INTRODUCTION TO ANIMAL EXPERIMENTS

In 1999 2.57 million living animals were used in experimental procedures in Great Britain, of which two-thirds were not given any anaesthetic.1

These experiments were performed in three main areas of research; 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 animals are used?

All kinds of animals are used, including horses, donkeys, pigs, sheep, hamsters, and frogs. These are only the figures for 1999 in Britain. World wide, it is estimated that over a hundred million animals are used in similar experiments each year.

Some of the species used	Total number of procedures
Mice	1,641,868
Rats	566,990
Guinea Pigs	62,086
Hamsters	10,621
Gerbils	6,225
Rabbits	41,435
Dogs	8,185
Ferrets	1,119
Cats	1,623
Primates	3,993

Where do they come from?

(i) Commercial Breeding

The majority of animals are purpose bred and supplied by specialist companies. 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, make them popular for irritancy tests, as they are unable to 'cry' away, naturally, any product dripped into the eye.2

(ii) Pet Stealing

There has been a history of concern about pet stealing as a source of supply for laboratories. Certainly there are 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 had to buy their animals from breeding establishments and suppliers licensed by the Home Office.

(iii) Wild Animals

Some animals are trapped in the wild. 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 estimates that 80% of primates caught in the wild will 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 1998. They were carried out by:

(i) Commercial companies (41.5%) - who run contract testing laboratories involved in testing new products such as drugs and cosmetics.

(ii) Universities / medical schools (35.2%) - who have their own labs 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 / public health labs / NHS hospitals (7%) - This figure includes work done in Public Health labs and NHS hospitals. They have their own laboratories and research centres, for example, military research using animals is carried out at Porton Down Laboratories, on behalf of the Ministry of Defence. The Ministry of Agriculture, Fisheries and Food has labs for research such as developing new breeds of farm animals and for testing new agricultural chemicals.

(iv) Charities / Non-profit organisations (4.5%) - may have their own labs and also commission research projects in universities. This research is not included in the above figure.

(v) Other Public Bodies (11.8%)

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.

(i) Medical and Veterinary Research 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 for cancer research, dogs for the development of surgical techniques such as transplant surgery, cats for psychological experiments and primates for vaccine research.

(ii) Drug Research is the major area of medical research. Again, used as models for the human condition, animals are infected with diseases and then dosed with drugs to assess their effectiveness, toxicity and possible side effects. The most well known toxicity test around the world is the LD50 (Lethal Dose 50%) in which animals, most often rats, mice, or rabbits, are deliberately poisoned to death, in order to determine the single dose needed to kill 50% of the animals used.4,5 Groups of animals are given the test substance at increased dose levels, either by force feeding, injection, application to the skin or inhalation and observed for up to 14 days. Common signs of poisoning are vomitting, distress, tremors, diarrhoea, convulsions and bleeding.

Many scientists have now condemned the LD50 test as unreliable and recognise that the results have little relevance to the human condition. Thanks to a challenge by the BUAV, the UK government has now banned the LD50 oral toxicity test. However, it is still widely used world-wide.

(iii) Household Product Tests - Products such as bleach, washing powder and washing-up liquid are also tested on animals using, for example, the LD50 and irritancy tests.

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.

(iv) Environmental Pollutants - Using test procedures such as the LD50, 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.

(v) 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.

(vi) Warfare and Space Research - There is little information about this research, as it is protected by Government secrecy laws. However, we do 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. In space research, animals such as dogs and monkeys have been sent into space with electrodes planted in their brains and upon return to earth, have been killed for dissection and autopsy. There is little direct evidence of space research in Britain. Most is carried out in the United States and former Soviet Union.

(vii) 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 mother, solitary confinement and rearing in complete darkness.

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.

Leading drug company Ciba Geigy has admitted that 95% of substances passed 'safe' by animal tests are rejected immediately in human studies.

Some tests are designed in such a way that the results are clearly dubious, long before the test is carried out. For example, in one poisoning test, rats were dosed with the human equivalent of 4lbs of lipstick. Eventually, one rat died, not from poisoning, but from intestinal obstruction.

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?

Because the animals will feel pain, discomfort and stress, the experiments have to be licensed under the Animals (Scientific Procedures) Act 1986. However, the Act only attempts to prevent 'unnecessary' suffering. In reality, this means very little, as many of the procedures listed above are regularly carried out without any anaesthetic.

Are they morally justifiable?

Although 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 boredom. 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 man or a mouse. Whose survival is more important? The real choice, however, is between good science and bad science. Whether to continue to use cruel and unreliable animal tests, or to use other more reliable, humane 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 (ie. 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 exist and have further potential for development, if funding were to be diverted from animal research. These methods include using human 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.

Many forms of illness have been treated successfully for many years using methods developed without animal testing. These include Herbalism, Acupuncture, Osteopathy, Homeopathy and Chiropractice.

Perhaps most important 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 and misery. The morality of such experiments must be questioned. So too must the relevance and the reliability of the results. More resources should be directed towards epidemiological (population) studies and developing alternative non-animal methods of research.

References

1. Home Office, Statistics of Scientific Procedures on Living Animals Great Britain, 1999. The Sationery Office.
2. Sharpe R., (1988), The Cruel Deception. Thorsons Publishing Group.
3. McIvor, S., Race Against Death (Liberator, BUAV, Summer 1989)
4. Kondo, A. et al, (1996), British J. of Cancer 73(10): 1166-70.
5. Chamorro, G. et al, (1994), Archives of Medical Research 25(4): 441-6.

Updated: August 2000