

Animal Testing: Overview

Introduction

The Royal Society for the Prevention of Cruelty to Animals (RSPCA) defines animal testing as experimentation that occurs either to test medicines or chemicals or to gain a greater understanding of how animal and human bodies work. Animal testing occurs ‘in vivo’, meaning on living animals, in experiments that are usually in the pre-clinical research and development phases, sometimes before testing with human trials. These experiments can involve injections, feeding, or exposure to disease, drugs or chemicals, or they may be behavioural—for example, neuroscience studies on primates to test learning and memory.

Animals have been used to test medicines, cosmetics, cleaning products and chemicals. Of the scientific procedures, about half are ‘experimental’, meaning research and development of treatments, safety testing of medicines or surgical training. The other half of procedures involve creating or breeding genetically adapted animals. Government statistics show that most experimental procedures in 2020 focussed on the immune system, the nervous system and cancer.

Debate around animal testing contrasts the benefits of scientific progress with the importance of animal rights and protection. Animal testing can cause pain, suffering, distress, lasting harm or death. Animals usually must be kept in captivity, and welfare standards for captive animals vary. Critics of animal testing point to the fact that animals are sentient, noting that they have the right to life and deserve to avoid suffering. Proponents of animal testing cite its usefulness and point in particular to scientific advancements made thanks to animal testing and research. Notable scientists such as Charles Darwin, as well as UK law, have occupied a middle ground.

The UK regulates animal testing under the Animals (Scientific Procedures) Act 1986 (ASPA). This legislation ‘regulates procedures that are carried out on “protected animals” for scientific or educational purposes that may cause pain, suffering, distress or lasting harm’. According to the UK Government, the 3Rs (replacement, reduction and refinement) provide a ‘framework for providing more humane animal research’, under which certain experiments can go ahead.

Animal testing of cosmetics has been banned in the UK since 1998. The ban was also part of the European Union Cosmetics Regulations 2009.

Understanding the Discussion

Protected animals: Animals covered by the ASPA, including any living vertebrate other than humans and any living cephalopod.

RSPCA: Royal Society for the Prevention of Cruelty to Animals, a UK-based animal welfare charity.

Sentience: The capacity of animals to seek pleasure and avoid pain.



Scientist watching mice in a testing laboratory. Photo courtesy Adam Gault, Getty Images.

History

Animal testing is a traditional method that dates back to the early days of medicine. In a journal article on the history of animal testing, Nuno Henrique Franco explains that the first animal experiments occurred in ancient Greece, where physicians performed ‘vivisections’—exploratory surgeries on live animals. He says that such work did not raise moral questions, as the ancient Greeks believed that humans were at a higher rank than animals, which were dismissed as ‘irrational creatures’. However, the early Judeo-Christian philosopher Thomas Aquinas (1225–1274) condemned animal cruelty, one reason being that humans might begin to treat other humans cruelly.

In these early days, the debate around animal testing centred more on its usefulness. Empiricists found fault with the speculative nature of conclusions based on animal experiments, and they claimed that the ancient Greeks who had performed vivisections interpreted physiological processes inaccurately.

In the 18th century, the popularisation of public displays of experiments on live animals prompted more resistance, especially against those experiments that were seen as ‘purposeless’. The anthropocentric view that animals were ‘a means to an end’ was increasingly challenged. In the same period, animal testing led to biological advancements, such as Albrecht von Haller’s (1708–1777) ‘groundbreaking work on inflammation, neurophysiology, heart function, and hemodynamics’. Von Haller saw a need for the experiments ‘for the comprehension of many basic physiological processes’, though he expressed discomfort with some of the approaches.

The morality of using animals in scientific research was addressed this way by philosopher Jeremy Bentham (1748–1832): ‘The question is not, can they reason? nor, can they talk? but, can they suffer?’ His utilitarian framework called for the consideration of animal suffering. Bentham deemed animal testing acceptable as long as it had a purposeful intention and there was a reasonable chance it would benefit humans.

The revolution in medicine in the 19th century meant a ‘rise in animal research–based advancement in biological and medical knowledge’. This created beneficial consequences for public health and quality of life, but also a rise in antivivisection advocates, who argued that animal research did not provide useful medical knowledge and caused unnecessary harm. The British Union for the Abolition of Vivisection was established in 1898; it later developed into Cruelty Free International. Queen Victoria was part of this antivivisection movement. It targeted the experimental physiology work of François Magendie and Claude Bernard, whose position was to ‘condemn experiments in humans without previous work on animals’. Franco notes that this is a principle that underpins the use of animals in the biomedical field.

The animal rights movement lost public support as medical research advanced and more radical adherents expressed scientific scepticism. Animal testing also moved towards favouring rodents for the majority of experiments. Compared to domestic animals such as horses and dogs, rats and mice were perceived to be of a lower standing in the animal kingdom.

The 1970s and 1980s saw a resurgence of the animal rights movement, with extremist groups using terrorist actions to highlight their arguments. One example is the destruction by arson of two animal research laboratories in the Edinburgh area in March 1989; police suspected animal rights activists were responsible.

In 1975 Australian philosopher Peter Singer published *Animal Liberation*, in which he argued that it is difficult to justify animal experimentation because animals are sentient beings whose interests (to avoid pain and have positive experiences)

should be considered. To sacrifice the wellbeing of animals in favour of human gain is speciesism—attributing to animals a lower moral value because of their species.

In 1994 Peter Singer became a founding member of the Great Ape Project (GAP), a movement set up ‘to fight for the basic rights to life, freedom and non-torture of the nonhuman great apes—Chimpanzees, Gorillas, Orangutans and Bonobos, the closest relatives of man in the animal world’. The GAP proposed a declaration extending three fundamental rights to non-human great apes, including the prohibition of torture, as they ‘share characteristics such as social organisation, communication, and strong affective bonds between individuals, which give them intelligence’. Research on great apes was banned in the UK in 1998.

Animal Testing Today

In 1986, provisions were made in law for the use of animals in scientific testing through the Animals (Scientific Procedures) Act, or ASPA. This legislation applied a ‘harm versus benefit’ approach to procedures. Compliance with the 3Rs (replacement, reduction and refinement) was written into the ASPA. In 2012, the ASPA Amendment Regulations made several changes to the law, including the addition of cephalopods as protected animals.

The National Centre for the Replacement, Refinement and Reduction of Animals in Research is an organisation funded by the UK Government, which ‘promotes the acceleration of the 3Rs in animal research’. The Centre supports the use of animals in scientific research in certain situations, ‘where the justification is scientifically compelling, where the experimental plans are robust and will provide meaningful results which are reported in line with the ARRIVE guidelines, and where appropriate measures are taken to minimise any suffering’. The tests must also comply with certain principles.

The annual ‘Statistics of Scientific Procedures on Living Animals’ revealed that in the UK the use of animals was at a high level (over 3.5 million procedures on living animals per year) until the introduction of the ASPA. By the 1990s it had declined to under 3 million procedures. Use of animals rose to a new peak of above 4 million procedures in 2012 and then began to decline again following the introduction of an EU directive on the protection of animals used for scientific purposes in 2014. Since exiting the EU, the Government has clarified that no legislative changes to the ASPA are necessary to regulate the use of animals in scientific procedures.

In 2020, 2.88 million procedures involving living animals were carried out in Great Britain. This was a decrease of 15% from the previous year and the lowest number of procedures since 2004. The annual ‘Statistics of Scientific Procedures on Living Animals’ also revealed that the majority (92%) of procedures (both for experimental and for breeding purposes) used mice, fish or rats. The style of tests has also changed over time, in keeping with new discoveries and advancements.

The severity of the impact of scientific procedures on animal health and wellbeing has been recorded in statistics since 2014. In 2020, ‘96% of all experimental procedures were assessed as sub-threshold, non-recovery, mild or moderate in severity’, and the remainder were severe. A severe procedure is defined as one that causes a major departure from an animal’s usual state of wellbeing.

Animal testing of cosmetics was made illegal in the UK in 1998. Cruelty Free International, an organisation aiming to end experiments on animals worldwide, developed the ‘leaping bunny’ certification, which indicates that a cosmetic, personal care or household product meets an approved standard of commitment to end animal testing. This certification has a rigorous set of criteria that may be applied globally.

About the Author

Rose Mason earned her BA in Cultural and Media Studies from The University of Leeds in 2018. She has since worked as a freelance writer for various organisations, with work covering health, politics and sustainability.

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