

Insulin Pumping

By: Weston Cook

Department of Electrical, Computer, and Biomedical Engineering

First introduced to the public in the early 1960s insulin pump therapy has become a growing trend and an extremely profitable area for pharmaceutical companies.

An increase in technology has drastically reduced the size and increased the capability of insulin pumps. When first introduced, they were large and plugged into a direct current. As time passed, the size has changed from a full backpack to the size of a cell phone. Along with becoming discrete, the “smart” pumps take care of calculations once done by the user. Now, the user simply checks their blood sugar with the pumps remote counterpart. The meter then asks the user a few simple questions, such as, whether the user plans to eat. If the user responds yes, they are prompted to enter the amount of carbohydrates that are going to be consumed. At this point, the meter will take the preset correction factors, which are personalized to the user, and return a suggested dose of insulin. Finally, the user decides to accept or manually dose the required insulin if the user desires a different amount.



Also available, there is a mechanism that is inserted on the opposite side of a midsagittal plane of the body, a plane that divides the body into a left and right through the midline of the body. This device is a continuous glucose monitoring system, CGM. Every five minutes it takes a glucose reading from the subcutaneous fluid in the area where it is

located and transmits this reading to the pump through RF. This reading is not as accurate as a finger stick blood reading, which also is not as accurate as blood drawn directly out of a vein, venous blood. To get the most accurate reading from the CGM you must enter a finger stick reading into the pump so that it can correlate the two readings into an accurate reading. Currently CGM are used to see trends in the body and not for administering insulin.

“When insulin pump technology is combined with a continuous blood glucose monitoring system, the technology seems promising for real-time control of the blood sugar level. Currently there are no mature algorithms to automatically control the insulin delivery based on feedback of the blood glucose level. When the loop is closed, the system may function as an artificial pancreas.” (ADA)

Work Cited

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