

DOCUMENT TYPE	Annotated Bibliography
SUBJECT	Attitudes Toward Animal Research and Experimentation
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Arluke, A. (1991). Going into the closet with science: Information control among animal experimenters. *Journal of Contemporary Ethnography*, 20(3), 306-330. [PDF](#)

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.

Balcombe, J. (1997). Student/teacher conflict regarding animal dissection. *The American Biology Teacher*, 22-25. [PDF](#)

No abstract available.

Bowd, Alan D. (1998). Animal care courses: Helping fulfill the mandate of animal care committees in Canada. *Journal of Applied Animal Welfare Science*, 1(4), 353-360. https://doi.org/10.1207/s15327604jaws0104_3

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.

Bowd, A. D., & Shapiro, K. J. (1993). The case against laboratory animal research in psychology. *Journal of Social Issues*, 49(1), 133-142. <https://doi.org/10.1111/j.1540-4560.1993.tb00913.x>

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.

Compton, D. M., Dietrich, K. L., Smith, J. S., & Johnson, S. D. (1995). Animal rights activism and animal welfare concerns in the academic setting: Levels of activism and the perceived importance of research with animals. *Psychological reports*, 76(1), 23-31. <https://doi.org/10.2466/pr0.1995.76.1.23>

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.

Driscoll, J. W. (1992). Attitudes toward animal use. *Anthrozoös*, 5(1), 32-39. <https://doi.org/10.2752/089279392787011575>

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.

Eldridge, J. J., & Gluck, J. P. (1996). Gender differences in attitudes toward animal research. *Ethics & behavior*, 6(3), 239-256. [PDF](#)

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.

Furnham, A., & Heyes, C. (1993). Psychology students' beliefs about animals and animal experimentation. *Personality and Individual Differences*, 15(1), 1-10. [PDF](#)

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.

Galvin, S. L., & Herzog Jr, H. A. (1992). Ethical ideology, animal rights activism, and attitudes toward the treatment of animals. *Ethics & Behavior*, 2(3), 141-149. [PDF](#)

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.

Glick, S. M. (1995). Animals for teaching purposes: medical students' attitude. *Medical education*, 29(1), 39-42. <http://dx.doi.org/10.1111/j.1365-2923.1995.tb02798.x>

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.

Hepper, P. G., & Wells, D. L. (1997). Pet ownership and adults' views on the use of animals. *Society & Animals*, 5(1), 45-63. [PDF](#)

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 of fox-hunting and hare-coursing than non-dog owners, and horse owners expressed more approval of fox-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](#)

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.

Herzog, H. A., & Mathews, S. (1997). Personality and attitudes toward the treatment of animals. *Society & Animals*, 5(2), 169-175. [PDF](#)

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 toward animals. Gender and sensitivity explained 25% of the variance in attitudes, with most of the variance accounted for by gender.

Herzog Jr, H. A., Betchart, N. S., & Pittman, R. B. (1991). Gender, sex role orientation, and attitudes toward animals. *Anthrozoös*, 4(3), 184-191. [PDF](#)

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.

Kruse, C. R. (1998). Who said that? Status presentation in media accounts of the animal experimentation debate. *Society and Animals*, 6(3), 235-243. [PDF](#)

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.

Monamy, V. (2000). *Animal experimentation: A guide to the issues*. Cambridge, United Kingdom: Cambridge University Press. ISBN: 9780521660938.

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., & Broida, J. (1993). Personality differences between pro- and antivivisectionists. *Society & Animals*, 1(2), 129-144. [PDF](#)

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.

Mukerjee, M. (1997). Trends in animal research. *Scientific American*, 276(2), 86-93. [PDF](#)

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.

Nabi, R. L. (1998). The effect of disgust-eliciting visuals on attitudes toward animal experimentation. *Communication Quarterly*, 46(4), 472-484. <https://doi.org/10.1080/01463379809370116>

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.

Orlans, F. B. (1997). Ethical decision making about animal experiments. *Ethics & behavior*, 7(2), 163-171. https://doi.org/10.1207/s15327019eb0702_7

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>

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 sentience of animals). Analyses of variance revealed that the year of study was significantly related to the perceived sentience 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.

Pifer, L. K. (1996). Exploring the gender gap in young adults' attitudes about animal research. *Society & Animals*, 4(1), 37-52. [PDF](#)

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 a number of early home influences each explained part, but not all of the gender difference in attitudes about scientific research.

Pifer, R., Shimizu, K., & Pifer, L. (1994). Public attitudes toward animal research: Some international comparisons. *Society & Animals*, 2(2), 95-113. [PDF](#)

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.

Plous, S. (1996). Attitudes toward the use of animals in psychological research and education: results from a national survey of psychologists. *American Psychologist*, 51(11), 1167. [PDF](#)

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.

Plous, S. (1993). Psychological mechanisms in the human use of animals. *Journal of Social Issues*, 49(1), 11-52. <https://doi.org/10.1111/j.1540-4560.1993.tb00907.x>

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.

Rowan, A. N., Loew, F. M., & Weer, J. C. (1995). The animal research controversy: Protest, process & public policy. [PDF](#)

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.

Rudacille, D. (2000). *The scalpel and the butterfly: The war between animal research and animal protection*. New York: Farrar, Straus, and Giroux. ISBN: 9780374254209.

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.

Smith, W. (1994). Use of animals and animal organs in schools: Practice and attitudes of teachers. *Journal of Biological Education*, 28(2), 111-118. <https://doi.org/10.1080/00219266.1994.9655376>

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.

Smith, J. A., & Boyd, K. M. (1991). *Lives in the balance: The ethics of using animals in biomedical research: The report of a working party of the institute of medical ethics*. ISBN: 9780198547440

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, nontechnical 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.

Stanisstreet, M., Spofforth, N., & Williams, T. (1993). Attitudes of undergraduate students to the uses of animals. *Studies in Higher Education*, 18(2), 177-196. <https://doi.org/10.1080/03075079312331382359>

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's in making judgments, so that fewer students objected to animal experimentation for medical research.

Van Der Valk, J., Dewhurst, D., Hughes, I., Atkinson, J., Balcombe, J., Braun, H., ... & Nardi, J. (1999). Alternatives to the use of animals in higher education: The report and recommendations of ECVAM workshop 33. *Alternatives to Laboratory Animals*, 27(1), 39-52. [PDF](#)

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.

Vigorito, M. (1996). An animal rights attitude survey of undergraduate psychology students. *Psychological Reports*, 79(1), 131-142. <https://doi.org/10.2466/pr0.1996.79.1.131>

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.

Wells, D. L., & Hepper, P. G. (1995). Attitudes to animal use in children. *Anthrozoös*, 8(3), 159-170. <https://doi.org/10.2752/089279395787156338>

Six hundred and fifty children, aged between 11 and 15 years, from an urban and a rural area, completed a questionnaire in which they 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>

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.