

# Past and Future

There is no doubt that throughout history, animals have played a central role in medical research. Many of the treatments we have today for serious illnesses have come from animal research. Animal research is defined as the use of non-human animals in experiments . There has been recorded that the use of animals in research has been going on as far back as the Greek writings.

Aristotle who lived in 384-322 BC was one of the first to be recorded to use live animals in experiments and Doctor Galen 129-200 AD was known as the “father of vivisection” from his experiments on living pigs. These experiments were not in the name of medical research, they were done to gain knowledge about the animals themselves. In this period man were not set next to animals in comparison of physiology or any other way. Man was creatures above animals.

“An image of God” as it is said in the bible, Genesis 1:26 “Then God said, “Let us make man in our image, in our likeness, and let them rule over the fish of the sea and the birds of the air, over the livestock, over all the earth, and over all the creatures that move along the ground.” The modern era of animal research started about 150 years ago when physiology became recognised as a science. In the mid-1800s medical research started to make big progress because they started to do experiments on animals.

Among the first discoveries was the functioning of the cardiovascular and nervous systems. In 1859 Charles Darwin came up with the theory of evolution . This theory linked humans to other animals and made a link between the groups. This made a path to do

research on different animals to learn how human physiology worked. This was encouraged by Darwin, but not with all other people. Darwin also believed animals to have emotions and in the late 1800s the divide between animal lovers and researchers on this point led to the 1876 British Cruelty to Animals Act to regulate research on animals. But because of the major progresses in medical research by using animals, these regulations fell into the background. An important discovery was proven by Louis Pasteur and Robert Koch late in the 19th century. The two scientists used anthrax, a notifiable bacterial disease of sheep and cattle, to prove that microorganisms caused maladies to both human and animals. Pasteur developed a vaccine to anthrax, and a few years later he had also made a vaccine to rabies by working with animal testing.

Another important medical discovery was the discovery of insulin. Insulin is secreted from the islets of Langerhans in the pancreas, a large gland behind the stomach that secretes digestive enzymes into the duodenum. Embedded in the pancreas are the islets of Langerhans, which secrete into the blood the hormones insulin and glucagon. In 1889 a pancreas from a dog was removed to prove its role in digestion. This was a horrible act but when the pancreas was removed, the researchers discovered flies swarming around the urine of the dog. They found sugar in the urine which proved the connection between pancreas and diabetes. For the following two decades a lot of research was done on dogs to figure out how to keep the dog alive without its own insulin production. When they had found a way to extract insulin they used cow, pig, horse and fish to produce the insulin needed because the insulin produced by the animals are almost

identical to the one produced in humans. Today most of the insulin is grown from human DNA in bacteria, but the process of animal research was important to come to where we are today. Many important medical research the last century are due to animal experiments.