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Animal Testing
ELE 282
25 October 2006

Animal Testing has gone on for many many years. Without the use of animals, very few advancements in the medical, psychological, or many other fields would occur. There is too much red tape for human testing to go smoothly. We would have Pavlov's behavioral studies without animal testing. However, there is still a lot of controversy surrounding the use of animals in research and testing. The use of these creatures who have lives of their own and cannot defend themselves against human whims are the center of much debate worldwide. Cruelty against these animals is also still a huge problem.

There are three main types of testing – pure research, applied research, and toxicological testing. Pure research is research that is done purely for the sole purpose of learning new things about a biological specimen. Applied research is research used to solve specific practical problems. Finally, Toxicological testing is the testing of drugs, prescription or otherwise, and the testing of cosmetics. Cosmetic testing on animals creates the most controversy among animal rights groups like PETA.

There are many pros to using animals for testing, though many will not admit it. The most prominent reason is that animals are *not humans*. But they are close enough to get some very accurate data. If you give a corrupt doctor a choice between using monkeys for testing unethically or using orphan children taken from the streets for testing, he should probably be using the monkeys. Animals are also very important in exploring the origin and effects of animal born illnesses. Some believe that HIV could have started with primates. For this reason, primates are the number one subjects in HIV studies. In addition, most animals have shorter life spans than the average human being. This means the effects of drugs or surgeries on the aging process and reproductive processes can be seen in a far shorter period. Also, animal testing is both more cost effective and more practical when it comes to the confinement of subjects.

This is not to say that animal rights groups don't have points of their own. Animal cruelty is a large problem, because it is difficult to put constraints on moral ideas. It is difficult to distinguish between a good cause that will benefit from the testing and a cause that is not important enough to pass moral lines. Some doctors try to use chemicals to recreate genetic defects. This just doesn't work and usually creates more problems than it solves. Additionally, animals can not articulate their thoughts and feelings the way human subjects can. They can scream when in pain, but they can not show mild discomfort or "tell us where it hurts."

Typical subjects used in animal testing are invertebrates, because they are cost effective and are not protected by many rights groups (except for cephalopods), rodents, specifically genetically altered mice, the white ones, fish, rabbits, which are commonly used in cosmetic testing and are the face of animal cruelty, dogs because of their gentle nature, cat, used for neurological testing, and primates, which are by far the most commonly used group in testing.

In 1959, William Russell and Rex Burch created the idea of the three R's, which is a group of guidelines to reduce animal cruelty in laboratory environments. Reduction means to use less resources and animals to get just as many or more answers. Replacement means to use other specimens, such as cell cultures in place of intelligent animals. Finally, refinement means to use better methods to find your data more safely and quickly and to reduce the stress and pain of the subject used.

There are many examples of animal testing, and it is not always clear if it is moral or not. In about 1998, scientists found a way to grow a human ear on the back of a mouse. They used a silicon scaffold and the mouse's own flesh grew over the mold. Later, the process was refined. A mesh scaffold is filled with donor tissue and the mouse uses its own flesh to culture this tissue. In a way, the ear ends up being a clone of the recipient's original. This process has some difficulties. The mouse is genetically altered to not have an immune system so that the rate of rejection is lowered. This means the mouse must be kept constantly in a sterile environment. Also, the mouse dies during the transplant operation; its little body cannot handle the stress of so much skin loss. This is considered immoral by many because it is not a necessary medical operation to solve a life-threatening disease. It is a cosmetic operation.

Alternatively, xenotransplantation, the transfer of organs cross-species, is, by nature, something that *must* use an animal life to save a human life. The process is rather cruel. Pigs are genetically altered, like the mice, to not have immune systems. They are then kept in a small, sterile environment through their entire growth, until they are needed. At the time of the transplant, they are corralled through a gauntlet of harsh sterility processes before being slaughtered for the benefit of the patient. It is cruel, but it can be considered necessary to save a human, possibly a child's, life.

Resources

- http://en.wikipedia.org/wiki/Animal_testing
- <http://www.frame.org.uk/3rs/3rsintro.htm>
- <http://www.cnn.com/HEALTH/briefs/9510/10-26/>
- <http://www.futurepundit.com/archives/000882.html>
- <http://www.futurepundit.com/archives/000828.html#000828>
- TV Show – Nip/Tuck (Idea)