

INTRODUCTION TO ANIMAL EXPERIMENTS

In 2005 almost 2.9 million experimental procedures were carried out on living animals in Great Britain. This number has increased by 41,254 procedures since 2004 and is the highest number of experiments recorded since 1992. Just over 60% of these procedures were undertaken without the animal being given any anaesthetic¹. These experiments were performed in three main areas of research; to try to increase scientific knowledge, to develop new products and to test the safety of new products and their ingredients.

Because of the pain and suffering involved in such experiments, legislation requires each procedure to be licensed. For example, animals may be electrocuted, deprived of food and water, surgically mutilated, exposed to radiation, burned and scalded, deliberately wounded, exposed to nerve gas, infected with deadly diseases and poisoned with products as varied as household cleaners, weed killers and drugs.

What kinds of animals are used?

All kinds of animals are used, including dogs, cats, horses, monkeys, donkeys, pigs, sheep, hamsters, mice, rats and frogs. The following numbers are for some of the species used in just one year in Britain. In Europe it is estimated that the number is 10 million and world-wide it is estimated that over a 100 million animals are used in experiments every year.

SPECIES USED	TOTAL NUMBER OF ANIMALS IN 2005
Mice	1,955,035
Rats	414,335
Fish	230,315
Birds	112,792
Guinea Pigs	28,894
Rabbits	15,348
Dogs	5,373
Primates	3,112
Ferrets	952
Cats	308
Horses	294

Where do they come from?

i. Breeding in the Laboratory

Many animals are bred directly in the facilities that are using them. Breeding animals and their young may even be kept in cages in the same rooms as those animals enduring experimental procedures. The animals may be born, live and die or be killed within the same facility or even room in the laboratory.

ii. Commercial Breeding

Many other animals are purpose bred and supplied by specialist companies almost on a made-to-order basis with the animals sold as 'products'. They may have to endure long and stressful journeys to reach the laboratory. Economic considerations are a major factor in the use of laboratory animals. A laboratory mouse costs approximately £1.40, a cat about £100 and a beagle dog around £800. Animals are bred for particular qualities relevant to research needs. For example, rabbits are relatively cheap and docile and their large eyes, which cannot produce tears, makes them popular for irritancy tests, as they are unable to wash away, naturally, any product dripped into the eye.

iii. **Non-purpose bred animals**

There has been a history of concern about pet stealing as a source of supply for laboratories. Certainly there have been many examples of non-purpose bred animals being used in experiments. In 1989 the BUAV obtained proof that ex-racing greyhounds were being sent for vivisection after they retired from the track³. From 1990, all laboratories have been required to buy their cats and dogs from breeding establishments and suppliers licensed by the Home Office. However, exceptions can be and are granted.

(i) **Wild Animals**

Some animals are trapped in the wild, particularly primates. The methods used are cruel and indiscriminate and a threat to some endangered species. Once captured many animals that are considered unsuitable for research are killed needlessly. Others die from disease, stress and inadequate care during transport. The BUAV has estimated that up to 80% of primates caught in the wild may die before reaching the laboratory.

Where do they go?

All premises conducting animal experiments have to hold a licence granted by the Home Office. The following percentages are from the total number of procedures started in 2005. They were carried out by:

- (i) **Commercial companies** (31.4%) - who run contract testing laboratories involved in testing new products such as drugs, agrochemicals and household products.
- (ii) **Universities** (43.4%) - who have their own laboratories for educational and research purposes. They are also commissioned to do research by external bodies such as commercial companies and medical charities.

- (iii) **Government Departments** (2.6%) - This figure includes work done in Public Health laboratories and NHS hospitals. Government departments have their own laboratories and research centres, for example, the Department for Environment, Food & Rural Affairs (DEFRA) has laboratories for research such as developing new breeds of farm animals and for testing new agricultural chemicals.
- (iv) **Charities** (4.9%) - may have their own laboratories and also commission research projects in universities (this university research is included under the Universities figure and not in the above figure).
- (v) **Other Public Bodies** (16%)

Why are animal experiments performed?

Scientists use animals as 'models' of human beings. In reality, the difference between species can vary greatly, casting doubt over the reliability of the results of animal tests. Present morality permits the infliction of pain and suffering on animals that would be considered unthinkable for humans.

Medical and Veterinary Research

This makes up a large proportion of all experiments on animals and involves a wide range of procedures. Animals are used in medical training as 'living models' of how the body works, or as 'tools' for learning practical skills.

Animals are used to see how their body reacts to disease, infection, drugs and new surgical techniques. Certain types of animals are favoured for different types of research, for example - mice are used in genetic and cancer research, dogs for the development of surgical techniques such as transplant surgery, cats for psychological experiments and primates for vaccine research.

Drug Research

This is the major area of medical research. Again, used as 'models' for the human condition, animals are infected with diseases, or genetically modified to exhibit symptoms similar to those in human disease and then dosed with drugs to assess their effectiveness, toxicity and possible side effects. Animals are subject to a battery of toxicity tests, all of which involve dosing animals with large amount of a test substance. Animals may be forced to ingest or inhale substances; they may have them applied to their skin or their eyes. The researchers will look for common signs of poisoning such as cries of pain, distress, tears, diarrhoea, convulsions and bleeding.

Household Product Tests

Products such as bleach, washing powder and washing-up liquid are also tested on animals using, for example, acute toxicity skin irritancy and the Draize Eye Test.

The Draize Test - This test involves a substance being dripped into one eye of a rabbit. The eye is then examined for signs of bleeding, ulceration, redness, swelling and discharge over a period of several days. The albino rabbit is traditionally used because it is cheap, docile, readily available and has large eyes for assessing test results.

Skin Irritancy Tests - This test involves a substance being applied to the shaved skin of rabbits or rodents. The area is then observed for signs of redness, inflammation, swelling and cracking, while the animals are held immobile in restraining devices, to prevent them from licking the test area.

Acute Toxicity – This test involves a single high dose of a substance being given to animals via the expected human route of administration. For example chemicals are forced down the throats of animals or injected under their skin. The animals are then observed for signs of poisoning (as previously discussed) and it is common for animals to die. Mice or rats are usually used, though the test must be repeated with a non-rodent species, often dogs.

Environmental Pollutants

Using test procedures such as skin irritancy and long term toxicity tests, products such as pesticides, herbicides and industrial chemicals are tested on animals to assess their safety and potential toxicity to the environment and to human health.

Agricultural Experiments

Modern factory farming techniques produce problems of disease and infection and animals are used to develop new drugs to treat these resulting conditions. These experiments are often motivated by the need to increase productivity and profit, rather than concern for animal welfare. Animals are also used in breeding programmes aimed at producing new strains of animal, capable of producing more food, more quickly.

Warfare and Space Research

Military research using animals in the UK is carried out at Porton Down Laboratories, on behalf of the Ministry of Defence There is little information about this research, as it is hidden behind Government secrecy laws. In fact animal experiment figures for this type of research are not specified in the published annual Government statistics, however we know from parliamentary questions that 21,118 procedures were carried out in 2005 by Dstl Porton Down⁴. We also know that animals such as rodents, pigs, dogs and sheep are gassed, burned and injured in experiments to develop and test biological weapons, riot and nerve gases and ballistics.

Psychology Experiments

In the hope of improving our understanding of how the human brain functions and affects human behaviour, scientists use animals in procedures which include starvation, electrocution, water deprivation, separation of young animals from their mothers, solitary confinement and rearing in complete darkness. There were 5,737 experiments carried out in 2005 which specifically caused 'psychological stress' to the laboratory animals involved.

Genetic Engineering

Scientists can now 'create' entirely new genetically engineered animals in the laboratory. Transgenics is the production of animals whose genetic make up has been changed in some way. A gene from humans or another species is inserted into the animal's DNA. Another method is to knock out or disrupt one of the animal's own genes; researchers call these animals 'knockouts'. There has been an enormous increase in the use of animals in this kind of research in the UK in the last ten years. Many transgenic animals suffer painful, even lethal side effects of the genetic manipulations, such as tumours, brain defects, and limb and skull deformities. The success rate for producing animals with the required gene is poor, consequently a huge number of 'excess' animals are also killed in the process of breeding the animals to have the required genetic make up.

Do animal experiments work?

Experiments on animals are unreliable because they tell us about animals, not people. For example, aspirin causes birth defects in rats and mice, but not in humans, while penicillin, which is a life saver in humans, is poisonous to guinea-pigs.

A senior executive of a leading drug company GlaxoSmithKline recently admitted that more than 90% of drugs only work in 30-50% of people⁵. These drugs would have been passed as 'safe' and 'effective' by animal tests. 92% of drugs that have passed the animal tests fail during human trials⁶.

Some tests are designed in such a way that the results are clearly dubious, long before the test is carried out such as when animals in toxicity testing are force-fed unrealistically high volumes of a substance. For example, in one poisoning test, rats were dosed with over 5,900 times the human consumption rate of hydrogen peroxide to test teeth whitener. The rats experienced breathing difficulties, inability to turn over when placed on their backs, partial eye closure, blood in their urine, and incontinence. Three of the 22 animals died within 48 hours from gastric haemorrhaging⁷.

Animals are usually selected on the grounds of convenience and cost, the vast majority of animals used being mice and rats, and not on the basis of their 'human similarities'. The results produced by animal experiments are both crude and unreliable. They provide no guarantee that a product will be safe or effective for humans.

Are animal experiments cruel?

Animal experiments have to be licensed under the Animals (Scientific Procedures) Act 1986 and they are referred to as "regulated procedures" and by definition may cause an animal "pain, suffering, distress or lasting harm"⁸. Almost 60% of all procedures are regularly carried out without any anaesthetic. In reality the legislation is there to protect the researchers because it allows them to inflict pain and suffering on animals that would be considered cruel and prosecutionable outside the laboratory walls. The animals involved will either die as a result of the experiment or be deliberately killed afterwards, often for post-mortem examination.

As well as enduring painful experiments, animals can also suffer from their everyday existence in the unnatural conditions and surroundings of the laboratory where there may often be no natural light, confined space and limited social and/or environmental stimuli. All of these things cause the animals stress, they too can experience fear, boredom, depression and psychological stress and the totality of suffering can be immeasurable...

Are they morally justifiable?

Although other animals differ from humans in important ways, there are also similarities. They can clearly feel physical pain and, in varying capacities, also experience fear, stress, pleasure and affection. It is with this knowledge and indeed because of it, that scientists perform animal experiments.

Is it morally justifiable to inflict such suffering on another living creature? Scientists would argue that

it is, because of the potential benefits to human beings. But, if this is so, why should we not also experiment on human beings, who will yield much more relevant results? That we do not extend our morality to other species can only be explained in terms of simple prejudice. There is no other rational explanation.

Ultimately, say the scientists, it is a choice between a human and a mouse. Whose survival is more important? *Vivisection never delivers the straight choice between a human and a mouse.* Instead it is about deliberately inflicting suffering and ultimately death on thousands if not millions of all kinds of different species of animals with no more than the mere hope that that immense collective suffering may in some way lead to a greater understanding of a given human disease. The real choice is between good science and bad science. Whether to continue to fund cruel and unreliable animal tests on millions of animals every year or to use and develop instead more humane and reliable non-animal methods of direct relevance to people.

What are the alternatives?

Firstly, we must consider whether the test is really necessary. Many experiments are performed merely to satisfy academic curiosity, to fulfil a bureaucratic demand or because results of similar tests have been kept secret. A huge number relate to the production of products which are just minor variations of those already available (i.e. *me-too* drugs). Non-animal research techniques are also overlooked because a company may claim that they are inconvenient or more expensive compared to animal tests.

A wide variety of useful research techniques, which do not use animals, already exists and has further potential for development, if funding were to be diverted to cell and tissue cultures, test tube techniques and sophisticated computer models. Clinical studies involving human patients are also very important. People who are ill can be observed very closely, to locate the cause and possible treatment. New drugs developed using test tube techniques can also be administered in small

quantities to observe the effects. This is already what happens after animal tests and it is the most crucial stage of research.

Perhaps most importantly of all, much more could be done to prevent illness and disease. Studies of human populations can reveal the causes of ill health. This was how it was established that smoking causes lung cancer. Cancer and heart disease are the major killers in Britain, yet there is considerable evidence to show that they are largely preventable. Greater emphasis on prevention could save many thousands of lives each year.

Conclusion

Animal experiments are widely used in Britain and many other countries. As a result, millions of animals suffer great pain, misery and death. The morality of such experiments must be questioned. So too must the relevance and the reliability of the results. More resources must be directed towards epidemiological (population) studies and using and developing non-animal methods of research.

1. Home Office, Statistics of Scientific Procedures on Living Animals Great Britain, 2005. The Stationery Office.
- 2 Sharpe R, (1988), *The Cruel Deception*, Thorsons Publishing Group.
- 3 Liberator (1989) BUAV
- 4 <http://www.parliament.the-stationery-office.co.uk>
- 5 <http://news.bbc.co.uk/2/hi/health/3299945.stm>
- 6 Food & Drug Administration 2004.
<http://www.fda.gov/oc/initiatives/criticalpath/whitepaper.html>
- 7 DV Cherry et al. (1993) Acute toxicological effects of ingested tooth whiteners in female rats. *J Dent Res* 72:1298-1303.
- 8 Animal (Scientific Procedures) Act 1986, Her Majesty's Stationery Office, London.

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Last Updated: April 07