



2016 PSBR High School Essay Contest
Grand Essayist

Hannah L.
Homeschool
Perkasie, PA

Biomedical Research and My Life

In the spring of 2012, my grandfather's health began to decline. He was exhausted after walking a short distance, and he quickly became short of breath. His skin color was grayish, and his hearty appetite declined. After a doctor's examination and a Transesophageal Echocardiogram, they determined that his seventy eight year old mitral heart valve was worn out. His surgery was scheduled for July. Thankfully my grandfather lives in a time when much research has been done on the human body and the success rate for heart surgery is high. Amazingly, the animals he spent so much time with as a farmer, are used for research and even for the reproduction of the artificial mitral heart valve the doctor believed he needed. Cutting open my grandfather's chest, the cardiac surgeon determined that he would not need the bovine replacement valve for his heart. It would only need to be repaired. Our family was ignorant to the benefits biomedical research had in our lives. We took for granted that without it, my grandfather would not be alive today.

What is biomedical research? It involves the scientific investigation for the causes of diseases and the discovery of ways to heal humans and animals. Laboratory animals have successfully been used in biomedical research to solve medical problems and develop life saving vaccines. Tenaciously animal advocates oppose the use of animals in research, but they are blind to the fact that they have benefited from this research themselves. Because of biomedical research, life expectancy has grown drastically over the past few decades. The research requires a whole team of people and a plethora of trials before it can ever be used on humans. Biomedical research helps the world. It must continue!

An average of twenty million animals are used each year in biomedical research. Animals are essential to the development and findings of scientists, because they have similar organs and biological structures to humans and, they are susceptible to many of the same diseases. Although some argue it's animal abuse, the animals experience little to no pain at all. It would be unethical and illegal to do these experiments on humans. Because animals have short life cycles and scientists have the ability to control their environments, it is easier to experiment with them than it is with humans. The tiniest lab mice and the smartest primates are well cared for and kept in adequate housing. Animals have helped develop hundreds of vaccines. Before the 50's and 60's, polio was a widespread disease causing thousands of deaths per year. Thankfully it was brought under control and now it is a rare disease only occurring in about 16 countries. Diabetics have benefited greatly from dogs, who helped to discover the use and profits of insulin. Canines have also been used for breakthroughs in heart and circulatory diseases as well as high blood pressure. Although there has been remarkable progress made in biomedical research with animals, there is still much to be done.

Before the discovery of bypass surgeries and transplants, heart disease was a ruthless killer which claimed the lives of millions. Thanks to the hard work and advancements of many scientists, heart operations save half a million people each year. In the 1930's, a researcher, John Gibbon, used cats to experiment on bypass surgery. He even created a heart-lung bypass machine that kept a cat alive for twenty-six minutes. Later in the 1950's, he used dogs to experiment with a fake lung. There seemed to be one problem with the heart surgeries he performed on the dogs. The heart would continue to pump through the operation and they would lose a lot of blood. This needed to be fixed. With the help of dogs, rats, and rabbits, a team of researchers discovered that potassium could be used to arrest the heart. Michael DeBakey, one of the world's most famous heart surgeons, who performed more than 60,000 operations, credits his success and developments to animal experimentation.

My grandfather celebrates his eighty second birthday next month. Yes, his body continues to slow down and wear out as one would expect at his age, but we are blessed to have him with us still. I am thankful for the advances in biomedical research and the personal effect it has had on my life and the lives of those I love.

Works Cited

“What is Biomedical Research?.”

http://www.psbr.org/images/Educational_Materials/cbra_factsheet_biomedical_research.pdf

“Use of Animals in Biomedical Research: Understanding the Issues.”

http://www.psbr.org/images/Educational_Materials/aalas_use_of_animals.pdf

“John Heysham Gibbon-Heart Lung Machine.”

<http://inventors.about.com/library/inventors/blheartlungmachine.htm>

“Heart Surgery and Transplants.”

<http://hirnforschung.kyb.mpg.de/en/findings/medical-treatments-and-therapies/heart-surgery-and-transplants.html>