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 Application of Mathematics in Daily Life

 In life there are several things that humans do daily that involve the use of mathematics for their tasks. Personally, I have two formulas I use that are vital to my health because of the medications I need to keep my body alive. When I was fifteen years old, I was diagnosed with Type I Diabetes, an illness that is caused by the pancreas not creating enough of the hormone insulin. Since the pancreas in a Diabetic does not create this hormone or it creates very little of this hormone, it causes your blood glucose levels to skyrocket out of control if left untreated. Without the proper amount of insulin needed to correct the blood sugar levels in the body, it can turn fatal quickly for a Type I Diabetic. Our body is meant to use glucose as energy in our cells; too much glucose can damage other necessary organs such as the kidneys, hearts, eyes, and lungs. I had to go through rigorous training whenever I was first diagnosed, because unlike other illnesses, Diabetes is an illness that has to be self-monitored and self-treated for the most part on a day to day basis. I am responsible and held accountable for every action or mistake regarding my health, I was taught specific formulas that were given to me by doctors, nutritionist, and Diabetes educators.

 There are two standard formulas given to Diabetic to use, one, to correct the insulin correction factor (to correct glucose levels), the second, is insulin to carb ratio to cover the amount of carbohydrates (sugars/starches) that you will be eating every meal or snack to give the cells in your body the appropriate amount of energy. Each person will have a formula tailored to his or her specific need but for the most part the equation will be the same. In my own personally tailored formula for blood glucose correction, my doctors want my target blood glucose to be 120mg/dL with a sensitivity factor of 15. The formula I use is:

$$\frac{ Current Glucose – Target Glucose}{Correction Factor}=Correction Dosage $$

For Example:

$$\frac{145-120}{15}=1.33 Units of Insulin$$

I check my blood sugar every meal, whenever I feel I like it might be low or high, and at bedtime and adjust my insulin accordingly.

My carb ratio is 1 unit of insulin per 7 grams of carbohydrates or 7g/U to cover any food I eat I need to set up the equation as such:

$$\frac{Total Grams of Carbs Eaten}{7}=Units of Insulin$$

Real Life Example:

$$\frac{50 }{7}=7.14 Units of Insulin$$

Added altogether my insulin correction and carb ratio factor would total to 8.47 units of insulin necessary for my body. I use these formulas daily to keep my glucose levels under control and to make sure my organs are a safe as can be for a Diabetic. There are several types of formulas similar to these that can be used to calculate the various amounts necessary, but I have found this equation to be the simplest to explain and understand when it is time to use them. It is so important to use the correct formula for you, if I had taken less or more than needed, a few of the complications that can happen are hypoglycemia (low blood sugar) which if in a dangerous level can cause me to become comatose or kill me, or I could go into DKA (Diabetic Keto Acidosis) where when I am not getting enough insulin and the sugar builds up in blood causing a breakdown of fat and muscle to substitute for the energy I need. In turn, it causes a metabolic imbalance which can also lead to death.

I remember growing up, telling everyone around me how much I did not think I would ever use math or formulas in my daily life. I was ignorant to think it would only be used in the classroom only, but I quickly saw that I would it become necessary for my life. I have learned to appreciate math, algebra, and the entire realm after being introduced to it for medical purposes. It also helped to be able to succeed in learning how to set up equations and solve in some areas of algebra when I was in high school and now as I am in enrolled in university classes. I am still learning and discovering new formulas every day that I will use for the rest of my life to function and operate in the daily activities I am involved in.