

**2018 PSBR High School Essay Contest**  
***Grand Essayist***

**Timothy C.**  
Myerstown Enrichment Center  
Bernville, PA

**Able to Live Life to the Fullest**

Growing up, my cousin, Luke, had the fastest metabolism I had ever seen. He had almost superhuman capabilities for eating without ever gaining a single pound. He was abundantly active, and his beach boy looks were complimented by his lean build. When we vacationed together, he would brag about his eating exploits, while showing off his prominent ribcage. Smart, attractive, and athletic, Luke had it all.

At age 12, Luke was at Hershey Park when his insatiable thirst and need to keep circling back to the bathroom became alarmingly apparent. Jokes about “The Commode” being his favorite ride trailed off as his family considered he might be truly sick. A follow up visit to his doctor resulted in immediate admittance to the hospital, where he was diagnosed with diabetes.

What is diabetes? It is the collective term of diseases that are caused by the body’s inability to create or utilize insulin. Diabetes type 1, also known as juvenile diabetes, since that is the time when it typically sets in, is caused by the body’s immune system attacking the cells that typically produce insulin. Diabetes has several tell tale signs, including increased thirst, frequent urination, hunger, fatigue, and blurred vision. These symptoms are very mild, but, if diabetes is not treated, it could lead to more extreme problems. Such problems include liver failure, nerve damage, blindness, and even death. Unfortunately, diabetes affects millions worldwide; approximately 8.3% of people in the United States currently have diabetes.

Diabetes has plagued people for thousands of years. The first known mention of diabetes symptoms was in 1552 B.C., when Hesy-Ra, an Egyptian physician, documented frequent urination as a symptom of a mysterious disease that caused emaciation, making diabetes one of the first historically recorded diseases. Since then, various attempts at curing this disease, such as exercise and herbal medicines have proved ineffective. It has only been in the last century that effective treatment for diabetes has been found. These wondrous discoveries have been made almost exclusively thanks to animal testing.

The first steps toward a cure for diabetes were taken in 1889. Scientists, Joseph von Mering and Oscar Minkowski, were doing experiments involving the removal of the pancreas from dogs. Eventually, they noticed that without their pancreas, dogs began to exhibit diabetes-like symptoms. These simple observations made history in the field of medicine. Thanks to their testing on the dogs, von Mering and Minkowski discovered that there was a direct link between the pancreas and people being inflicted with diabetes.

With this new-found knowledge, another major step was taken in 1901. Eugene Opie discovered that the Islets of Langerhans, a distinctive collection of cells within the pancreas, produced insulin, which regulates glucose levels in the body. He realized that the destruction of these cells resulted in diabetes.

Now that they understood where diabetes originated from in the body and what caused it, scientists could begin the process of treating diabetes. In 1921, Dr. Frederick Banting and Charles Best performed numerous animal tests with the pancreases of dogs. They removed and ground up dog pancreases into an injectable extract. They then injected the extract back into the dogs, which removed their symptoms of diabetes. Thanks to animal testing, they had created the first artificial insulin.

A mere year later, in 1922, insulin injections, now created from cow pancreases, had been perfected to the point that they were ready to administer it to their first human. Leonard Thompson, a 14-year old boy with type 1 diabetes, was given the first medical administration of insulin. Thanks to his insulin injections, Leonard lived for another 13 years. This was a massive improvement, since previously, patients with type 1 diabetes would be put onto starvation diets and would barely have months to live.

My cousin, Luke, spent a year giving himself insulin injections, coping with the highs and lows of his blood sugar. At last, he was approved for an insulin pump, which is able to both monitor insulin levels and supply insulin when necessary. Now when we vacation together, he once again is able to participate fully in each and every activity.

Diabetes is no longer the death sentence that it used to be. People can now live long, normal lives, thanks to the improvement made through biomedical research. Thanks to animal research, millions of lives have been spared and extended many years past when diabetes normally would allow. I am thankful that my cousin, Luke, is able to live life to the fullest, thanks to animal testing.

#### Bibliography:

"Diabetes." *Ari.info*, [www.animalresearch.info/en/medical-advances/diseases-research/diabetes/](http://www.animalresearch.info/en/medical-advances/diseases-research/diabetes/). Accessed 7 Mar. 2018.

"Early Symptoms of Diabetes." *WebMD*, WebMD, [www.webmd.com/diabetes/guide/understanding-diabetes-symptoms#1](http://www.webmd.com/diabetes/guide/understanding-diabetes-symptoms#1). Accessed 7 Mar. 2018.

"History of Insulin." *History of Insulin- Discovery to Modern Day Timeline*, [www.diabetes.co.uk/insulin/history-of-insulin.html](http://www.diabetes.co.uk/insulin/history-of-insulin.html). Accessed 7 Mar. 2018.

"Statistics About Diabetes." *American Diabetes Association*, <http://www.diabetes.org/diabetes-basics/statistics/>. Accessed 7 Mar. 2018