

“THE USE OF ANIMALS IN RESEARCH HAS ENABLED MAJOR ADVANCES IN THE UNDERSTANDING OF BIOLOGY AND LED TO THE DEVELOPMENT OF NEARLY EVERY TYPE OF DRUG, TREATMENT OR SURGICAL PROCEDURE IN CONTEMPORARY MEDICAL AND VETERINARY PRACTICE.” WELLCOME TRUST. 2006

#### ABOUT US

Understanding Animal Research aims to achieve understanding and acceptance of the need for humane animal research in the UK, by maintaining and building informed public support and a favourable policy climate for animal research.

The information provided by Understanding Animal Research is based on thorough research and understanding of the facts, historical and scientific.

Understanding Animal Research seeks to engage with and inform many sectors to bring about its vision. Key stakeholders include members of the public, the media, policy makers, schools and the scientific research community.

#### ALSO AVAILABLE IN THIS SERIES:

- Why do we use animals in medical research?
- From test tube to patient: the making of a medicine
- Animal research in numbers
- How is animal research regulated?
- Animal welfare and the three Rs: replacement, refinement and reduction

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# ANIMAL RESEARCH HAS BENEFITS FOR US ALL - AND FOR ANIMALS TOO





## HOW DO PEOPLE BENEFIT FROM ANIMAL RESEARCH?

Animal research has helped us to make life-changing discoveries, from new vaccines and medicines to transplant procedures, anaesthetics and blood transfusions. Millions of lives have been saved or improved as a result.

Animal research has been important in the development of many major medical advances. Studies that use animals have played a role in the prevention or treatment of conditions as diverse as tuberculosis, diabetes, polio, Parkinson's disease, muscular dystrophy and high blood pressure.

Other examples include:

- **ASTHMA INHALERS.** Both 'reliever' and 'preventer' inhalers were developed after work on guinea pigs and frogs. One in 10 children currently receive treatment for asthma.
- **MENINGITIS VACCINES** have led to a huge fall in certain types of the disease. Cases of meningitis C in the UK are now rare, down from 700 per year only a decade ago.
- **LEUKAEMIA TREATMENTS** including chemotherapy. Today, 8 out of 10 children diagnosed with acute lymphocytic leukaemia survive for at least five years. 25 years ago, 7 out of 10 with the disease died within five years.
- **ORGAN TRANSPLANTS.** Heart and kidney transplant techniques, plus vital anti-rejection medication, were developed using animals. In the financial year 2008 - 2009, 3,514 people received major organ transplants via the NHS.
- **BREAST CANCER TREATMENTS.** Thanks to developments that include tamoxifen, Herceptin and aromatase inhibitors, 8 in 10 women now survive breast cancer for at least five years.

## DOES RESEARCH BENEFIT ANIMALS TOO?

Yes. Conditions exclusive to animals, as well as the ones they share with people, are now better understood and can be more effectively treated thanks - in part - to animal research. Most medicines prescribed by vets are based on those used by people.

## TWO WAYS ANIMALS HAVE BENEFITED FROM RESEARCH

- **PASTEURELLOSIS.** A vaccine developed through research on 450 calves now allows us to prevent pasteurellosis - a severe respiratory disease that used to affect 1 in 5 cattle - and has protected over 100 million of them.
- **DIABETES.** Studies to explore the treatment of diabetes with insulin involved animals such as dogs and rabbits. Today, insulin is used to treat the condition in animals as well as in people.

## WILL FUTURE MEDICAL ADVANCES REQUIRE ANIMAL RESEARCH?

Yes. For some aspects of medical research there are no suitable alternatives. We cannot yet recreate the interconnectivity of the heart, lungs, blood vessels, nervous system and other parts of the body that exists in animals and people - vital for studying the 'whole body'.

The law also says that all new medicines must be tested on animals to check they are likely to be safe, identify unexpected side effects, estimate effective doses and find the best way to administer them.

"WITHOUT ANIMAL TESTING, THERE WILL BE NO NEW DRUGS FOR NEW OR HARD-TO-TREAT DISEASES." THE LANCET. 4 SEPTEMBER 2004



These are just a few broad areas of medical research where animals are being used:

- **STEM CELL RESEARCH** using mouse stem cells has paved the way for human stem cell lines for use in research and potentially to treat conditions including stroke, heart disease, muscular dystrophy, osteoarthritis, burns, blindness, diabetes, multiple sclerosis, Parkinson's & Alzheimer's diseases, spinal cord or brain damage.
- **GENE THERAPY** for serious inherited conditions such as muscular dystrophy, cystic fibrosis and sickle cell disease.
- **VACCINES** against complex diseases such as Alzheimer's, malaria and HIV/AIDS.
- **ORAL OR INHALED INSULIN** for diabetes sufferers, instead of injections.

While animal research continues to benefit both animals and people, work being done now may help to phase it out of some areas in future. For example, stem cell research may one day replace some kinds of animal testing by generating human cell types and tissues that are better suited to evaluating the effectiveness and safety of medicines.

## ANIMAL AND HUMAN DISEASES: HOW DIFFERENT ARE THEY?

Most human diseases exist in at least one other species, and many veterinary medicines are the same as those used for people. Just as we do, animals get illnesses such as cancer, malaria, heart failure, asthma and arthritis - and they can be treated in much the same way as us.

## ARE THERE ALTERNATIVES TO ANIMAL RESEARCH?

The research community aims to find non-animal research methods in part because the law states that a licence for animal work will not be given if there is an alternative, but also because of its high cost and the associated ethical issues. A growing number of alternatives are thus being developed, as described in our leaflet *Animal welfare and the three Rs: replacement, refinement and reduction*.

## ANIMAL RESEARCH AND TESTING IN CONTEXT

Research will continue to rely on a variety of methods. And after the research and development stages (in which some animal use is crucial) no new medicine can be given to humans until it has been tested on animals.

## FURTHER INFORMATION

To learn more about how animal research benefits both humans and animals, please visit our website at [www.understandinganimalresearch.org.uk/your\\_health](http://www.understandinganimalresearch.org.uk/your_health).

"ANIMAL RESEARCH HAS MADE MAJOR CONTRIBUTIONS TO MEDICINE AND HEALTHCARE BY HELPING SCIENTISTS TO BRIDGE THE GAP BETWEEN THEORIES DEVELOPED IN THE TEST TUBE AND THE REALITY OF INTRODUCING A NEW TREATMENT TO THE PATIENT." ASSOCIATION OF THE BRITISH PHARMACEUTICAL INDUSTRY. 2009