

2013 PSBR High School Essay Contest
Finalist

Jeana L.
Saint Joseph High School
Natrona Heights, PA

Why Are Animals Used in Biomedical Research?

Biomedical research is the search for answers to medical questions. It's all about finding ways to cure humans and prevent them from contracting diseases and sickness. This realization leads to the question, "Why are animals used in biomedical research?"

First of all, we have to know in depth what biomedical research is about before we know where animals come into the picture. Basic biomedical research is the pursuit of knowledge about how organisms and pathogens function. Organisms are living things, and pathogens are infectious agents that cause disease or illness to their hosts. Biomedical research is mostly used for agents that disrupt the normal physiology of a multicellular animal or plant. Nearly every vaccine or drug is based on this research.

So where do animals fit into all this? More than 20 million animals are used in biomedical research each year, and more than 90% of those animals are mice, rats, and other rodents. These animals are specifically bred for the purpose of research. Lab animals have body systems and organs similar to that of other humans and animals, and they are susceptible to the same diseases that affect humans. The reason they have body systems and organs similar to animals too is that the information gathered by the research can be applied to both humans and other animals.

Examples of animals that can be used in research are swine, because swine and humans have similar cardiovascular and skin systems, and the mouse model, which shares 94% of DNA with humans. Some animals used for research do not have to have anything significant in common with humans, because differences in a research model help as well. For instance, sharks rarely get cancer, cockroaches can regenerate damaged nerves, and some amphibians can regrow lost limbs. The scientist may be able to figure out how these animals accomplish this, and can apply the information to human medicine.

Researchers are able to study the animals throughout their life cycle in a short period of time, because they have a very short life span. They are also able to control the environment of the animals. This included temperature, ventilation, light, etc. Being able to control the environment keeps the experimental variables to a minimum.

It's great how the animals are used, but who cares for them through the process? Some people feel as though no one cares for them, but there is no need to worry about the animals because they are greatly cared for by research veterinarians, husbandry specialists, and animal health technicians. Research institutions are required to have an Institutional Animal Care and Use Committee (IACUC). These people care about the animals and guarantee that they have the highest quality of care. In fact, most animals do not experience procedures more intrusive than annual physical exams that we all experience. Some institutions actually have to euthanize the animals so the scientists can harvest the tissue or organ of interest. Other institutions have

adoption programs for animals in the studies that don't need euthanasia.

Animal research has more benefits than it looks like on the outside. It helps scientists figure out ways to treat and cure humans. Vaccines were created through the information gathered by biomedical research. It creates other major breakthroughs in the science department, not just for humans but for other animals as well. So when your animal is able to live because it was able to take the medicine it needed, thank biomedical research.