

The need for animal research in medicine : crucial to past success : vital for future progress / Research for Health Charities Group.

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ANIMAL RESEARCH ALSO BENEFITS ANIMALS.

It is not a question of people or animals. When it comes to disease, we are all in this together. More than half the drugs used by vets — from antibiotics to tranquillisers — were developed for human medicine. The same scientific techniques that control disease in man are also used to great effect against animal diseases. Many million animal lives have been saved by inoculation against anthrax and rabies alone. Distemper in dogs and infectious enteritis in cats can be virtually abolished through effective vaccination.

Vital progress has been made in medicine. Many once fatal diseases can now be cured. In others, quality of life has been greatly improved. Just try to imagine a world without painkillers! Future advances require research, and a crucial part of that research — whether we like it or not — involves animals. We must allow scientists and doctors to use all the means that they have in their fight against disease. The lives of many we love, and perhaps our own lives, depend on it.

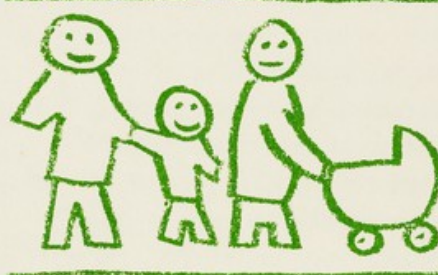
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Wellcome Trust

THE NEED FOR ANIMAL RESEARCH IN MEDICINE.

Crucial to past success.

Vital for future progress.



RESEARCH FOR HEALTH
CHARITIES GROUP

Drugs to cure infection, anaesthetics, vaccines that eradicate disease, painkillers, life-saving heart surgery, techniques to combat cancer — medical science has controlled death and disability in a way inconceivable to our grandparents' generation. Such progress simply would not have been made without experiments involving animals.

Yet doctors and scientists are coming under increasing pressure to restrict — perhaps even end — this vital aspect of research. This leaflet explains what animal experiments have contributed to our well-being and why they must continue. Alternatives are being pioneered, but cannot provide all the answers yet.

DECADES OF DISCOVERY.

Heart disease and cancer are cruel conditions that touch all our lives. We are forging ahead in our understanding of their fundamental causes and treatment. The same is true with many other disabling and fatal diseases; but these two areas illustrate the extent of our achievement.

In heart disease, remarkable progress has come from research to which animal experiments have made a crucial contribution:

★ In Britain alone, up to 10,000 heart attack victims will be saved this year by new **clot-busting drugs** that dissolve the life-threatening blockages in their coronary arteries.

★ More than a thousand people who would otherwise certainly have died have reached hospital alive because of **defibrillators**, devices that use an electric shock to restore a normal heart rhythm.

★ The number of people suffering strokes can be reduced by around 40% now that we have effective **drugs to control high blood pressure**.

★ Each year, more than thirteen thousand people have the crippling pain of angina relieved by **coronary bypass surgery** that restores blood flow to the heart.

★ **Congenital heart defects:** of the 5,000 children born each year with heart defects, one in five requires an immediate life-saving operation.

Against cancer, we have also made great progress. Though many of the common cancers are still not curable, much can now be done to relieve symptoms and extend life. In certain less common cancers, the prospects of survival have been dramatically improved by the introduction of anti-cancer drugs alongside surgery and radiotherapy.

★ Half of all **childhood cancers** are now cured. 70% of children with leukaemia survive.

★ **Breast cancer** remains difficult to treat, but doctors estimate that 62% of patients now survive at least five years.

★ **Testicular cancer**, which affects 1100 young men in the UK, can now be cured in 90% or more of patients using drugs developed by the Cancer Research Campaign and the Institute of Cancer Research.

There has also been a revolutionary advance in our understanding of cancer. We now know what happens to the genetic code, or DNA, when a normally dividing cell is transformed into one that grows out of control. This fundamental insight will prove invaluable in developing future treatments.

ISN'T PREVENTION BETTER THAN CURE?

It is sometimes said that most disease could be prevented by changes in our lifestyle, and that if we looked after ourselves better we would need fewer drugs, and so less animal research.

A healthy lifestyle *does* reduce the risk of cancer and heart disease. For this reason, medical charities already support health education. But many people develop disease through no fault of their own. Think of the fit young man who has a heart attack, the baby

born with a deformed heart, and the child that develops leukaemia.

Of the three most common cancers — breast, lung and bowel cancer — only lung cancer has a clear, preventable cause. Since we do not know yet why the majority of cancers develop, we cannot advise on prevention. The same is true for a great deal of heart disease. So basic research into causes and treatment continues to be vital. And animal research is a necessary part of it.

But only around 10% of the £20 million distributed by the British Heart Foundation this year is used for animal research. The rest will be spent on other types of work from the study of patterns of disease in the community to the detection of congenital heart disease in unborn babies using ultrasound.

Prevention and cure both matter. The Imperial Cancer Research Fund is finding ways to help beat nicotine addiction. But lung cancer would be a problem for 20 years even if everyone stopped smoking today, so work to improve therapies goes on.



Sam the rabbit gets a check-up. He and another rabbit are providing antibodies to try to develop a test which can tell doctors which women with breast cancer need the most intensive drug therapies, and which women can be spared them.

WHAT DOES ANIMAL RESEARCH INVOLVE?

Some animal research is very similar to surgery on humans. The vast majority of experiments cause no pain. If pain is likely to occur an anaesthetic is administered. Painkillers are given to relieve discomfort but if it is best for the animal not to recover, it is humanely put down.

All animal laboratories, all scientists working in them and all research projects using animals must hold a licence from the Home Office. Premises can be inspected without warning and closed if they fail to meet strict government standards of animal welfare.

As well as conforming to the law, scientists must satisfy medical research charities that their experiments use the smallest possible number of animals.

ARE THERE ALTERNATIVES?

Alternatives to animal research are actively sought and the number of animal experiments is falling year by year. But alternative methods will never replace the need for some animal experiments.

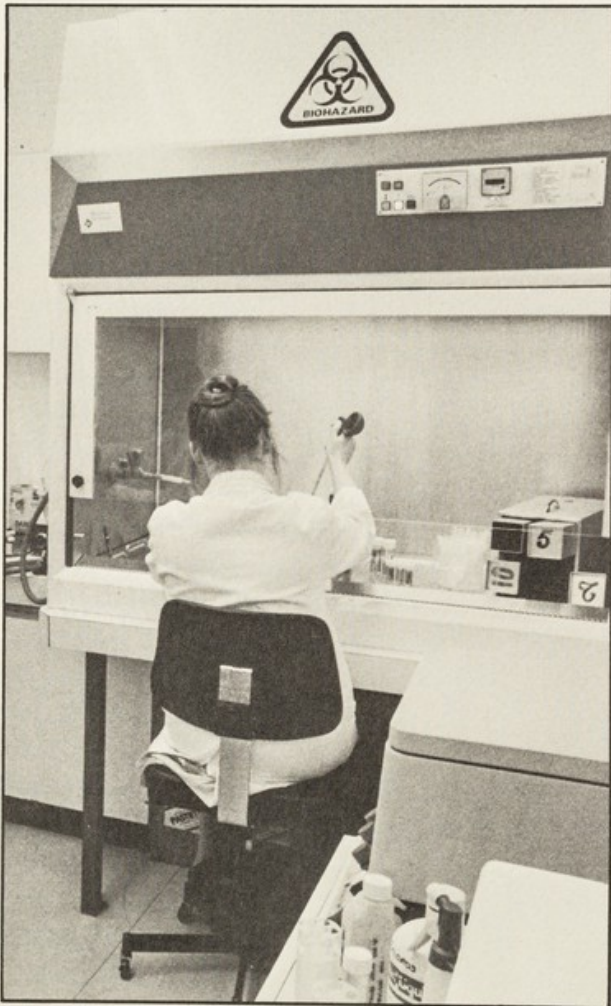
Many studies already use cells and tissues grown in the laboratory but the information they provide is limited. The body is an enormously complicated set of interacting systems which cannot be studied in isolation.

For example, cancers spread from one part of the body to another. This process can only be researched in animals. In heart disease, the same is true. Scientists can study small pieces of blood vessel in the test tube, but this will never tell us all we need to know about high blood pressure since its control involves the nervous system, heart and kidneys.

Using animals is also the only way of developing safe drugs. Animal experiments tell us which ones do

the job we want without unacceptable side effects. True, screening drugs in animals sometimes fails to spot serious dangers to humans. We all remember thalidomide. But this was the result not of irrelevant animal testing but of too little!

Computers help us predict how drugs work. But the body is more complex than any computer model and no simulation of a drug's effects can replace the need for thorough animal testing.



Cell culture is used for the vast majority of laboratory-based research. Key human functions can also be studied in other organisms, including yeast and bacteria.

ARE SOME EXPERIMENTS UNNECESSARY?

Science advances by carefully gathering all sorts of evidence — like completing a complicated jigsaw. Medical scientists only undertake experiments that contribute in some way to our understanding or to our safety. They are compassionate men and women who dedicate their lives to conquering disease and suffering in humans and animals alike.

SOME MAJOR ADVANCES WHICH DEPENDED ON ANIMAL RESEARCH

- 1920s Insulin for diabetes
- 1930s Modern anaesthetics for surgery
- 1940s Penicillin for infection
- 1950s Kidney transplants
Polio vaccine
Hip replacements
- 1960s Corneal transplants to cure blindness
Drugs to treat schizophrenia
- 1970s Drugs to cure ulcers
Drugs to treat asthma
- 1980s CAT scanning for improved diagnosis
Life support systems for premature babies
The first drugs to treat virus infections

Other great advances against heart disease and cancer are mentioned in the text. They too depended crucially on animal research. To deny medical scientists the right to use animals in experiments would be to deny the possibility of further advances like those above. Would you be prepared to accept that?