

## The Hearts That Stopped So Mine Could Beat

Every day, thousands of lives are saved due to open heart surgery and heart transplant procedures. In the United States alone, half a million people are saved each year from having open heart surgery. These surgeries are now very common and strategic because of the extensive research that was performed on animals. Scientists, such as John Gibbon, spent decades conducting experimental heart procedures on dogs and cats. Without the knowledge provided by biomedical research on animals, open heart surgery and heart transplant procedures would not be possible.

Since the late 1930's, John Gibbon was the first known scientist to attempt a cardiac bypass technique using cats. Along with his extensive experiments utilizing pumps and oxygenators, he and his colleagues began studying the prolonged passage of blood through an artificial lung. After successfully achieving a cardiac bypass in cats, Gibbon began to use the procedure in treating dogs with heart problems. By the early 1950's, Gibbon was able to reduce the death rate in dogs by almost 12% using his cardiac bypass technique (Kybernetik, 2017). After his great medical achievement in dogs, he felt confident enough to perform the first open heart surgery procedure on an 18-year-old girl. The girl suffered from right heart failure due to an atrial septal defect. Gibbon performed her procedure in 45 minutes and that girl lived for many years afterward. Although his procedure was successful, there were still many issues that made open heart surgery a very risky procedure.

One of the early problems in the experimentation of open heart surgery procedures was that the heart would continue to beat throughout the surgery. This caused large amounts of blood to leak and this made it very difficult for surgeons to operate. While studying the procedure on dogs, rats, and rabbits, scientists discovered that a potassium citrate could safely stop the heart

beat and cold cardioplegia would protect it while in that state (Kybernetik, 2017). Other things, such as the replacement of heart valves, were also tested in dogs, rats, guinea pigs, and rabbits. Minimally invasive surgery was later tested and developed in young pigs. These pigs were used to test the suturing of bilioenteric anastomoses, which showed bile satisfactory after ligation of the common bile duct (Benefits, 2013).

Without the animal experimentation that encouraged the technique of open heart surgery, people with heart defects would not live to a full age. When I was only 18 months old, my doctor diagnosed me with right heart failure due to an atrial septal defect. This is the same defect that the 18-year-old girl had who underwent the first open heart surgery. After my diagnosis, my parents took me to see a cardiologist. My cardiologist decided that my best chance at living a full life was for me to undergo open heart surgery. He suggested that my parents wait until I was two years old to get the procedure, due to my small and fragile heart. On April 25, 2003 I was placed on a hospital bed and rolled into the operating room. That day was the day I received the open-heart surgery that saved my life.

People who suffer from atrial septal defect are only expected to live to approximately the age of 23 (CRAIG, 1968). With the creation of open heart surgery, the age limit has grown to about three times as much. Thanks to the research and experiments performed on animals, people like me are able to accomplish their dreams. We are able to live life to the fullest and have many opportunities to benefit the world around us. Because of open heart surgery, people who suffer from heart defects will no longer have a fear of the future, but rather have every reason to smile. Without biomedical research on animals, I would have no chance at accomplishing my dreams. Not only has biomedical research benefited my life, but it saved my life and it continues to save thousands of lives every day.

## References

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