

POLIO ANIMAL RESEARCH VACCINE HISTORY CANCER RESEARCH TESTS ANIMAL MODELS EXPERIMENTS ARTIFICIAL HEART VALVES ANIMAL EXPERIMENTS

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It is part of a physician's code of ethics to do no harm to his patients. The idea is incorporated in the Hippocratic Oath. I believe these same high standards of behaviour should also apply to medical scientists who carry out research. They too should undertake to "do no harm" by using only humane methods of research. There are of course many methods of investigation that "do no harm", and these include clinical observation of people who are ill or who have died, test tube experiments with human tissues, and computer simulation of biological systems.

Unfortunately, many scientists fail to observe these civilised standards of behaviour. The result is that millions of animals suffer and die in the world's laboratories.

Animal experiments not only bring misery and death to animals, it can also endanger human health. The physiological and biochemical differences between people and animals mean there is always the risk of misleading predictions. To illustrate these dangers there are three important cases where animal experiments have delayed medical progress.

POLIO RESEARCH ANIMAL EXPERIMENTS' HISTORY

Those who defend animal experiments often cite the conquest of polio as a triumph of animal experiments. In fact, emphasis on misleading monkey experiments rather than human studies delayed a proper understanding of the disease for over 25 years (1).

Following discovery of the virus in 1908, scientists focussed their main attention on the artificially induced disease in monkeys, believing it to be an exact replica of the human infection. Based on these experiments, it was generally believed that polio virus entered the body through the nose and that it only attacked the central nervous system. Yet by 1907, epidemiological studies of actual human cases had correctly suggested that polio virus was not entirely or even chiefly a disease of the central nervous system, and that people are infected through the digestive track. Tragically, animal experiments so dominated research that prior to 1937, most scientists rejected the notion that polio is an intestinal disease.

Whether the virus entered the body by the mouth or nose was of great practical importance for it determined the kind of remedies that were developed. For instance, by 1937, researchers had produced a nasal spray that prevented infection in monkeys. It was widely promoted for human use but inevitably failed. The only result was to abolish the children's sense of smell, in some cases permanently. Eventually, support for the nasal route of infection started to wane, and it was only when scientists understood that polio virus enters the mouth and first resides in the intestines that it was possible to develop an orally administered vaccine.

SMOKING AND LUNG CANCER ANIMAL MODELS

Today, most of us know that smoking causes lung cancer and a host of other serious diseases. But people were not always so convinced. Although by the 1950s many human epidemiological studies had linked smoking to lung cancer, some scientists still doubted the connection because the disease could not be induced in laboratory animals (2). Tragically, these misleading animal experiments were allowed to cast doubt on the human evidence and as a result health warnings were delayed, costing many lives.

Despite years of further experimentation, it has proved extremely difficult to induce lung cancer in animals by forcing them to breathe tobacco smoke.

FIRST ARTIFICIAL HEART VALVES ANIMAL TESTING HISTORY

Dogs are commonly used for cardiac research and many experiments were performed in an attempt to develop an artificial mitral valve. However, vivisectionists were hampered because the heart valves almost always produced fatal blood clots in these animals. These results delayed progress because surgeons were deterred from carrying out human trials (3).

Like other vivisectionists working in the field, Starr and Edwards encountered the familiar problem of blood clots but eventually decided on a "caged-ball" type of valve. Other designs always killed the animals and even the caged-ball device killed 6 of the 7 dogs used to test it. For some reason, however, one dog did survive for some months.

Fortunately, Starr and Edwards decided to test the caged-ball valve in human trials where it proved more successful. They discovered that in contrast to the dog experiments, blood clotting was not a problem in human patients. Starr and Edwards concluded that "the marked propensity of the dog to thrombotic occlusion or massive embolization from a mitral prosthesis is not shared by the human being." (4)

There are dozens more examples like this in the medical literature but these three cases clearly highlight the danger of relying on animal experiments. Animal experiments not only harm animals, it can also put people at risk. It should therefore be denounced on both moral and scientific grounds.

In conclusion, medical scientists should adopt the same high standards of behaviour that we expect from physicians, above all, they should undertake to "do no harm" during their research. By using humane methods of investigation, they would not only save animals but provide a safer approach to medical research and healthcare.

References

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- 4) A. Starr & M.L.E. Edwards, Journal of Thoracic & Cardiovascular Surgery, 1961, vol. 42, 673-682

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