



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Peter I. Bloomberg	Project Number J1402
Project Title More Running, Less Needles: How Exercise and Diet Affect the Blood Glucose Levels and Insulin Needs of a Type I Diabetic	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to determine if daily exercise and a diet of eating 7 grams of protein for every 15 grams of carbohydrates eaten would reduce the blood glucose levels and insulin requirements of a Type I diabetic. My goal is to have my blood glucose levels fall within the range of non-diabetics and to reduce my insulin requirements.</p> <p>Methods/Materials I recorded two ten day trials. During trial one I exercised seven out of ten days and ate a balanced diet but did not stick perfectly to the 7 grams of protein/15 grams of carbohydrate diet. During trial two I exercised every day and tried hard to follow the 7 grams of protein/15 grams of carbohydrate diet. I kept a daily log during both trials. I recorded everything I ate, the grams of protein and carbohydrates I consumed, the ratio of protein to carbohydrate for each meal, the amount of exercise I got, my blood glucose levels, and my insulin intake. I used a One Touch Ultra blood testing kit, a Humalog insulin pen, Lantus insulin, a journal, nutrition facts listed on food products, "The Complete Book of Food Counts" by Corinne Netzer, and a Type I diabetic (myself).</p> <p>Results During trial two I was able to increase the number of times my blood glucose levels fell within the normal range of non-diabetics by 3%. I reduced the units of Humalog I used by 8 units and I used 2 units less of Lantus. During trial one I fell within the normal range of non-diabetics 72% of the time. I fell above 21% of the time and below 7%. I used 108 units of Humalog and 109 units of Lantus. During trial two I fell within the normal range of non-diabetics 75% of the time. I fell above 14% of the time and was slightly below 11% of the time. I used 100 units of Humalog and 107 units of Lantus.</p> <p>Conclusions/Discussion My hypothesis was only partly correct. I thought the results would show more of a difference in insulin requirements and blood glucose levels. I am now doing trials three and four and am exercising more than ever. I will soon have new results to compare. I want to increase the number of times my blood glucose levels are normal because if I can, I have a better chance of staying free of diabetes complications. I think this project might benefit children and adults with Type I diabetes by providing them with a plan for staying healthy and complication free.</p>	
Summary Statement My project looked at how exercise and diet affect the blood glucose levels and insulin requirements of a Type I diabetic.	
Help Received My mother helped me type my daily log.	