

Eight More Years: The Life of my Grandfather Due to Animal Research for Diabetes

“Tell me more about grandpa”. I clearly remember myself pestering my mom for more stories of my grandfather. She would tell me how much he loved children and was willing to help whomever he could. And that was the image I had in my head for so long. The stories I was told made me feel like he could still be living halfway across the world with my grandma right now, even though I knew he had passed away. But I never really understood that. I just knew that he couldn't talk to me over the phone, but he was always alive in my heart. As I grew old of the stories I could recite from memory, I inquired for a new one. “How happy was he when I was born?”

And what answer did I get? A reality-shattering one.

He never got the chance to be happy.

My grandfather, a kind, humane, loving, and fun person, a man I loved so deeply, never got the chance to see me.

And to a seven-year-old, that tattered my heart.

Animal research for diabetes began in 1889 with Joseph von Mering and Oskar Minkowski. They removed the pancreas from a dog and observed it developing diabetes. This demonstrated that a factor in the pancreas was a resistance to diabetes.

Many unsuccessful attempts followed their discovery to isolate this factor, later known as insulin. However, the experiments were relatively helpful as a base for further research.

In 1921, Frederick Banting and Charles Best conducted experiments on dogs whose pancreas had been removed. While observing the increased sugar levels in the dogs' urine they concluded that extracts from the pancreas are responsible for regulating blood sugar. Thus, they discovered insulin.

In the same year, biochemist James Collip helped adjust the insulin to perfection by preparing it from beef pancreases. To regulate amounts of insulin, he made solutions with different proteins and tested them on rabbits, and in 1922, his extracts were successful in dogs and patients. In 1929, Slotka and Tschesche discovered metformin, an anti-diabetic drug mostly used for Type 2 diabetes, through tests on rabbits.

Animals continue to be a great tool in the battle of diabetes. In 2010, scientists studying the hormone GIP (a hormone aiding in the production and release of insulin) in GM pigs with defective GIP receptors showed how GIP might be the cause for Type 2 diabetes. Culminating

the fact that those pigs that were not able to respond to GIP had fewer beta cells (insulin-producing, storing, and releasing cells in the pancreas). In 2013, experiments in mice identified betatrophin, a hormone which increases the number of beta cells in the pancreas.

Animal testing has developed more in-depth ways to study diabetes. Scientists also study the lifestyles of rats and mice to better understand how it plays a part in diabetes. Non-obese diabetic mouse, biobreeding rat, KK mouse, and the Zucker diabetic fatty rat were used as models to study obesity-induced diabetes.

Many modern methods of insulin delivery have animal testing to thank. A new type of insulin pump located outside of the body was first tested on animals. Extensive research in dogs helped establish the amount of insulin needed for an inhaled insulin delivery system.

Future research in the cure for diabetes is relying heavily on animal testing. Stem cell and gene therapy research in animal testing is the leading tool in the treatment of diabetes in humans and animals alike.

My grandfather died 8 years after he was diagnosed with Type 2 diabetes, which was three weeks before my birth. I remorse the idea that my grandfather ONLY got to live for eight more years.

But as I grew older, and especially as I learned more about animal research for diabetes, I realize that he GOT TO LIVE for eight more years. Eight long, important years. He got to see all four of his kids grow up, settled into their life, see them start a home, and do great things. He got to be with my grandmother all those years and enjoy life. And I start to see those eight short years stretched into a very long and wonderful part of his life. I began to appreciate the miracles animal testing has provided for my grandfather, and for so many others. He got to live a life he wouldn't have, due to animal testing.

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