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A transgenic mouse with muscular dystrophy. Muscular dystrophy is an inherited muscle disorder. No curative treatment is known. It is hoped that this research will enable scientists to understand more about the genetic basis of the disease and develop a gene therapy

Animal testing

Research using animals causes heated debate. New drugs must be safety tested on two species of animals, but how many experiments use animals and how are they regulated? What about genetically modified animals?

In the UK research using animals is regulated by the **Animals (Scientific Procedures) Act 1986**, which covers the breeding and supply of animals, how they are looked after and what they can be used for. Researchers who want to use animals must obtain a licence from the animal procedures division at the UK Home Office. They must explain the nature of the research, what they expect to find out and what they are doing to minimise the number of animals used and to safeguard their welfare.

Scientific procedures

Each year the government publishes a report on the use of animals in research — *Statistics of scientific procedures on living animals, Great Britain (2005)*. This can be accessed on the internet and covers activities such as breeding, as well as experiments.

Just over 2.9 million scientific procedures using animals started in 2005: 14% were for toxicity testing

(a figure that has fallen significantly); 39% were for breeding; the others were mainly for immunological studies, pharmaceutical research and development, anatomy and cancer research. Of these procedures, 85% used rats and mice, 4% birds and 8% fish. Almost all the animals were sourced in the UK.

Genetically modified animals

Overall, the number of animals used has fallen substantially over the last 25 years, but the number of procedures involving genetically modified animals is increasing rapidly. In 2005, 957 500 procedures (33% of the total for the year) used genetically modified (GM) animals — a big rise since 1995. The use of genetically modified animals is likely to increase still further over the next 10 years.

Most GM animals, about 95%, were ‘knockout’ mice. Specific genes are ‘knocked out’ to help show how the disabled gene functions normally and how this may be linked with disease. Two thirds of the GM animals were used to maintain breeding colonies; about one third were used for research.

The chief of the Home Office division makes the point that few GM animals have obvious health problems. Only 10% of procedures used rats, mice or other animals with harmful, but naturally-occurring, genetic mutations.

Dogs, cats, horses and primates, which have special rights, were used in less than 1% of activities in 2005; 3,120 macaques and other primates were used, mainly to conform to pharmaceutical safety and efficacy testing regulations.

- Government statistics can be found on the Home Office website (www.homeoffice.gov.uk/science-research).