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Finalist

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About 40 years ago, my grand aunt was diagnosed with breast cancer. She was on stage IIIA, and the doctors said it was a miracle that she was living with it. Her parents didn't have the money to get her good treatments. Though even if they did there wasn't much money could do to help her. The treatments that were available weren't very efficient. And for her stage it was even more expensive and difficult to find the right treatment. My grand aunt was the only child so they weren't taking any risks to lose her. Her stages got higher and the cancer spread even more and became uncontrollable. Until there was only one option left for her. She had to get a mastectomy surgery to remove the entire breast.

Breast cancer is the second most common cancer worldwide. It is also the second leading cause of death amongst women. Breast cancer is common in women though rare on men. Breast cancer occurs when malignant cells form in the tissues of the breast. Research groups such as Cancer Research UK are studying breast cancer and finding new information about this disease. BRCA is the breast cancer gene that can be inherited. There are two mutated versions that increase the chance of developing breast cancer.

According to Cancer Research UK, more than half of all patients are able to survive because of animal research. Animal research helped discover and explore things such as the faulty gene that causes breast cancer, how these cancer cells grow and spread, how our immune system can fight tumors, and testing new treatments. It is required that any new treatment developed be tested on animals first to make sure it is safe to use on human subjects. Breast cancer is studied in many other ways. Some samples are taken from tumors, some use yeast or bacteria, and some even study the disease using computer models. Though, for many scientists, animal research is crucial due to lack of other methods.

Animal studies, such as those on rats and mice, led to the development of Tamoxifen, Herceptin, and Mabthera. Rats and mice have a very similar body structure to humans. They are used to test new treatments before using them on people. Animal research has made remarkable progress understanding cancer triggers, mechanism, and therapeutics through rats and mice. According to eMICE, gene associations in rats were closely related to human breast cancer. Mice and rats are used for many reasons such as the fact that they are easily bred in large numbers. They are also easy to feed, house, and handle. Another main reason is that mice were the first mammals whose genome was sequenced when the human genome sequence was almost completed.

Chemotherapy, radiation, and surgery are recommended depending on the stage and type of cancer a person has. Early detection and good treatment lead to an increase of up to 80% survival rate. Tamoxifen and Herceptin are two of the most successful treatments used today. Tamoxifen blocks female hormones that are called estrogen. Estrogen is required for certain types of breast cancer to grow. Herceptin, on the other hand, works on the surface of cancer cells

to stop chemical activity that is required for the cancer cell to survive. Mabthera is an antibody that targets a protein in leukemia and lymphoma cells and kills them. Both Tamoxifen and Herceptin are treatments that were discovered through animal research.

Animal rights organizations have been trying to stop funds for these studies. Animal research is viewed as cruel and unjust. Nonetheless, thanks to animal research, from the past 45 years, the chance of surviving breast cancer has doubled. There are very strict laws, said to be “some of the most stringent in the world” regarding using animals. There are a lot of applications that are required to use animals for research and it is allowed only if it is absolutely necessary. Animal research helps study the human behavior and effects that you wouldn't be able to see with just a model. Fish, flies, worms, and yeast are also organisms that are used by scientists to study cell and processes. But mammals are necessary since their genetic makeup is very close to human genetic makeup.

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