixty four per cent of a representative sample of 2009 people in Britain aged 15 years and over disagreed with the view that scientists should be allowed to conduct any experiment on animals, and only 24% agreed. However, when told that animal experiments might hasten development of treatments for life threatening diseases, such as leukaemia and AIDS, there was a huge swing in opinion—with 45% in favour and 41% against. The MORI poll found that people do not recognise the link between animal research and medical treatments. Thirty five per cent said that they or a close family member had taken a prescribed drug for a serious illness in the past two years—yet only one in six of this group realised that the drugs had been tested on animals. Alun Anderson, editor of the New Scientist, which commissioned the poll, told a news conference that he hoped that the findings would encourage a climate of reasoned debate in which scientists could talk openly about experiments instead of the present “bunker mentality.” The
news editor, Peter Aldhous, urged the government and industry to do more to explain why toxicity experiments, which most people found repugnant, were a necessary evil, at least for the foreseeable future. The survey found that attitudes to animal experimentation vary dramatically with the purpose of the experiment, the animal species, and the degree of pain suffered. While 65% were prepared for mice to suffer in experiments to develop a drug to cure leukaemia, only 52% would let monkeys be used in the same experiments. In the case of an AIDS vaccine, the figures fell to 56% and 44% respectively. When asked about less emotive treatments, such as new painkilling drugs, the percentages dropped to 47% and 35%. Fundamental research, such as studying the sense of hearing, was opposed by 61% and 75% respectively if the animals suffered in any way. Colin Blakemore, professor of physiology at Oxford University, said: “The most intriguing finding is that a very modest statement about the possible benefits of animal research persuades a huge fraction of the British public to change their minds, converting 24% in favour into a slim majority in favour.” Gill Langley, scientific adviser to the Dr Hadwen Trust for Humane Research, said that the poll showed that opposition to animal experiments was now a mainstream, even a majority, view.

Laboratory Animals in Research and Teaching contains valuable information that college and high school instructors will need to establish and maintain laboratories at their institutions. The volume offers practical advice about administrative matters, ethical issues, and the guidelines and regulations for the care and feeding of animals. The authors, who include high school instructors, researchers, college instructors, and veterinarians, share lessons they have learned from their own experiences. Their suggestions address large institutions, as well as smaller ones (where resources may be scarce). The volume also includes useful appendixes that include classroom exercises, case studies, federal guidelines, and a detailed listing of resources. This will be an invaluable text for psychologists and teachers who seek innovative perspectives and methods for teaching and conducting research with animals.


Scientific enquiry is inexorably tied to animal experimentation in the popular imagination and human history. Many, if not most, of the spectacular innovations in the medical understanding and treatment of today's human maladies have been based on research using animals. However, the use of animals in research and experimentation has been debated, defended, and protested by both individuals and organizations at various levels. Responses range from personal lifestyle decisions and fervent philosophical treatises to strident arguments, violent demonstrations, and direct action. The continuum of attitudes about animals and the human relationship with animals spans the range between those who support no regulation of the human use of animals and those who advocate absolute animal liberation from all human use.


Larry Carbone, a veterinarian who is in charge of the lab animal welfare assurance program at a major research university, presents this scholarly history of animal rights. Biomedical researchers and the less fanatical among the animal rights activists will find this book reasonable, humane, and novel in its perspective. It brings a novel, sociological perspective to an area that has been addressed largely from a philosophical perspective, or from the entrenched positions of highly committed advocates of a particular position in the debate.


In biology education, the study of structure has traditionally involved the use of dissection. Animal rights campaigners have caused biology educators and learners to question the necessity of dissections. This study reviews the research evidence for the efficacy of alternatives to dissection and then turns to research evidence on attitudes to dissection. It suggests that the place, practice, and purpose of dissection in biology education can act as an indicator of the state of society in which those practices are embedded. The current situation in South Africa is reviewed to illustrate how social factors outside the laboratory influence pedagogic practice.


Bioscience staff and students at Glasgow University in session 2005–06 were questioned on their attitudes to animal uses in higher education, as follow-up to a similar survey 20 years before. Disapproval by students of animal use was generally reduced compared to 20 years ago, but students remained in a ‘moral bind’, recognising the interest and educational value of animal uses such as dissection, while disapproving of killing animals for this purpose. Staff strongly rejected the proposition that animal use such as dissection desensitizes students: students also rejected this, but less strongly. Both staff and students recognised that students did become more willing to use animals as they progressed, but attributed this not to desensitisation but to a better understanding of the values of animal experimentation. Final year students were more aware than first years concerning the ethical standards required of experiments on humans, and generally, final year students showed development/progression in ethical sensitivity, compared to first years. Staff and students agreed on the value of ethics coverage in bioscience degree programmes, similar to findings 20 years before.
The field of animal biotechnology has been rapidly expanding and the development of transgenic animals has been part of this research expansion. How the public perceives such developments is an important component of policy considerations. In general, biotechnology applications have been judged with evident hierarchies of acceptability. There appear to be hierarchies in terms of the type of organism being modified, the purpose of the application, the means to attain particular ends, and the nature of the benefits obtained. While general awareness of biotechnology and its specific applications remains low to moderate, this article presents data regarding public acceptance of a variety of applications. These range from the use of animals as disease models and as sources for tissues and organs, to the use of transgenic animals for disease control, for food, and for the production of pharmaceutical and industrial products. Case-by-case judgments are evident, but at the same time, the application of criteria such as the nature of the organism being modified, the animal welfare aspects and the ethical-moral concerns are additional criteria for public judgments. These findings are discussed in the context of their implications for public policy.


Recent surveys have shown that over 60% of papers published in the biomedical literature are statistically weak or inappropriate. For scientific and welfare reasons it is clearly important to understand how to increase power and reduce (or cope with) variation whilst conducting experiments. This handbook is aimed at all research scientists who use laboratory animals, with the aim of helping them to design their own experiments more effectively and/or to improve their ability to communicate with professional statisticians when designing more complex experiments. It covers many aspects of experimental design, such as choice of experimental animal, which are not considered by most statistics textbooks. It does not cover the more advanced designs or statistical methods, so it should be used in conjunction with more conventional statistics textbooks. This handbook also contains links to a number of web sites of interest to those seeking further information related to statistical and experimental design.


A total of 833 students completed a four-part questionnaire which measured demographic factors (sex, education, vegetarianism, religiousness), attitudes to animal experimentation, personality (Big Five) and empathy. Attitudes to animal experimentation factored into five interpretable factors, and multiple regression analyses were used to examine the extent to which demographic factors, personality and empathy predicted these. Sex, vegetarianism, Agreeableness, Openness, Extraversion and empathy were significant predictors of all these factors. Results showed an interpretable set of correlates that were similar to previous studies in the area. As with previous research findings, the measures used predicted only a small amount of variance with respect to attitudes to animals.


Using animals to test cosmetic products is controversial, but little research has explored its social and psychological influences. Relationships between two personality constructs related to nonconformity (independence and anticonformity) and attitudes toward animal testing were studied using data from a survey of 418 students. The Independence Orientation and Nonconformity Orientation Scales (Ringness, 1970) were used to measure independence and anticonformity. Results showed that behavioral intentions were unrelated to age, women were more likely to get involved in antitestng behavior than were men, holding antitesting attitudes predicted intended action, and higher levels of anticonformity were associated with opposition as well, even when the effects of the other variables were held constant.


When can invasive experiments on monkeys or apes be justified? And what would be the consequences for biomedical research if they were to cease? Sally Goodman and Erika Check pose some difficult questions.


Experimentation on animals and particularly humans is often assumed to be a uniquely modern phenomenon. But the ideas and attitudes that encourage the biological and medical sciences to experiment on living creatures date from the earliest expression of Western thought. In Animal and Human Experimentation, Anita Guerrini looks at the history of these practices from vivisection in ancient Alexandria to present-day battles over animal rights and medical research employing human subjects. Guerrini discusses in-depth key historical episodes in the use of living beings in science and medicine, including the discovery of blood circulation, the development of smallpox and polio vaccines, and recent AIDS research. She also explores the rise of the antivivisection movement in
Victorian England, the modern animal rights movement, and current debates over gene therapy. In this highly accessible text, we learn how our understanding of an animal's capacity to feel pain has evolved. Guerrini reminds us that the ethical values of science seldom stray far from those of the society in which scientists live and work. Ethical questions about the use of animals and humans in research remain among the most vexing within both the scientific community and society at large. These often rancorous arguments have gone on, however, with little awareness of their historical antecedents. Animal and Human Experimentation offers students and concerned general readers on every side of this debate a context within which to understand more fully the responsibility we all bear for the suffering inflicted on other living beings in the name of scientific knowledge.


Many factors may influence the outcome of surveys on how people view the use of animals in research. Some aspects are related to the instrument used, whereas others are related to the characteristics of the respondents. Conducted in Western countries, the study is primarily a review of 56 surveys targeting scientists, students, and the public. Surveys were obtained from searching online databases and reference lists, or directly from authors whose surveys were not otherwise available. Factors related to the instrument listed include the questionnaire used and wording of questions. Factors related to the respondent include age, gender, upbringing, religion, knowledge, education, and practical experience. Results demonstrate that there was great discrepancy in acceptance/opposition estimations reported in different surveys. It is concluded that interpretation and comparison of results from different surveys should be made with caution.


The present study investigated the relationship between pet ownership and opinions on the use of animals in medical research. A questionnaire was answered by 484 schoolteacher students and 156 pre-school teacher students from Uppsala University, Sweden. Animal use was found to be of significant importance for developing treatments for human disease by 59 percent of respondents, but 15 percent did not agree. Forty-four percent thought that it was morally acceptable to use animals in biomedical research, while 25 percent did not. A significantly higher proportion of those who reported experience in the use of animals in research from university teaching morally accepted and understood the importance of using animals in biomedical research, compared with students without this background. Fifty-eight percent of the students were pet owners and the most common species owned were the cat and the dog. A lower proportion of pet owners (39%) found it acceptable to use pet species in biomedical research than did non-pet owners (52%).


From the sheep, dog, and cockerel that were sent aloft in Montgolfier’s balloon to test the air over Paris, to the famous clone Dolly the Sheep and the Darwinian finches of the Galapagos, *Pavlov’s Dogs and Schrödinger’s Cat* offers a fascinating and enlightening look at the use of plants and animals—including humans—in scientific experiments. Rom Harré provides a fresh and fascinating perspective on research, setting aside moral reflection to simply examine the history of how and why living creatures have been used for the purposes of discovery. Ranging over five centuries, the book uncovers many extraordinary stories, including tales of the people involved, to many curious incidents and episodes, and the occasional scientific fraud. From Gregor Mendel’s use of pea plants to explore heredity, to Barry Marshall’s use of himself as the experimental animal in his helicobacter experiments (he survived) and even the use of an imaginary cat in Schrödinger’s famous thought experiment, the reader discovers a perspective on scientific work he or she has never encountered before.


Why do students continue to dissect animals in biology classes? Why, despite the excellence of teaching resources for veterinary and human medical education that substitute for dissection, do those provided for pre-college students fall short in convenience, flexibility, and coordination with the curriculum? Why Dissection? Animal Use in Education looks beyond the typical yes-or-no debate about dissection to understand how we came to our current practice of dissection in intermediate and high school biology, even as preparation of health professionals has moved away from dissection. Despite the many forces that support the continued use of dissection in pedagogy, teachers retain much autonomy in how they teach in the classroom, and legislation in many states provide specific requirements for what should and should not be taught in separated science and health curricula, offering students the option to not engage in dissection. Why Dissection? walks students, teachers, and parents through these options to help them make more informed choices regarding their science education options.


Despite a recent decline in the number of animals being used in research, the debate continues over whether it is ethical and necessary to use animals for science and product testing. Supporters argue that continuing animal research is necessary to protect humans from

Research has shown that both individual difference characteristics (e.g., sex, attachment to pets) and study-specific characteristics (e.g., type of animal used) influence the extent to which people support or oppose the use of animals in research. The current study examined how three study-specific characteristics (type of animal used, level of harm to the animal, and severity of the disease being investigated) influenced attitudes toward the use of animals in biomedical research. Participants read one of 27 scenarios describing the use of an animal in research. Scenarios systematically varied each of the study-specific characteristics described above. Participants then completed a survey to assess their support for, or opposition to, the research described. Data on attachment to pets and attitudes toward the treatment of animals were also collected. Analysis of variance revealed significant main effects for each of the study-specific characteristics. Multiple regression analyses revealed that the individual difference and study-specific characteristics accounted for 4% of the variability in opposition to the use of animals in biomedical research among men, and 37% among women. Limitations and directions for future research are discussed.


Animal experimentation has long been a controversial issue with impassioned arguments on both sides of the debate. Increasingly it has become more expedient and feasible to develop new methods that avoid the use of animals. There is agreement on both sides that reduction and refinement of experiments on animals should be an important goal for the industries involved. Alternatives to Animal Testing, written by leading experts in the field, discusses the issues involved and approaches that can be taken. Topics include: the safety evaluation of chemicals, international validation and barriers to the validation of alternative tests, in vitro testing for endocrine disruptors, intelligent approaches to safety evaluation of chemicals, alternative tests and the regulatory framework. The book provides an up-to-date discussion of the current state of development of alternatives to animal testing and is ideal for professionals and academics in the field. It would also be of use for graduate students wishing to pursue a career in the pharmaceutical and cosmetic industries.

Hobson-West, P. (2010). The role of ‘public opinion’ in the UK animal research debate. *Journal of Medical Ethics, 36*(1), 46-49. [HTML](http://example.com)

Animal research remains a deeply controversial topic in biomedical science. While a vast amount has been written about the ethical status of laboratory animals, far less academic attention has been devoted to the public and, more specifically, to public opinion. Rather than what the public think, this article considers the role of ‘public opinion’. It draws on a recent empirical study which involved interviews with laboratory scientists who use animals in their research, and with other UK stakeholders. The first section of the paper demonstrates that public opinion has become a kind of resource in the animal research debate. Public opinion polls, in particular, are frequently cited. The second section explores this further and argues that, for all sides, appealing to public opinion is a key way to show legitimacy. Finally, the paper shifts gear to consider whether public opinion should matter, both for ethical reasoning and for science policy.

Hobson-West, P. (2009). What kind of animal is the “Three Rs”? *Alternatives to laboratory animals: ATLA, 37*(Suppl 2), 95. [PDF](http://example.com)

Fifty years after the publication of The Principles of Humane Experimental Technique by Russell and Burch, this paper explores the contemporary role of the Three Rs. This is illustrated by reference to a recent social scientific study, which involved a total of 50 in-depth interviews with scientists who use animals and with other stakeholders in the debate. The data analysis shows how the Three Rs are conceptualised in at least three ways: firstly, as an ethical animal, either as a shorthand for a moral imperative, or as a route to managing an ethical dilemma; secondly, as a scientific animal, internal to the scientific method; and finally, as a political animal, with some stakeholders referring to the Three Rs as a way to promote consensus in a controversial domain. Pushing the metaphor a little further, the paper concludes that the Three Rs concept has become a kind of hybrid animal.


Research that includes non-human animal experimentation is fundamentally a dilemmatic enterprise. Humans use other animals in research to improve life for their own species. Ethical principles are established to deal with this dilemma. But despite this ethical apparatus, people who in one way or another work with animal experimentation have to interpret and understand the principles from their individual points of view. In interviews with members of Swedish animal ethics committees, different views on what the term ethics really means were articulated. For one member, the difficult ethical dilemma of animal experimentation is the lack of enriched cages for mice. For another, the ethical problem lies in regulations restricting research. A third member talks about animals’ right not to be used for human interests. These different views on “ethics” intersect once a month in the animal ethics committee.
meetings. There is no consensus on what constitutes the ethical problem that the members should be discussing. Therefore, personal views on what ethics means, and hierarchies among committee members, characterise the meetings. But committee traditions and priorities of interpretation as well are important to the decisions. The author discusses how “ethics” becomes situated and what implications this may have for committees’ decisions.


Scientific and Humane Issues in the Use of Random-Source Dogs and Cats in Research examines the value of random-source animals in biomedical research and the role of Class B dealers who acquire and resell live dogs and cats to research institutions. Findings include that, while some random-source dogs and cats may be necessary and desirable for National Institutes of Health (NIH)-funded research, there is no clear need to obtain those animals from Class B dealers. Several options for random-source animal acquisition already exist and additional options are recommended, which would further ensure the welfare of these animals and foster a positive public image for NIH. While the scientific community has recognized and responded to concerns for humane treatment of animals in research, government oversight has thus far been unable to fully enforce the Animal Welfare Act in regard to Class B dealers of live animals. Although the animals acquired by Class B dealers are destined for research—and NIH research in particular—the standard of care while in the possession of some Class B dealers requires an inordinate amount of government enforcement and is not commensurate with the policies of most NIH-funded research laboratories. This dichotomy of standards reflects poorly on public perceptions of NIH and jeopardizes animal welfare. This book will be crucial for NIH and other groups using random-source animals in research, including veterinary schools and research facilities. Animal welfare advocates, policy makers, and concerned pet owners will also find this a vital and informative work for reconciling the needs of research with the welfare of animals.

Ipsos, M. O. R. I. (2010). Views on animal experimentation. PDF

Ipsos MORI has asked the general public about their views on animal experimentation since 1999. The latest survey was conducted on behalf of the Department for Business, Innovation and Skills (BIS) in December 2009. This report presents the findings of a survey on public attitudes towards animal experimentation and awareness of the work of the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs).


The authors investigated how 2 groups with different attitudes toward animal experimentation-researchers who conducted animal experiments and members of animal welfare organizations who protested against animal experiments-made attributions for the behavior of the opposing group. The 2 groups showed an actor-observer effect, mentioning more internal causes for the opponents’ behavior and more external causes for their own behavior. Both groups were able to take the other’s perspective, resulting in a reversed actor-observer effect. The less involved participants followed the pattern of ratings of the group whose attitudes corresponded to their own. In particular, the participants with a negative attitude toward animal experimentation rated researchers’ behavior as more internally caused than did those with a positive attitude. The results illustrated how the participants formed and defended attitudes in a social context.


Scientists have been portrayed as having an uncaring attitude toward the use of animals and being inclined to reject the possibility of animal mind (Balthwin, 1993; Blumberg & Wasserman, 1995), yet there is little empirical research to support these claims. We examined why disparate attitudes toward animal use are held. Scientists, animal welfarists, and laypersons (N = 372) were compared on questionnaire responses that measured attitudes toward four types of animal use, and factors that might underlie these views (including belief in animal mind). As expected, scientists and animal welfarists held polarized views on all measures, whereas laypersons fell between the two. Animal welfarists were consistently opposed to all types of animal use, whereas scientists expressed support for the use of animals for medical research, but not for dissection, personal decoration, and entertainment. Animal welfarists showed high levels of belief in animal mind for 13 animal types, and scientists believed some of the 13 animals to have at least a moderate capacity for cognition and most to have at least a moderate capacity for sentience. Hence, the negative image of the science community that is often portrayed was not supported by our data. Findings were discussed in relation to external (group membership) and internal (belief systems) factors, and it is concluded that some people hold fixed attitudes toward animal use, whereas others are more influenced by context.


“Animal use” is a contentious topic that refers to practices involving the utilization of non-human animals by human beings. These practices often evoke strong and emotional reactions from opposing parties, and individuals can hold incongruent views concerning
different ways in which animals are used. Yet previous research in this area has tended to portray attitudes toward animal use as uni-dimensional (rather than distinguishing between different types of use), and the field has been dominated by quantitative approaches that focus on participant characteristics such as gender, age, and so on, in order to explain variance in people’s views on this topic. The present study assumed that attitudes are not uni-dimensional and applied Grounded Theory Methodology in order to determine psychological factors that underlie people’s views concerning animal use issues. Eight participant-led interviews explored the factors that people consider when rationalizing their attitudes toward the use of animals, and interview transcripts were analyzed with an aim to understanding why attitudes vary depending upon the type of animal use in question. Three key themes were identified, labelled as “type of animal used,” “purpose of animal use,” and “knowledge of animal use.” These represent beliefs concerning animals and animal use, and help explain why people can support some animal use practices whilst opposing others. We conclude that taking a psychological approach in order to further examine the beliefs that underlie attitudes provides a way forward for future research.


Animals are used by humans in many ways, yet science has paid little attention to the study of human–animal relationships (Melson 2002). In the present study, participants (n= 96) completed a questionnaire on attitudes towards animal use, and individual differences were examined to determine which characteristics might underlie these attitudes (“belief in animal mind,” age, gender, experience of animals, vegetarianism, political stance, and living area). It emerged that participants held different views for different types of animal use, and that belief in animal mind (BAM) was a powerful and consistent predictor of these attitudes, with BAM together with gender and vegetarianism predicting up to 37% of the variance in attitudes towards animal use. Thus, future research should acknowledge the importance of BAM as a major underlying factor of attitudes towards animal use, and should also distinguish between different types of animal use when measuring attitudes. We propose that the large effect of BAM might be due to increasing interest in animal mind over the past decade.


Students regularly encounter animal dissection in education, yet humane education receives little attention in animal law. This article analyzes the status of humane education laws in the United States. It discusses the range of statutory protections, from student choice laws to bans on vivisection. The article then analyzes the litigation options for students who do not wish to dissect, including constitutional claims and claims arising under student choice laws. The article concludes by calling for additional legislation to protect students who have ethical objections to dissection.


Students learn about the controversies surrounding animal experimentation and examine opposing viewpoints regarding this issue. Alternative methods are also explored in this book. Includes organizations to contact, bibliography, and index.


This paper describes ‘ethically sourced’ animal cadavers and tissue, as defined by the InterNICHE Policy, and addresses the importance of using cadavers and tissue only from these sources when material is needed for the purpose of education and training. The attitudes developed by students and trainees using ethically sourced material and conventional sources are compared and discussed. Examples are given where the use of ethically sourced cadavers and tissue has been successfully implemented in practical classes for anatomy and surgery. Potential use for research and testing purposes is also briefly discussed. The paper outlines the potential practical problems of such cadaver use and offers examples of how they may be overcome. The impact on veterinary colleges and society of ‘client donation programs’ for sourcing animal cadavers is also addressed.


The InterNICHE Policy on the Use of Animals and Alternatives in Education is a comprehensive document in 10 sections that addresses all aspects of work with animals and alternatives in life science education and training. The Policy presents guidelines to ensure effective and fully ethical acquisition of knowledge and skills. It includes a definition of alternatives in education and of harm, and presents individual policies on dissection, the sourcing of animal cadavers and tissue, work with live animals for clinical skills and surgery training, and field studies. As well as addressing non-animal alternatives, therefore, it has a significant focus on the ethical use of, and work with, animals and animal tissue. It also addresses the use of animals for the production of alternatives themselves. The Policy demonstrates the possibilities for full replacement of harmful animal use in education and training. Examples from across the world of practical classes that accord with the Policy will be given. Recommendations will also be made for ethics committees, for university policy towards student choice, and for legislation.

Animal research plays a central role in psychology, and its use, prevalence and quality depends on the attitudes of students who enter psychology in Spain. Attitudes among psychology students about the use of laboratory animals are not known, so the aim of this work was to analyze the attitudes of Spanish psychology students toward animal research. An attitude questionnaire of 15 items was given to 661 undergraduate students of the School of Psychology at the University of Málaga, Spain. Several results were found: (a) 65.7% of the respondents strongly agreed or agreed with animal research. General support for animal research was significantly higher by men than by women. (b) Support for animal research was higher for senior students, suggesting that the psychology curriculum or self-selection to remain in the program might influence students' attitudes. (c) Attitudes toward animal research were similar among students independent of the type of animal being used for research in biological or psychological studies. (d) 58% considered that laboratory animals never or almost never are inappropriately handled. (e) 55.6% indicated that research in psychology on animals could be generalized to humans. Overall, these results suggest that among Spanish psychology students animals research is considered important for the advancement of the science. Likewise, a majority of students displayed positive attitudes toward animal research.


This book provides an overview of different ethical views on animal experimentation. Special attention is given to the production and experimental use of genetically modified animals. It proposes a middle course between those positions that are very critical and those very positive. This middle course implies that animal experiments originating in vital human research interests are commonly justified, provided that animal welfare is taken seriously. Some animal experiments are not acceptable, since the expected human benefit is too low and the animal suffering too severe. This position is supported by an argument from species care according to which we have special obligations to our children and other humans due to special relations. The book tries to bridge the gap between animal ethics and animal welfare science by discussing various conceptions of animal welfare: function-centered, feeling-based, and those focusing on natural living. The theoretical starting-point is "imaginative casuistry." This approach stresses the role of moral imagination and metaphor in ethical deliberation, accepts a plurality of values, and recognizes the importance of case-by-case balancing. In the discussion of genetically modified animals, both intrinsic ethical concerns and animal welfare concerns are addressed.


The "question of the animal" represents an area of emergent interest in the environmental education field, as researchers critically consider human-animal relations and animal advocacy in their work. Following a group discussion at the 10th Seminar in Health and Environmental Education Research, the authors of this paper share experiences, challenges, and insights related to disrupting the human/animal divide, conducting respectful research involving nonhuman animals, and producing research that moves beyond Western humanism and aims to make a difference to the more-than-human world.


Animal experimentation has made a crucial contribution to many of the most important advances in modern medicine. The development of vaccines for deadly viruses like rabies and yellow fever depended upon animal research, and much of our basic knowledge about human health and physiology was discovered through the use of animals as well. In spite of these gains, animal rights activists have been zealous in communicating to the public and policymakers their view that the use of animals in medical research is morally wrong and should be severely curtailed or eliminated. The activists' arguments draw upon a range of disciplines and focus on both practical and ethical aspects of animal experimentation. Advocates of animal experimentation have been slow to respond to these arguments. Given that the worldwide toll of communicable diseases is still immense—and that deadly new pathogens may emerge at any time in the future to menace human health--failing to defend animal experimentation from the arguments of its opponents has disastrous implications. A quick response to an unanticipated threat on the order of the AIDS epidemic is unimaginable without a vigorous research establishment, which in turn is dependent on animal proxies. *Why Animal Experimentation Matters* is a first attempt by research scientists and moral philosophers to mount a convincing defense against animal rights enthusiasts. Because opponents of animal experimentation come from a variety of intellectual backgrounds, this defense is necessarily interdisciplinary as well. In this collection of eight essays, the authors scrutinize how animal experimentation actually functions in the laboratory, the vital role that it plays in palliating and eradicating human and animal diseases, and the moral justification for sacrificing animals for the betterment of human life. The subjects covered in the essays include the moral status of animals and persons, the importance of animals for advancing scientific knowledge, the history of animal experimentation (and of its detractors), differing theoretical approaches of American and European animal-experimentation regulations, the heavily restrictive legislation promoted by animal rights activists, and the threats posed to research and researchers by violent animal rights zealots.
In 2008, the European Community (EC) adopted a Proposal to revise the EC Directive on nonhuman animal experiments, with the aim of improving the welfare of the nonhuman animals used in experiments. An Impact Assessment, which gauges the likely economic and scientific effects of future changes, as well as the effects on nonhuman animal welfare, informs the Proposal. By using a discourse analytical approach, this paper examines the Directive, the Impact Assessment and the Proposal to reflect critically upon assumptions about the morality of nonhuman animal experiments. Because nonhuman animal welfare is so prominent in the Proposal, it appears that the EC position advances beyond human self-interest (orthodox rational choice) as the sole motivator for such experiments, to ethical questions about the welfare of nonhuman animals (which can be better explained by a multidimensional approach to rational choice). In examining this contention, this paper concludes that, even given concerns about nonhuman animal welfare, nonhuman animal experimentation in the EC is firmly grounded in a morality that focuses on human benefit goals rather than on the wider moral issues associated with the means of achieving such goals.

Cultural differences in students’ attitudes towards animals need to be better understood and respected in order to promote tolerance in multicultural biological education. A cross-cultural study was conducted to investigate the beliefs of 425 students of different nationalities on animal sentience and attitudes towards the uses of animals. European students and, to some extent, those from the USA were less likely to condone cruelty to animals on farms than students from Asian countries. Students from Europe had more concern for suffering during life than students from Asia, but there was no difference in the extent of reverence for animal life. Female students had both more concern for animal suffering during life, and a greater concern for the reverence of animal life than males, but there were no gender differences in sentience attributed to the different animal species. Teacher awareness of these cultural and gender differences should engender tolerance towards different students’ attitudes to the use of animals in education. The order of sentence across nationalities that was attributed to different species was monkey > dog > newborn baby > fox > pig > chicken > rat > fish. Correlations between animal sentience and attitudes towards the uses of animals showed that the students opposing, or advocating constraints on, the use of animals in society attributed more sentience to those animals. This reinforces concern by some students, e.g. of veterinary medicine, about the use of dogs for terminal surgery practicals. It is concluded that teacher recognition of students’ perceptions of animal suffering, their reverence for animal life and attribution of sentience to different species is important in ensuring that the use of animals in education is in harmony with the students’ beliefs and concerns.

The reputation of the Christian tradition has fared poorly in the literature on the history of attitudes to nonhuman animals. This is more a consequence of secularist prejudice than objective scholarship. The idea of “dominion” and the understanding of animal souls are almost universally misrepresented. There has been no firmer conclusion than that Charles Darwin’s theory of evolution had a profoundly beneficial impact on the recognition of our similarities to, kinship with, and consequent moral obligations to, other species. In reality, Darwinism had no such effect. That there was an essential kinship with, and homologies between, humans and other species had been attested to for centuries. In the first major ethical issue that arose after the publication of Darwin’s The Descent of Man -- legislation to restrict vivisection -- Darwin and Huxley stood on the side of more or less unrestricted vivisection while many major explicitly Christian voices -- from Cardinal Manning to Lord Chief Justice Coleridge to the Earl of Shaftesbury -- demanded the most severe restrictions, in many cases abolition. The customary tale of how Christianity hindered the development of sensibilities to animals and how Darwinism occasioned a revolution in animal ethics needs to be rethought and retold.

Research has shown that both individual difference characteristics (e.g., sex, attachment to pets) and study-specific characteristics (e.g., type of animal used) influence the extent to which people support or oppose the use of animals in research. The current study examined how three study-specific characteristics (type of animal used, level of harm to the animal, and severity of the disease being investigated) influenced attitudes toward the use of animals in biomedical research. Participants read one of 27 scenarios describing the use of an animal in research. Scenarios systematically varied each of the study-specific characteristics described above. Participants then completed a survey to assess their support for, or opposition to, the research described. Data on attachment to pets and attitudes toward the treatment of animals were also collected. Analysis of variance revealed significant main effects for each of the study-specific characteristics. Multiple regression analyses revealed that the individual difference and study-specific characteristics accounted for 49% of the variability in opposition to the use of animals in biomedical research among men, and 37% among women. Limitations and directions for future research are discussed.

Sex differences in attitudes toward the use of animals have been reported in previous research. This study examines sex differences in the levels of, and the interrelations among, three potential antecedents of attitudes toward animal use: caring value orientation, pet care experience and attachment to pets. Path analysis showed that pet care experience, through attachment to pets, accounted for a significant portion of variance in animal use attitudes in both males and females. Caring value orientation was directly linked to animal use attitudes in females, but in males, caring value orientation affected attachment to pets, which in turn impacted on animal use attitudes. Results are discussed in terms of Gilligan’s theory of socialization.


There is a long history of public debate as to the acceptability of the use of animals for scientific purposes be that for research, for teaching or for product testing. The basic tenet of the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes (the Code) is that there is an ethical imperative in our decisions as to if and how animals are used in these circumstances. The Code provides a framework for ethical review which incorporates a set of guiding principles and establishes institutional Animal Ethics Committees with responsibilities for oversight of these activities; the nexus between animal welfare and scientific outcomes and the recognition that such ethical decisions are not matters for the scientific community alone but must involve the wider community are notions central to the effective implementation of the Code. The Code also identifies the responsibilities of the various parties involved such that the arrangements within which individuals exercise their responsibilities are clarified and processes for accountability are transparent. The framework for ethical review and the governance arrangements which underpin responsibilities and accountabilities are intricately linked and must be so if the aims of the Code are to be achieved.


Scientists, on the whole, are keen to engage with the public and can see the value of doing so. They do see a number of obstacles, such as lack of training and the difficulties combining research with serious commitment to public engagement. Here, Nancy Rothwell looks at the lessons to be learned from public engagement on animal use in research. Although one of the most highly charged areas of public engagement, open public dialogue has been possible and has influenced public opinion.


Much controversy has surrounded the use of animals in research. Empirically, much of the research has focused on how ethical individuals believe animal research to be, but it has not systematically examined the specific beliefs or reasons why individuals do or do not believe animal research to be ethical. Study 1 investigated the thematic foundations for the decision that animal research is or is not ethical by examining the content of essays written by participants explaining why they do or do not support the use of animals in research. Results indicated that individuals who believed animal research was ethical most often referenced beliefs that animal research furthered human well-being, provided mechanisms to cure disease, and was well-regulated. Individuals who believed animal research was not ethical most often referenced beliefs that animal research was inhumane, unnecessary, and nonconsensual. Study 2 used the themes to create a scale to assess animal research attitudes.


Here we provide the first experimental evidence that public concerns about the use of animals in research are accentuated when genetically modified (GM) animals are used. Using an online survey, we probed participant views on two uses of pigs as research animals (to reduce agricultural pollution or to improve organ transplant success in humans) with and without GM. We surveyed 327 animal technicians, researchers, advocates, university students and others. In both scenarios and across demographics, support dropped off when the research required the use of GM pigs or GM corn. For example, 66% of participants supported using pigs to reduce phosphorus pollution, but this declined to 49% when the pigs were fed GM corn and to 20% when the research required the creation of a new GM line of pigs. Those involved in animal research were more consistently supportive compared to those who were not or those who were vegetarians.


In this study, 185 British and 143 American undergraduates completed a battery of tests that measured attitudes toward animal testing and various individual difference variables. Attitudes toward animal testing factored into two interpretable factors: general attitudes toward animal testing, and animal welfare and conditions of testing. Overall, there was support for animal testing under the right conditions, although there was also concern for the welfare of animals and the conditions under which testing takes place. There were
small but significant national difference on both factors (with Americans more positive about testing and less positive about animal welfare), and a significant sex difference on the first factor (women were more negative about testing). Correlation and regression analyses showed that there were few significant individual difference predictors of both factors. These results are discussed in relation to past and future work on attitudes toward animal testing.


The goal of this article is to map out attitudes towards animal experimentation in Europe (EU15 plus Switzerland), more specifically, to document the current attitudes, perform cross-national comparison of the trends of attitudes towards animal experimentation and of the explanatory factors of these attitudes. We assume that the conception of nature and science influences the perception of animal research. This study analyses a series of surveys that measure European public attitudes towards science and technology, the Eurobarometer (EB) 2001 and 2005. The majority of European countries refused animal experimentation in 2005 and we observe downward trend in every country, except Belgium and Spain. If the trend is similar among the countries the patterns of explanation of these attitudes are quite heterogeneous. Attitudes towards animal testing are explained in every country by attitudes towards science and nature, and by sociodemographic variables (except in Spain and Austria), and in very few countries by scientific knowledge (Belgium) or by values (Sweden and Switzerland). These results may have consequences for science and contribute therefore to the public understanding of science (PUS) research.


The goal of this article is to map out attitudes toward animal experimentation in Switzerland, more specifically, to document the current attitudes, analyze the change of attitudes over the last 10 years, and explain these attitudes. This study analyzes a series of Swiss surveys that measure public attitudes toward the environment and science (ISSP, 1994, 2000; EB, 2001, 2005). It is shown that the relative majority of Swiss are against animal research in 2005 and that refusals are increasing since 1994. Attitudes toward animal testing are explained by attitudes toward science, attitudes toward nature, and values. The study of attitudes toward animal experimentation makes important contributions to sociology and, in particular, to the public understanding of science (PUS) research.


This study uses qualitative methodology to examine why people have different attitudes toward different types of nonhuman animal use. Seventeen participants took part in a semi-structured interview. The study used Grounded Theory to analyze the interviews and developed a model that consists of 4 major themes: (a) “attitudes toward animals,” (b) “knowledge of animal use procedures,” (c) “perceptions of choice,” and (d) “cost-benefit analysis.” The findings illustrate that cognitive processing, characteristics of the species of animal being used, and the type of animal use can all influence attitudes toward animal use. Because previous research has focused on participant variables such as age and gender to explain variance in attitudes toward animal use (Furnham & Pinder, 1990; Kellert & Berry, 1981) and measured attitudes toward animal use in general (rather than distinguishing between different types of use) (Armstrong & Hutchins, 1996), these findings can add to knowledge of people's views on animal use. This paper discusses how such views may be justified and maintained.


AIM: To investigate the awareness of and interest in the use of animals for research, testing and teaching (RTT) purposes, the levels of support and attitudes towards this use of animals, and the awareness of and opinions on regulations governing it within the public in New Zealand. METHODS: An independent telephone survey was used to collect information including demographics, awareness and interest in the use of animals for RTT, attitudes towards the use of animals for RTT, and awareness of the regulation of the use of animals in RTT and the degree of confidence held in such regulation. RESULTS: Data were obtained from 750 respondents throughout New Zealand. The rim-weighting efficiency figure was 90%, indicating that the sample collected closely matched the population demographics for New Zealand. Overall, 33% of respondents expressed an interest in the issue generally, 39% were interested in the area of animals used for research and testing purposes, and 21% for teaching purposes. A majority of respondents agreed that the use of animals for teaching (72%) and research and testing (68%) purposes was acceptable as long as there was no unnecessary suffering by the animals. Respondents felt animal research was most justified for research into life-threatening and debilitating diseases, and least justified for safety-testing of cosmetics and household chemicals. Only 8% of respondents knew a “fair amount” (or more) about the legislation pertaining to the use of animals in RTT. CONCLUSIONS: The majority of New Zealanders were neither interested nor concerned about the use of animals in RTT. The largest proportion of respondents fell into a category of accepting this use of animals with conditions such as where there is no unnecessary suffering by the animals or where the research is for a serious disease. However, the responses also indicated that attitudes towards the use of animals in RTT as a general issue may change when that use is given a specific context.
The use of animals in biomedical research is a socio-scientific issue in which decision-making is complicated. In this article, we describe an experience involving a role play activity performed during school visits to the Barcelona Biomedical Research Park (PRBB) to debate animal testing. Role playing games require students to defend different positions and permit participants to debate and reflect on their personal opinions. A total of 262 students from 15- to 30-years-old participated in the activity. The article presents an analysis of the students’ opinions on this topic before and after performing the activity. Our results show that students actively took part in debate and made use of the new information provided by the game, especially the legal aspects. In conclusion, the role play activity helped participants to create a more informed opinion, stimulated critical thinking and argumentation skills. We encourage science teachers to use role playing games to discuss socio-scientific issues.

**Beversdorf, D., & Adams, N. (2016). Attitudes Toward Animal Research Among Medical Students in the United States (S3. 006).**

Background: For the process of development of new treatments for patients, there are many steps necessary to establish safety, mechanism of action, and efficacy before the new treatment can be used clinically. One of these steps involves testing in animals. The attitude of medical professionals regarding this process is not known. Methods: We surveyed medical students in the United States that were members of the American Academy of Neurology regarding their attitudes towards animal research. Students were queried as to their agreement or disagreement with a set of 14 questions. Students were then presented an educational video regarding animals in research, and repeated the survey immediately following the viewing of the video. Results: 168 students completed the initial survey. Among responders to the first survey, 4.8[percnt] agreed with the statement ‘Animal research cannot be justified and should be stopped’. 13.2[percnt] disagreed with the statement ‘New surgical procedures should be tested on animals before they are used on people’, and 7.2[percent] disagreed with ‘New drugs should be tested on animals before they are used on people’. Those with previous research experience had a significantly more positive attitude towards animal research, but years in medical training, diet (vegetarian vs nonvegetarian), pet ownership, farming experience, and rural vs urban upbringing did not impact attitudes towards animal research. 108 students repeated the survey after the video. After viewing the video, t-tests showed that the group’s overall attitude changed to be significantly more positive toward animal research, with the responses above decreasing to 0.9[percent], 2.8[percent], and 0.9[percent] for the aforementioned statements. Conclusions: This is the first study to examine attitudes towards animal research among medical students. These findings should be considered in the future of medical education curriculum development.


Background: Reducing the number of animals used in experiments has become a priority for the governments of many countries. For these reductions to occur, animal-free alternatives must be made more available and, crucially, must be embraced by researchers. Methods: We conducted an international online survey for academics in the field of animal science (N = 367) to explore researchers' attitudes towards the implementation of animal-free innovations. Through this survey, we address three key questions. The first question is whether scientists who use animals in their research consider governmental goals for animal-free innovations achievable and whether they would support such goals. Secondly, responders were asked to rank the importance of ten roadblocks that could hamper the implementation of animal-free innovations. Finally, responders were asked whether they would migrate (either themselves or their research) if increased animal research regulations in their country of residence restricted their research. Results: While nearly half (40%) of the responders support governmental goals, the majority (71%) of researchers did not consider such goals achievable in their field within the near future. In terms of roadblocks for implementation of animal-free methods, ~80% of the responders considered ‘reliability’ as important, making it the most highly ranked roadblock. However, all other roadblocks were reported by most responders as somewhat important, suggesting that they must also be considered when addressing animal-free innovations. Importantly, a majority reported that they would consider migration to another country in response to a restrictive animal research policy. Thus, governments must consider the risk of researchers migrating to other institutes, states or countries, leading to a ‘brain-drain’ if policies are too strict or suitable animal-free alternatives are not available. Conclusion: Our findings suggest that development and implementation of animal-free innovations are hampered by multiple factors. We outline three pillars concerning education,

This report presents the findings of the 2016 survey into public awareness of, and attitudes towards, the use of animals in scientific research. This is the second wave of a tracker survey initially conducted in 2014, which was also conducted by Ipsos MORI. Both waves were conducted using Ipsos MORI’s face-to-face “Capibus” survey vehicle, allowing for greater robustness in crosswave comparisons. The 2014 survey was broadly based on a long-term trend survey running from 1999; however, in 2014 a qualitative analysis of this long-term survey was conducted and the questions were reviewed and updated to reflect the changed context from when first asked in 1999. This new survey was run alongside the previous survey wave in 2014 to check for comparability of results to measure the impact of the new wordings. The comparison showed that the rewording did not have a significant impact on question response, however as the questions were different, direct comparisons between pre-2014 data and this year’s results are not possible, and so have not been included.


Human-animal emotional relationships have a complicated interplay with public perceptions of the morality of animal use. Humans may build emotional relationships with companion species. These species are not usually intensively farmed in the United Kingdom, but they may be utilized during animal experimentation. From a relational ethical standpoint, the public may therefore perceive animal experimentation as being less acceptable than intensive farming. This study aimed to determine whether human-animal emotional relationships affect public attitudes regarding use of animals in intensive farming and research. Responding to an online questionnaire, British citizens (N = 85) rated their agreement with 20 statements relating to their acceptance of intensive farming and animal experimentation, scientific research involving a given species (e.g., an animal which either is or is not typically associated with the companion context), killing free-living animals, and consuming animals existing within companion and farming contexts. Positive correlations were found between public acceptance of intensive farming and animal experimentation, such that acceptance of animal experimentation corresponded with acceptance of intensive farming practices. This finding disproved our theory that the British public may perceive animal experimentation as less acceptable than intensive farming due to the use of companion species in scientific research. Public acceptance of animal experimentation also did not significantly differ between that involving companion or noncompanion species. However, respondents were more accepting of the consumption of a typical farmed animal raised for meat purposes than consuming an animal if it had been raised in a companion context or consuming a typical companion species raised in either a farmed or companion context. These findings illustrate that the human-animal relationship can influence (but only to a degree) public perceptions of the morality of animal use.


Switzerland has implemented a mandatory training in laboratory animal science since 1999; however, a comprehensive assessment of its effects has never been undertaken so far. The results from the analysis of participants in the Swiss Federation of European Laboratory Animal Science Associations (FELASA) Category B compulsory courses in laboratory animal science run in 2010, 2012, 2014 and 2016 showed that the participants fully appreciated all elements of the course. The use of live animals during the course was supported and explained by six arguments characterized with cognitive, emotional and forward-looking factors. A large majority considered that the 3R (replacement, reduction and refinement) principles were adequately applied during the course. Responses to an open question offered some ideas for improvements. This overall positive picture, however, revealed divergent answers from different subpopulations in our sample (for example, scientists with more hindsight, scientists trained in biology, or participants from Asian countries).

Dignon, A. (2016). ‘If you are empathetic you care about both animals and people. I am a nurse and I don’t like to see suffering anywhere’: Findings from 103 healthcare professionals on attitudes to animal experimentation. Journal of health psychology. https://doi.org/10.1177/1359105316678307

This report presents qualitative and quantitative data from 103 UK healthcare professionals describing attitudes to the current system of animal testing (to produce medicines and health interventions). To gather qualitative testimony, these healthcare professionals were organised into six separate focus groups (of 18, 17, 17, 15, 17 and 19 participants) where they were asked “what is your opinion about the current system of animal testing?” The study focussed on attitudes to the current system rather than attitudes to animal testing in general. The healthcare professionals also completed a quantitative attitude scale questionnaire consisting of 20 statements (all favourable) towards the system of animal testing as currently practised. Statements such as “Testing agencies abide by legislation to safeguard animal welfare” were displayed and the healthcare professionals were invited to agree or disagree with these statements. The results from both the quantitative and qualitative data suggest that healthcare professionals were opposed to the current system of animal experimentation.
This article describes a study of attitudes to the current system of animal experimentation (for the production of health interventions) among 52 UK healthcare professionals. These healthcare professionals participated in three separate focus groups (of 18, 17 and 17 participants) and were invited to respond to the question ‘what is your opinion about the current system of animal testing?’ The study focused specifically on their views of the current system (rather than their views of animal testing in general). The healthcare professionals were critical of the current system, particularly with regard to regulation, secrecy, validity, unnecessary suffering and welfare.


**Background:** Although it may help to widen our knowledge, conducting experiments with use of animals, is very controversial, especially since the most recent technology enables us to significantly avoid their use. Currently, the European directives require researchers to reduce the use of animals in scientific experiments, but some studies suggest awareness of the problem is still insufficient. Thanks to examining students’ attitude towards conducting scientific experiments on animals the authors wanted to discover and mark the most significant factors that might have impact on moulding students’ opinions. **Subjects and methods:** 217 subjects participated in the study. They were students of the Faculty of Medicine at the Silesian Medical University in Katowice and students of the Biology & Biotechnology Faculty at the University of Silesia. A proprietary questionnaire sent via the Internet was used. The authors created specific ratios and numeral 5-grade Likert-type scale showing the behavioural, cognitive and affective component of the respondents’ attitudes on the issue being studied. It contained among other things the questions such as granting animals personality, consciousness, and the right to life. The method used allowed the investigators to show the general trends of all the studied responses and therefore the compilation of results. **Results:** The study showed that the attitude of respondents on studied subject undergoes some changes related to gender. Furthermore, the results did not depend with statistical significance on previous experience in conducting such experiments, religious belief of respondent, his or her parents type and level of education. It also showed the that students had little knowledge about current animal protection law and alternative methods to animal research. **Conclusions:** The results show the complexity and multiplicity of factors influencing the attitudes of bioethics and point to the need to deepen our knowledge in the studied area.


Considering the amendments made to the regulations on animal protection in the EU, the authors outline the legal perspectives of the place and role of veterinary surgeons in the protection of animals used in experiments. They show that there is controversy arising in the relationship between humans and animals by using animals in scientific experiments and for educational purposes. They also show that experiments that inflict pain and suffering (not only physical) have a varied nature. Currently, the need to protect animals against suffering and pain, especially during scientific experiments, is a commonly-accepted ethical standard. In outlining the historical background of the topic, the authors note that in the 20th century (from 1928 till 1997), the Polish law defining the issues of experiments on animals was based on two articles featured in the statutory instrument. This general statement was extended in the Act of 1997 on Animal Protection. After the accession of Poland to the European Union, the protection of animals used in experiments was regulated by a separate act (The Act of 2005 on Experiments on Animals). This resulted from the requirements set by the Council Directive of November 24, 1986 on the approximation of laws, regulations and administrative provisions of the Member States regarding the protection of animals used for experimental and other scientific purposes (86/609/EWG). Despite the substantial expansion of the legal regulations established at the turn of the 21st century, the apparent protection of animals used for scientific purposes prompted objections in many European countries. As a result, in 2010 a new directive was established to reinforce the legal protection of animals used for experimental and educational purposes. However, the legislative responses still leave space for EU Member States to construct their own legal regulations. In particular, they do not include the role of veterinary surgeons as a professional group with specialist knowledge and statutory authorizations in the process of conducting and supervising experiments on animals. The Directive obliged the EU Member states to implement novel legal regulations by the end of 2012. In Poland, the legislative process was initiated in January 2014. The bill prepared by the Ministry of Science and Higher Education includes proposed regulations that contradict the meaning of the Directive. Although the role of veterinary surgeons is underappreciated, this professional group has the knowledge and skills to identify pathological conditions in animals and administering medical treatments. This is the sole professional group which is legally authorized to diagnose and treat animals and perform medical procedures. In addition, there are a variety of veterinary specializations, including those in the utilisation and pathology of laboratory animals. In contrast, the new legal regulations do not include this knowledge, experience or legal authority. The current proposals are insufficient to provide veterinarians with the right to participate in ethical commissions on animal experiments. Furthermore, the lack of possibility for veterinary surgeons to be involved (or at least to supervise) anaesthetic procedures (which are crucial for the protection of animals against suffering) is another inconsistency in the bill. These facts are difficult for the veterinary profession to accept. Considering the premises that form the basis for the new Directive established in 2010, it had been expected that there would be legislation in Poland to completely protect animals
used for experimental purposes. This requirement will not be met unless the representatives of this professional group are involved in evaluating projects involving experiments on animals and providing direct supervision of such experiments.


A DVD resource that provided a scientist’s perspective on the use of animals in research and teaching was evaluated with a questionnaire that asked students’ views pre and post their access to the resource. Thirty-nine secondary students (Y10-Y13) took part in three different teaching programmes that provided information about animal research and allowed them to explore the issues. Students’ opinions about the use of animals for research and teaching were measured by matched pre and post questionnaires and open responses they made to justify their positions. The findings showed that students’ views on animal research are strongly held and they express their views with emotion. The resource helped students to realise the complexity of the issue and provided them with knowledge to write more nuanced justifications. This resource was focused on providing students with cognitive input and this evaluation indicated that equal attention should be provided to the affect component of attitude formation.

Franco, N. H., Sandee, P., & Olsson, I. A. S. (2018). Researchers’ attitudes to the 3Rs—An upturned hierarchy?. *PloSone, 13*(8), e0200895. [https://doi.org/10.1371/journal.pone.0200895](https://doi.org/10.1371/journal.pone.0200895)

Animal use in biomedical research is generally justified by its potential benefits to the health of humans, or other animals, or the environment. However, ethical acceptability also requires scientists to limit harm to animals in their research. Training in laboratory animal science (LAS) helps scientists to do this by promoting best practice and the 3Rs. This study evaluated scientists’ awareness and application of the 3Rs, and their approach to other ethical issues in animal research. It was based on an online survey of participants in LAS courses held in eight venues in four European countries: Portugal (Porto, Braga), Germany (Munich, Heidelberg), Switzerland (Basel, Lausanne, Zurich), and Denmark (Copenhagen). The survey questions were designed to assess general attitudes to animal use in biomedical research, Replacement alternatives, Reduction and Refinement conflicts, and harm-benefit analysis. The survey was conducted twice: immediately before the course (‘BC’, N = 310) and as a follow-up six months after the course (‘AC’, N = 127). While courses do appear to raise awareness of the 3Rs, they had no measurable effect on the existing low level of belief that animal experimentation can be fully replaced by non-animal methods. Most researchers acknowledged ethical issues with their work and reported that they discussed these with their peers. The level of an animal’s welfare, and especially the prevention of pain, was regarded as the most pressing ethical issue, and as more important than the number of animals used or the use of animals as such. Refinement was considered more feasible than Replacement, as well as more urgent, and was also favoured over Reduction. Respondents in the survey reversed the ‘hierarchy’ of the 3Rs proposed by their architects, Russell and Burch, prioritizing Refinement over Reduction, and Reduction over Replacement. This ordering may conflict with the expectations of the public and regulators.


This chapter addresses the question of killing animals in research, primarily from a moral perspective, but also taking into account some of the practical and scientific considerations with moral consequences in this context. We start by exploring in which situations animals are killed in research and whether these are always inevitable, analysing re-use and re-homing of animals as potential alternatives. We then discuss for whom – and under what circumstances – killing matters, considering situations where there may be a conflict between the wish to avoid killing and that to avoid suffering, and further take human-animal interactions into account. We argue that, although there are relevant practical, scientific and ethical arguments favouring the euthanasia of animals in most research contexts, there is a potential for rehabilitating more animals than is currently the practice.

Franco, N. H., & Olsson, I. A. S. (2014). Scientists and the 3Rs: attitudes to animal use in biomedical research and the effect of mandatory training in laboratory animal science. *Laboratory Animals, 48*(1), 50-60. [PDF](https://doi.org/10.1371/journal.pone.0200895)

The 3Rs principle of replacement, reduction, and refinement has increasingly been endorsed by legislators and regulatory bodies as the best approach to tackle the ethical dilemma presented by animal experimentation in which the potential benefits for humans stand against the costs borne by the animals. Even when animal use is tightly regulated and supervised, the individual researcher’s responsibility is still decisive in the implementation of the 3Rs. Training in laboratory animal science (LAS) aims to raise researchers’ awareness and increase their knowledge, but its effect on scientists’ attitudes and practice has not so far been systematically assessed. Participants (n = 206) in eight LAS courses (following the Federation of European Laboratory Animal Science Associations category C recommendations) in Portugal were surveyed in a self-administered questionnaire during the course. Questions were related mainly to the 3Rs and their application, attitudes to animal use and the ethical review of animal experiments. One year later, all the respondents were asked to answer a similar questionnaire (57% response rate) with added self-evaluation questions on the impact of training. Our results suggest that the course is effective in promoting awareness and increasing knowledge of the 3Rs, particularly with regard to refinement. However, participation in the course did not change perceptions on the current and future needs for animal use in research.

The use of non-human animals in biomedical research has given important contributions to the medical progress achieved in our day, but it has also been a cause of heated public, scientific and philosophical discussion for hundreds of years. This review, with a mainly European outlook, addresses the history of animal use in biomedical research, some of its main protagonists and antagonists, and its effect on society from Antiquity to the present day, while providing a historical context with which to understand how we have arrived at the current paradigm regarding the ethical treatment of animals in research.


The implementation of principles and guidelines that govern the various areas of research in an educational institution is one of the key factors in international recognition of its research integrity and value. The privilege of conducting research using animal subjects requires adherence to international regulations and standards governing the humane care and use of laboratory animals. The IACUC at our university deemed it critical to have an animal care and use training program to raise researchers' understanding and knowledge. Our IACUC recently designed a training program in the principles of laboratory animal science and the ethical issues involved in animal use. The present study aimed to measure the effect of such training on scientists' attitudes and practice. During 4 successive training courses, the participants (n = 100; 72% women and 28% men) were surveyed twice through self-administered questionnaire—before starting and after completing the course. Questions focused on ethical consideration for care and use of animals in research, ethical committees, international guidelines for humane care of animals, and 3Rs concepts and their interpretation. The results revealed that the scientists’ knowledge and awareness increased effectively after the completion of the training courses. They understood the 3Rs concepts of replacement, reduction, and refinement; recognized the importance of standardization of animal handling on scientific results; and were able to distinguish between different ethical committees and their roles. Overall, training leads to standardization of animal care and use practices that are vital for the reproducibility of results fundamental to quality scientific research.


Public acceptance of genetic modification (GM) technologies may be essential to their continued development, yet few studies have investigated the manner in which demographic and educational factors predict support for GM research. The current study examined attitudes toward animal research and GM in ~400 university undergraduates enrolled in introductory or upper-level psychology courses with material on animal experimentation. Results revealed that men were more accepting of animal and GM research than were women. Enrollment in upper-level psychology classes that addressed specific topics in animal research did not directly predict support for GM research, but such enrollment was associated with increased endorsement of the validity of animal research, which then contributed to acceptance of GM scenarios. The current findings highlight the impact of educational variables on support for animal research, which may then influence attitudes toward GM research.


An estimated 100 million nonhuman vertebrates worldwide—including primates, dogs, cats, rabbits, hamsters, birds, rats, and mice—are bred, captured, or otherwise acquired every year for research purposes. Much of this research is seriously detrimental to the welfare of these animals, causing pain, distress, injury, or death. This book explores the ethical controversies that have arisen over animal research, examining closely the complex scientific, philosophical, moral, and legal issues involved. Defenders of animal research face a twofold challenge: they must make a compelling case for the unique benefits offered by animal research; and they must provide a rationale for why these benefits justify treating animal subjects in ways that would be unacceptable for human subjects. This challenge is at the heart of the book. Some contributors argue that it can be met fairly easily; others argue that it can never be met; still others argue that it can sometimes be met, although not necessarily easily. Their essays consider how moral theory can be brought to bear on the practical ethical questions raised by animal research, examine the new challenges raised by the emerging possibilities of biotechnology, and consider how to achieve a more productive dialogue on this polarizing subject. The book's careful blending of theoretical and practical considerations and its balanced arguments make it valuable for instructors as well as for scholars and practitioners.


This paper identifies a common political struggle behind debates on the validity and permissibility of animal experimentation, through an analysis of two recent European case studies: the Italian implementation of the European Directive 2010/63/EC regulating the use of animals in science, and the recent European Citizens’ Initiative (ECI) ‘Stop Vivisection’. Drawing from a historical parallel with Victorian antivivisectionism, we highlight important threads in our case studies that mark the often neglected specificities of debates.
on animal experimentation. From the representation of the sadistic scientist in the XIX century, to his/her claimed capture by vested interests and evasion of public scrutiny in the contemporary cases, we show that animals are not simply the focus of the debate, but also a privileged locus at which much broader issues are being raised about science, its authority, accountability and potential misalignment with public interest. By highlighting this common socio-political conflict underlying public controversies around animal experimentation, our work prompts the exploration of modes of authority and argumentation that, in establishing the usefulness of animals in science, avoid reenacting the traditional divide between epistemic and political fora.


Minimising the use of animals in experiments is universally recognised by scientists, governments and advocates as an ethical cornerstone of research. Yet, despite growing public opposition to animal experimentation, mounting evidence that animal studies often do not translate to humans, and the development of new research technologies, a number of countries have reported increased animal use in recent years. In the USA—one of the world's largest users of animals in experiments—a lack of published data on the species most commonly used in laboratories (e.g., mice, rats and fish) has prevented such assessments. The current study aimed to fill this gap by analysing the use of all vertebrate animals by the top institutional recipients of National Institutes of Health research funds over a 15-year period. These data show a statistically significant 72.7% increase in the use of animals at these US facilities during this time period—driven primarily by increases in the use of mice. Our results highlight a need for greater efforts to reduce animal use. We discuss technical, institutional, sociological and psychological explanations for this trend.


Justin R. Goodman, Casey A. Borch, and Elizabeth Cherry discuss public attitudes toward animal testing and its growing opposition.


Animal experimentation has been one of the most controversial areas of animal use, mainly due to the intentional harms inflicted upon animals for the sake of hoped-for benefits in humans. Despite this rationale for continued animal experimentation, shortcomings of this practice have become increasingly more apparent and well-documented. However, these limitations are not yet widely known or appreciated, and there is a danger that they may simply be ignored. The 51 experts who have contributed to Animal Experimentation: Working Towards a Paradigm Change critically review current animal use in science, present new and innovative non-animal approaches to address urgent scientific questions, and offer a roadmap towards an animal-free world of science.


Attitudes toward animals are important in influencing how animals are treated. Few studies have investigated attitudes toward animals in veterinary or animal-science students, and no studies have compared attitudes to animals before and after a course teaching animal welfare and ethics. In this study, students enrolled in veterinary (first-year) or animal-science (first- and third-year) programs completed a questionnaire on attitudes toward different categories of animals before and after the course. Higher attitude scores suggest a person more concerned about how an animal is treated. Normally distributed data were compared using parametric statistics, and non-normally distributed data were compared using non-parametric tests, with significance $p<.05$. Attitudes toward pets (45.5–47.6) were higher than those toward pests (34.2–38.4) or profit animals (30.3–32.1). Attitude scores increased from before to after the course in the veterinary cohort on the Pest (36.9 vs. 38.4, respectively, $n=27, p<.05$) and Profit (30.3 vs. 32.1, respectively, $n=28, p<.05$) subscales, but not in the animal-science cohorts. Attitude scores in all categories were higher for women than for men. Currently having an animal was associated with higher pet scores (46.8 vs. 43.8, $n=120$ and 13, respectively, $p<.05$), and having an animal as a child was associated with higher profit scores (31.0 vs. 26.6, $n=129$ and 8, respectively, $p<.05$). Students electing to work with livestock had lower scores on the Pest and Profit subscales, and students wanting to work with wildlife had significantly higher scores on the Pest and Profit subscales. This study demonstrates attitudinal changes after an animal-welfare course, with significant increases in veterinary but not animal-science students.


Researchers and other (human) actors within the apparatus of animal experimentation find themselves in a tight corner. They rely on public acceptance to promote their legitimacy and to receive funding. At the same time, those working with animal experimentation take risks by going public, fearing that the public will misunderstand their work and animal rights activists may threaten them. The dilemma that emerges between openness and secrecy is fairly prevalent in scientific culture as a whole, but the apparatus of animal experimentation presents specific patterns of technologies of secrets. The aim of the paper is to describe and analyse the meanings of secrets and openness in contemporary animal experimentation. We suggest that these secrets – or “selective openness” – can be
viewed as grease in the apparatus of animal experimentation, as a unifying ingredient that permits maintenance of status quo in human/animal relations and preserves existing institutional public/science relations.


This report presents the findings of a 2012 survey on awareness of, and public attitudes towards, the use of animals in scientific research. The study also looks at awareness of possible alternatives to the use of animals in scientific research. This is the twelfth wave of research which Ipsos MORI (and previously MORI) has conducted. In previous years the work has been sponsored by the Medical Research Council (in 1999), New Scientist magazine (in 1999), the Coalition for Medical Progress (in 2002 and 2005), the Department of Trade and Industry (in 2006), BERR (in 2007) and BIS (since 2008). In 2012, the study was sponsored by the Department for Business, Innovation and Skills (BIS).


Background: To determine whether the public and scientists consider common arguments (and counterarguments) in support (or not) of animal research (AR) convincing. Methods: After validation, the survey was sent to samples of public (Sampling Survey International (SSI; Canadian), Amazon Mechanical Turk (AMT; US), a Canadian city festival and children’s hospital), medical students (two second-year classes), and scientists (corresponding authors, and academic pediatricians). We presented questions about common arguments (with their counterarguments) to justify the moral permissibility (or not) of AR. Responses were compared using Chi-square with Bonferroni correction. Results: There were 1220 public [SSI, n = 586; AMT, n = 439; Festival, n = 195; Hospital n = 107], 194/331 (59 %) medical student, and 19/319 (6 %) scientist [too few to report] responses. Most public respondents were <45 years (65 %), had some College/University education (83 %), and had never done AR (92 %). Most public and medical student respondents considered ‘benefits arguments’ sufficient to justify AR; however, most acknowledged that counterarguments suggesting alternative research methods may be available, or that it is unclear why the same ‘benefits arguments’ do not apply to using humans in research, significantly weakened ‘benefits arguments’. Almost all were not convinced of the moral permissibility of AR by ‘characteristics of non-human-animals arguments’, including that non-human-animals are not sentient, or are property. Most were not convinced of the moral permissibility of AR by ‘human exceptionalism’ arguments, including that humans have more advanced mental abilities, are of a special ‘kind’, can enter social contracts, or face a ‘lifeboat situation’. Counterarguments explained much of this, including that not all humans have these more advanced abilities [‘argument from species overlap’], and that the notion of ‘kind’ is arbitrary [e.g., why are we not of the ‘kind’ ‘sentient-animal’ or ‘subject-of-a-life’?]. Medical students were more supportive (80 %) of AR at the end of the survey (p < 0.05). Conclusions: Responses suggest that support for AR may not be based on cogent philosophical rationales, and more open debate is warranted.


Current animal research ethics frameworks emphasise consequentialist ethics through cost-benefit or harm-benefit analysis. However, these ethical frameworks along with institutional animal ethics approval processes cannot satisfactorily decide when a given potential benefit is outweighed by costs to animals. The consequentialist calculus should, theoretically, provide for situations where research into a disease or disorder is no longer ethical, but this is difficult to determine objectively. Public support for animal research is also falling as demand for healthcare is rising. Democratisation of animal research could help resolve these tensions through facilitating ethical health consumerism and giving the public greater input into deciding the diseases and disorders where animal research is justified. Labelling drugs to disclose animal use and providing a plain-language summary of the role of animals may help promote public understanding and would respect the ethical beliefs of objectors to animal research. National animal ethics committees could weigh the competing ethical, scientific, and public interests to provide a transparent mandate for animal research to occur when it is justifiable and acceptable. Democratic processes can impose ethical limits and provide mandates for acceptable research while facilitating a regulatory and scientific transition towards medical advances that require fewer animals.

Knight, A. (2014). Conscientious objection to harmful animal use within veterinary and other biomedical education. Animals, 4(1), 16-34. PDF

Laboratory classes in which animals are seriously harmed or killed, or which use cadavers or body parts from ethically debatable sources, are controversial within veterinary and other biomedical curricula. Along with the development of more humane teaching methods, this has increasingly led to objections to participation in harmful animal use. Such cases raise a host of issues of importance to universities, including those pertaining to curricular design and course accreditation, and compliance with applicable animal welfare and antidiscrimination legislation. Accordingly, after detailed investigation, some universities have implemented formal policies to guide faculty responses to such cases, and to ensure that decisions are consistent and defensible from legal and other policy perspectives. However, many other institutions have not yet done so, instead dealing with such cases on an ad hoc basis as they arise. Among other undesirable outcomes this can lead to insufficient student and faculty preparation, suboptimal and inconsistent responses, and greater
Animal experimentation is a controversial topic, especially among the general public and the scientific community. Thirty-eight minister to weigh the expected suffering of animals against the expected benefits of a proposed animal research project—the “cost-benefit assessment”—before licensing the project. Research into the implementation of this legislation has been severely constrained by statutory confidentiality. This paper overcomes this hindrance by describing a critical case study based on unprecedented primary data: pig-to-primate organ transplantation conducted between 1995 and 2000. It reveals that researchers and regulators significantly underestimated the adverse effects suffered by the animals involved, while overestimating the scientific and medical benefits likely to accrue. Applying dynamic policy network analysis to this case in the context of the evolution of animal research policy indicates that an elitist, policy community type network has persisted since shortly after the network’s formation in 1876. Animal research interests have repeatedly withstood pressure for change from animal protection groups because of their greater resources, structural advantages, and a culture of secrecy that facilitates an implementation gap in animal research regulation.


Since the inception of the Association of American Veterinary Medical Colleges (AAVMC), the use of animals in research and education has been a central element of the programs of member institutions. As veterinary education and research programs have evolved over the past 50 years, so too have societal views and regulatory policies. AAVMC member institutions have continually responded to these events by exchanging best practices in training their students in the framework of comparative medicine and the needs of society. Animals provide students and faculty with the tools to learn the fundamental knowledge and skills of veterinary medicine and scientific discovery. The study of animal models has contributed extensively to medicine, veterinary medicine, and basic sciences as these disciplines seek to understand life processes. Changing societal views over the past 50 years have provided active examination and continued refinement of the use of animals in veterinary medical education and research. The future use of animals to educate and train veterinarians will likely continue to evolve as technological advances are applied to experimental design and educational systems. Natural animal models of both human and animal health will undoubtedly continue to serve a significant role in the education of veterinarians and in the development of new treatments of animal and human disease. As it looks to the future, the AAVMC as an organization will need to continue to support and promote best practices in the humane care and appropriate use of animals in both education and research.


The reality of animal experimentation and its regulation in Britain have been hidden behind a curtain of secrecy since its emergence as a political controversy in the 1870s. Public debate and political science alike have been severely hampered by a profound lack of reliable information about the practice. In this remarkable study, Dan Lyons advances and applies policy network analysis to investigate the evolution of British animal research policy-making.


Animal research in the United Kingdom is regulated by the Animals (Scientific Procedures) Act 1986, which requires a government minister to weigh the expected suffering of animals against the expected benefits of a proposed animal research project—the “cost-benefit assessment”—before licensing the project. Research into the implementation of this legislation has been severely constrained by statutory confidentiality. This paper overcomes this hindrance by describing a critical case study based on unprecedented primary data: pig-to-primate organ transplantation conducted between 1995 and 2000. It reveals that researchers and regulators significantly underestimated the adverse effects suffered by the animals involved, while overestimating the scientific and medical benefits likely to accrue. Applying dynamic policy network analysis to this case in the context of the evolution of animal research policy indicates that an elitist, policy community type network has persisted since shortly after the network’s formation in 1876. Animal research interests have repeatedly withstood pressure for change from animal protection groups because of their greater resources, structural advantages, and a culture of secrecy that facilitates an implementation gap in animal research regulation.


Animal experimentation is a controversial topic, especially among the general public and the scientific community. Thirty-eight undergraduate students attending the College of Veterinary Medicine – São Paulo State University in the municipality of Araçatuba, São Paulo, Brazil, were followed up between 2008 and 2011 and were asked to complete an annual questionnaire focused on different aspects of animal experimentation, including the animal species involved, the objectives of the research, ethics, animal welfare and euthanasia. Most students agreed that animal testing is not morally incorrect, and the dynamics of students’ attitudes were notable.
A strong argument for the practice of animal testing in medical research is the potential benefit to patients in getting improved pain relief, minimising morbidity and mortality. However, patients’ opinions on the ethics of animal testing are seldom sought, despite their role as principal stakeholders. This study compared the attitudes of patients and researchers on animal testing. Focus-group interviews were held with patients suffering from chronic inflammatory diseases, resulting in a questionnaire that was distributed January–May 2011. The questionnaire was posted to patient members of the Swedish Rheumatism Association (n=1195) and to all scientific experts serving on Ethical Review Boards in Sweden (n=364), with response rates of 65 per cent and 60 per cent, respectively. Results show that patients hold a positive stance towards animal testing, but with many caveats, and the level of support is comparable to those held by the general public found in national surveys. A clear majority of researchers were positive towards animal testing, and large statistical differences between patients and researchers were found regarding their attitudes towards testing animals commonly held as pets (P<0.001). Women were more critical than men regarding which species are used for what purposes (P<0.001). Researchers need to be aware that their more positive attitude towards animal testing is not shared to an equal degree with patients, who are the intended end-users and beneficiaries of medical research. The moral basis for using animals in research needs to be further discussed by all stakeholders.


This study explored whether exposure to facts about the Animal Welfare Act and Animal Welfare Regulations (AWA/AWR) would impact participant’s perceptions of a fictitious research scenario using either rats or dogs as subjects. Participants read AWA/AWR facts or generic research facts and then read a research scenario. After, they completed a questionnaire that measured the value of the research proposal and their concern for animal subjects. Participants responded significantly more favorably to the research scenario when rats were used, but exposure to AWA/AWR regulations did not have an impact on their favorability ratings. This finding is contrary to Metzger (2015) who reported knowledge of regulations protecting the welfare of animals in research settings favorably impacted perception toward animal research.

Recent public-opinion polls indicate that Americans have shown a decline in support for animal experimentation, and several reports suggest a relationship between people’s knowledge of animal welfare regulations and their attitudes toward animal research. Therefore, this study was designed to assess respondent's knowledge of several provisions in the Animal Welfare Act (AWA) and Animal Welfare Regulations (AWR), and determine whether exposure to elements of this legislation would influence an individual's attitudes toward the use of animals in research. A survey was used to assess knowledge of animal research regulations and attitudes toward animal research from a sample of individuals recruited through Amazon’s Mechanical Turk crowdsourcing marketplace. Results from study 1 confirmed the hypothesis that respondents had little knowledge of various federal regulations that govern animal research activities. Data from study 2 revealed that exposure to elements of the AWA and AWR influenced participants’ attitudes toward the use of animals in research. These results suggest that providing information to the general public about the AWA and AWR that protect laboratory animals from abuse and neglect may help alleviate concerns about using animals in research settings.

Gallup and Beckstead’s (1988) commentary in the American Psychologist reported an assessment of college student’s attitudes toward animal research. Among many findings, one main conclusion reached by the authors was that the participants in their study were generally concerned about the welfare of animals used in research, but that they also appreciated and valued the need for animal experimentation. Given the declining support for animal research from the general population over the past few decades, the present study administered the same questionnaire to a contemporary sample of university students to determine whether any patterns would emerge in a current sample’s responses to these items. While the results suggest that respondents still demonstrate significant concern for animal welfare, importantly, the present sample of participants showed significantly less agreement with items that stressed the importance and value of conducting animal research. Educating college students about the importance of animal research and its valuable contributions to science as an enduring component of instructional practice in neuroscience and other courses may be an important step toward reversing these trends.

Attitudes towards animal welfare are important in influencing how animals are treated. Studies of attitudes towards animal welfare in veterinary students are scarce. It is hope that the findings will enhance a diverse research in the future in order to explore variety of factors in relation to animal welfare since such study is currently limited. Objective: The study is to determine the associations of gender, year of study and empathy level of undergraduate DVM students in UPM into their attitude towards animal welfare. Method: Questionnaires were given to 440 Doctor of Veterinary Medicine students in UPM to study the associations between gender, year of study and empathy level with attitudes towards animal welfare. Data were collected from respondents through two sets of self-guided questionnaires. Interpersonal Reactivity Index (IRI) which assessed empathy level where only two sub-scales from the IRI were used. Empathic Concern (EC) and Perspective Taking (PT). Animal Attitude Scales (AAS) were used to assess attitudes towards animal welfare. Data collected were analysed using Statistical Package for Social Science (SPSS) version 20. Result: 367 (83.4%) out of 440 students participated in this study. Anti-animal welfare attitude (74.9%) was the highest compared to the pro-animal welfare attitude (25.1%). Analysis showed a significant difference (p < 0.005) between year of study and attitudes towards animal welfare (p = 0.001), however, there were no significant difference (p > 0.005) between gender and attitudes towards animal welfare (p = 0.057) as well as between empathy level and attitudes towards animal welfare for empathic concern sub-scale (p = 0.194) and perspective taking sub-scale (p = 0.320). Conclusion: Majority of students were categorized as anti-animal welfare and the attitudes were significantly different among years of study. Female and male students have nonsignificant differences in their attitudes towards animal welfare. Students with good and poor empathy level also have no significant difference in their attitudes towards animal welfare.


Introduction: Medical undergraduate courses and medical students have less emphasis on animal research and the various ethical issues surrounding animal research. Animal research plays a vital role in basic medical research and yet undergraduate students know very little about the same. Aim: To assess the attitude and knowledge of medical undergraduate students towards animal research in general. Materials and Methods: A total of 152 undergraduate medical students in the final year of their medical studies from two medical colleges (one from Mumbai and one from Kolhapur) were administered a semi-structured questionnaire on attitude and knowledge towards animal research. The questionnaire was validated by three senior researchers and was specially designed for the study. The data were collected and analysed using frequency and percentages. Results: Only 66(43.42%) students had visited an animal house/animal laboratory in their medical training and 114 (75%) of them had actual experience of handling animals mainly in the form of dissection studies on rats, frogs and guinea pigs. Only 21(13.8%) were aware of ethical guidelines regarding animal research and 23 (15.1%) strongly agreed that ethical aspects of animal research needed stringent regulation in India. Conclusion: Animal research awareness is scarce in undergraduate medical students and there is a need to incorporate animal research awareness from a medical science point of view in their curriculum to help them develop an understanding of animal research and its ethical dimensions.


The debate over the use of nonhuman animals in experimental research has gone on for centuries, and it continues as vigorously today as it ever has. In fact, in the last decade, the controversy has intensified, making animal testing a topic at the highest level of debate of any socioscientific issue in the United States. This book presents all sides of the issue so that readers can come to their own conclusions as to the morality and validity of animal experimentation, and provides biographies of individuals and descriptions of
organizations that have been involved in the debate over the centuries. Additionally, it documents the historical shift in thinking that made animal experimentation commonplace between the time of the ancient Greeks and the 19th century, to the mindset of some who argue for an end to the practice and alternative ways of conducting medical experimentation to benefit human health.


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Introduction: Pediatric health care workers (HCW) often perform, promote, and advocate use of public funds for animal research (AR). We aim to determine whether HCW consider common arguments (and counterarguments) in support (or not) of AR convincing. Design: After development and validation, an e-mail survey was sent to all pediatricians and pediatric intensive care unit nurses and respiratory therapists (RTs) affiliated with a Canadian University. We presented questions about demographics, support for AR, and common arguments (with their counterarguments) to justify the moral permissibility (or not) of AR. Responses are reported using standard tabulations. Responses of pediatricians and nurses/RTs were compared using Chi-square, with $P < .05$ considered significant. Results: Response rate was 53/115(46%) (pediatricians), and 73/120(61%) (nurses/RTs). Pediatricians and nurses/RTs are supportive of AR. Most considered ‘benefits arguments’ sufficient to justify AR; however, most acknowledged that counterarguments suggesting alternative research methods may be available, or that it is unclear why the same ‘benefits arguments’ do not apply to using humans in research, significantly weakened ‘benefits arguments’. Almost all were not convinced of the moral permissibility of AR by ‘characteristics of non-human-animals arguments’, including that non-human-animals may not be sentient, or are simply property. Most were not convinced of the moral permissibility of AR by ‘human exceptionalism’ arguments, including that humans have more advanced mental abilities, are of a special ‘kind’, can enter into social contracts, or face a ‘lifeboat situation’. Counterarguments explained much of this, including that not all humans have these more advanced abilities [the argument from species overlap], and that the notion of ‘kind’ is arbitrary [e.g., why are we not of the kind ‘sentient animal’ or ‘subject-of-a-life’]. Pediatrician and nurse/RT responses were similar. Conclusions: Most respondents were not convinced of the moral permissibility of AR when given common arguments and counterarguments from the literature. HCW should seriously consider arguments on both sides of the AR debate.


**PDF**

This chapter is designed to help people rationally engage moral issues regarding the treatment of animals, specifically in experimentation, research, product testing, and education. Little “new” philosophy is offered here, strictly speaking. New arguments are unnecessary to help make progress in how people think about these issues. What is needed are improved abilities to engage the arguments already on the table, for example, stronger skills at identifying and evaluating the existing reasons given for and against conclusions on the morality of various uses of animals.

**Nøhr, R., Lund, T. B., & Lassen, J. (2016). The Danish 3R survey: knowledge, attitudes and experiences with the 3Rs among researchers involved in animal experiments in Denmark. Department of Food and Resource Economics, University of Copenhagen. IFRO Report, No. 249.**

PDF

No abstract available.

**Ormandy, E. H., & Griffin, G. (2016). Attitudes toward the use of animals in chronic versus acute pain research: results of a web-based forum. Alternatives to Laboratory Animals, 44(4), 323-335.**

PDF

When asked about the use of animals in biomedical research, people often state that the research is only acceptable if pain and distress are minimised. However, pain is caused when the aim is to study pain itself, resulting in unalleviated pain for many of the animals involved. Consequently, the use of animals in pain research is often considered contentious. To date, no research has explored people's views toward different types of animal-based pain research (e.g. chronic or acute pain). This study used a web-based survey to explore people's willingness to support the use of mice in chronic versus acute pain research. The majority of the participants opposed the use of mice for either chronic (68.3%) or acute (63.1%) pain research. There was no difference in the levels of support or opposition for chronic versus acute pain research. Unsupportive participants justified their opposition by focusing on the perceived lack of scientific merit, or the existence of non-animal alternatives. Supporters emphasised the potential benefits that could arise, with some stating that the benefits outweigh the costs. The majority of the participants were opposed to pain research involving mice, regardless of the nature and duration of the pain inflicted, or the perceived benefit of the research. A better understanding of public views toward animal use in pain research may provide a stronger foundation for the development of policy governing the use of animals in research where animals are likely to experience unalleviated pain.


PDF

The exploration of public attitudes toward animal research is important given recent developments in animal research (e.g., increasing creation and use of genetically modified animals, and plans for progress in areas such as personalized medicine), and the shifting relationship between science and society (i.e., a move toward the democratization of science). As such, public engagement on issues related to animal research, including exploration of public attitudes, provides a means of achieving socially acceptable scientific
practice and oversight through an understanding of societal values and concerns. Numerous studies have been conducted to explore public attitudes toward animal use, and more specifically the use of animals in research. This paper reviews relevant literature using three categories of influential factors: personal and cultural characteristics, animal characteristics, and research characteristics. A critique is given of survey style methods used to collect data on public attitudes, and recommendations are given on how best to address current gaps in public attitudes literature.


This study describes an online public engagement experiment aimed at investigating how acceptance of animal-based research is affected by: (a) the presence of regulations that govern the use of nonhuman animals in laboratories, (b) the invasiveness of procedures, and (c) the use of genetically modified (GM) animals. To meet these aims, participants were asked if they were willing to accept the use of pigs in different scenarios involving agricultural research. Two-thirds of the 681 participants were female and the majority (58%) were young (19–29 years old) with college or university level education (62%). Participants came from 26 different countries, with the United States, Canada, and the United Kingdom being the top three countries represented. Participants who self-identified as being vegetarians, familiar with animal welfare, animal advocates, environmental advocates, and familiar with animal research were significantly more likely to be opposed to animal-based research. Older participants were significantly less likely to oppose animal-based research. Support significantly decreased when animal-based research involved an invasive procedure or GM animals. Support for invasive research significantly increased when regulation was in place, but regulation had less effect on acceptance of GM animal use. Comments provided by participants illustrated different decision-making strategies regarding different types of animal-based research. Given the increasing use of GM animals in research, more effort is required to understand people’s concerns regarding this type of animal use and to determine how these concerns should be reflected in policy.


The species of laboratory animal used is known to influence people's willingness to support animal-based research. An online experiment was used to test people's willingness to accept the use of zebrafish or mice, two of the most commonly used species, in research involving either induced mutation (specifically, ethyl-N-nitrosourea [ENU] mutagenesis) or genetic modification, with and without regulatory oversight. Participants who were willing to support research on zebrafish (31.9%) were also willing to support the same research on mice. The participants expressed low levels of support for research involving ENU mutagenesis of zebrafish in both unregulated (30.7%) and regulated (38.5%) research programmes. A reason for the rejection of ENU mutagenesis was the perception that the procedure is painful. Some participants expressed a preference for the use of genetically-modified (GM) animal models over ENU mutagenesis, based on the belief that the former involves less pain and improves both the accuracy and efficiency of the animal models. Better informing the public about scientific practice, and scientists about public attitudes, may help reduce the disconnect between scientific practice and societal values.


The focus of this paper is to investigate the differences between the decision-making processes that take place in a cross-cultural environment, with particular interest in exploring ethical concerns in cosmetics retailing. Research shows that the cultural differences between the East and West vary distinctly. This study has quantitatively tested the influence of ethical and animal welfare issues, assessing consumer buying behavior processes for cosmetics, in the context of Europe (UK) and Asia (Bangladesh). The results show interesting findings; it has become evident that ethical purchasing attitudes and concern for animal welfare seem to be predominant in both countries.


The purpose of this paper is to explore the ethical concerns in cosmetics retailing and its implications on comparative consumers' purchase decisions of cosmetics in the UK and Bangladesh. Consumer response to ethical and green issues in the recent years appears to vary considerably between developed and developing economies. In particular, this paper also intends to identify how and to what extent, in a developing country like Bangladesh, consumers' purchase decisions are influenced by the concept of ethical, green and animal welfare issues. Results show that ethical purchasing attitudes have some similarities between the UK and Bangladesh. However, there could be differing reasons for the adoption of ethical stances. Young consumers, however, have similar attitudes in both countries.
Animal experiments are used on a large scale worldwide in order to develop or to refine new medicines, medicinal products or surgical procedures. It is morally wrong to cause animals to suffer, this is why animal experimentation causes serious moral problems. We must realize that we have moral and legal obligations when dealing with animals in our care, and this should become our high priority before any experiment. We have to take responsibility for the life of the animals and we have to act honorably regarding this issue because we have been given a trust by society in general which is not to be taken lightly. There is an ongoing societal debate about ethical issues of animal use in science. This paper is addressed to current and future researchers and is an appeal for them to (re)consider their personal views concerning the issue under scrutiny and their responsibility in ensuring that results would make the sacrifice worthwhile.


Reducing the number of animals used in experiments has become a priority for the governments of many countries. For these reductions to occur, animal-free alternatives must be made more available and, crucially, must be embraced by researchers. We conducted an international online survey for academics in the field of animal science (N=367) to explore researchers' attitudes towards the implementation of animal-free innovations. Through this survey we address three key questions. The first question is whether scientists who use animals in their research consider governmental goals for animal-free innovations achievable and whether they would support such goals. Secondly, responders were asked to rank the importance of ten roadblocks that could hamper the implementation of animal-free innovations. Finally, responders were asked whether they would migrate (either themselves or their research) if increased animal research regulations in their country of residence restricted their research. While nearly half (40%) of the responders support governmental goals, the majority (71%) of researchers did not consider such goals achievable in their field within the near future. In terms of roadblocks for implementation of animal-free methods, ~80% of the responders considered ‘reliability’ as important, making it the most highly ranked roadblock. However, all other roadblocks were reported by the majority of responders as somewhat important, and they must also be considered when addressing animal-free innovations. Importantly, a majority reported that they would consider migration to another country in response to restrictive animal research policy. Thus, governments must consider the risk of researchers migrating to other institutes, states or countries, leading to a ‘brain-drain’ if policies are too strict or suitable animal-free alternatives are not available. Our findings suggest that development and implementation of animal-free innovations are hampered by multiple factors. We outline three pillars concerning education, governmental influence and data sharing, the implementation of which may help to overcome these roadblocks to animal-free innovations.


Using an online public engagement experiment, we probed the views of 617 participants on the use of pigs as research animals (to reduce agricultural pollution or to improve organ transplant success in humans) with and without genetic modification and using different numbers of pigs. In both scenarios and across demographics, level of opposition increased when the research required the use of GM corn or GM pigs. Animal numbers had little effect. A total of 1037 comments were analyzed to understand decisions. Participants were most concerned about the impact of the research on animal welfare. Genetic modification was viewed as an intervention in nature and there was worry about unpredictable consequences. Both opponents and supporters sought assurances that concerns were addressed. Governing bodies for animal research should make efforts to document and mitigate consequences of GM and other procedures, and increase efforts to maintain a dialogue with the public around acceptability of these procedures.


Animal experimentation is a contentious ethical issue. In many countries, the debate over the morality of animal research has led to the institution of ethical review systems for animal experiments. This article discusses and problematizes the current regulations, policies, and recommendations governing the ethical review of animal experiments in Sweden. It is argued that the ongoing paradigm shift in society's view of animals prompts a serious re-evaluation of the values underpinning the routine use of sentient nonhumans in research. Following from this, two lines of argument are pursued in the article. First, I make the claim that the organizational and administrative exigencies of the current ethical committee system in Sweden is likely to work to the animals' disadvantage and undermine a fair assessment of their interests. Second, and more importantly, I reconstruct the utilitarian principles that the ethical review is supposed to be based on and argue that the reasons given for choosing utilitarian standards are undeveloped and reveal an unjustifiable specieist bias. Moreover, I argue that even if we should accept these principles, the existing ethical review system would fail to meet the demands of a consistent utilitarian calculus, mainly due to its outdated understanding of how animal models work and what they allow us to predict.
The goal of this article is to map out public perceptions of animal experimentation in 28 European countries. Postulating cross-cultural differences, this study mixes country-level variables (from the Eurostat database) and individual-level variables (from Eurobarometer Science and Technology 2010). It is shown that experimentation on animals such as mice is generally accepted in European countries, but perceptions are divided on dogs and monkeys. Between 2005 and 2010, we observe globally a change of approval on dogs and monkeys, with a significant decrease in nine countries. Multilevel analysis results show differences at country level (related to a post-industrialism model) and at individual level (related to gender, age, education, proximity and perceptions of science and the environment). These results may have consequences for public perceptions of science and we call for more cross-cultural research on press coverage of animal research and on the level of public engagement of scientists doing animal research.