

Diabetes Newsletter: Winter 2021/22



Celebrating 100 years since the discovery of insulin

Before the discovery of insulin, a diagnosis of Type 1 Diabetes (T1DM) meant unavoidable death for children.

T1DM is an autoimmune disease where the body's own immune system attacks and destroys the cells in the pancreas that make insulin. This hormone is what helps to maintain healthy blood sugar levels. Without insulin, blood sugars will rise and lead to a variety of serious complications.

100 years ago in 1921, Frederick Banting and Charles Best discovered that the pancreas produced the insulin hormone and were able to extract it from an animal and purify it to inject into humans. To this day, it remains one of the most important scientific breakthroughs in medicine. While there have been many advancements in the technology and delivery of insulin over the past 100 years, it still remains the *only* treatment available for T1DM.

Frederick Banting was born on November 14th, 1891 in Ontario, Canada. In his honor, we celebrate World Diabetes Day on his birthday and celebrate the month of November as Diabetes Awareness.

Let us take a look back in time of one of

Canada's most prestigious discoveries, insulin and follow the timeline of where we are today!

October 31, 1920: Banting who was actually an orthopedic surgeon but was intrigued by the idea of discovering the hormone that regulated the metabolism of sugar. One night he woke up from a restless sleep and scribbled down a 25 word hypothesis that would forever change his life and the lives of millions suffering from diabetes:

"Diabetes. Ligate pancreatic ducts of dog. Keep dogs alive till acini degenerate leaving islets. Try to isolate the internal secretion of these and relieve glycosuria."



A life-saving discovery turns 100 years

Nov 1920: University of Toronto gets involved Banting with no experience in research reaches out to Dr. J.J. R Macleod, the head professor at the University of Toronto. Intrigued by Banting's enthusiasm, Macleod allows him to do research in a small area of his laboratory and provides him with research assistance, Charles Best, whom won a coin toss to work with Banting.



January 1921: First human injection Leonard Thompson was in very poor shape when he was admitted to Toronto General Hospital on December 2, 1921. The 14-year-old boy was suffering the end stages of

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(cont.) diabetes mellitus. By the time Harry and Florence Thompson brought their son to the hospital, his prognosis was poor, Leonard was dying. In an act of desperation from fear of losing his son, Leonard's father agreed to allow Dr. Banting, Dr. Best, and the rest of their team to inject Leonard with an experimental new drug that had not yet been tried on another human being. The initial injection worked but also caused an abscess to occur. But they worked relentlessly night and day to purify the extract, then on Jan 23, 1921, another purified form of the extract was injected and within minutes Leonard started waking up from his coma, became brighter and was getting stronger. Leonard recovered and then lived for thirteen more years with the aid of insulin. He died due to broncho-pneumonia at age 27.

October, 1923: Noble prize: Canada's Gift to the world!

Nobel Prizes have been widely viewed as the world's most prestigious awards bestowed for intellectual achievement. Banting and Macleod were awarded the Nobel Prize. Both split their money with the rest of the team. Insulin has saved and improved the lives of millions of people with diabetes—here in Canada and across the globe.

So many changes and innovations have taken place in diabetes technology—check out the original equipment below.



First syringe



First meter

For more fascinating information please see the following links:

Defining moments of Canada: <https://youtu.be/s4LajyWtjOw>

Insulin discovery (Lilly): <https://youtu.be/IyKH9BiSI0w>

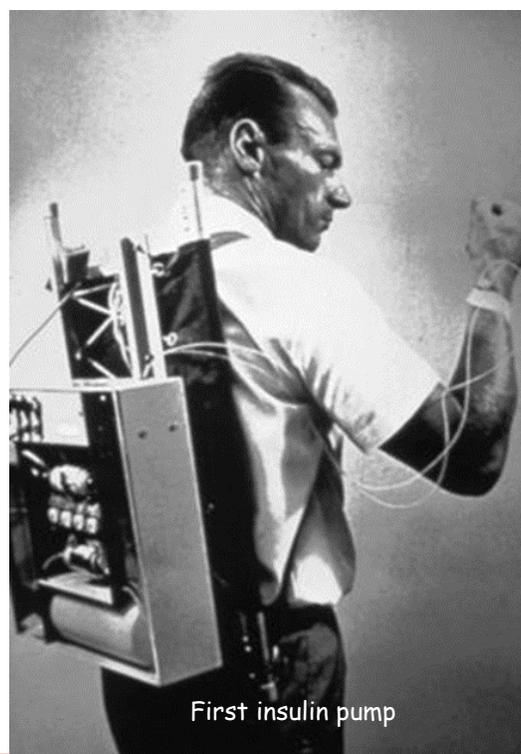
Historica Canada: <https://youtu.be/amCeBhkNo50>

For further information please visit:

University of Toronto: <https://insulin100.utoronto.ca/>

Novonordisk: <https://www.novonordisk.com/about/insulin-100-years.html>

Lilly: <https://www.lilly.com/discovery/100-years-of-insulin>



First insulin pump