



**CALIFORNIA SCIENCE & ENGINEERING FAIR
2019 PROJECT SUMMARY**

Name(s) Ameera Alkwadri; Jasmine Hassan	Project Number J1204
Project Title Testing the Correlation between Hypothyroidism and Type 2 Diabetes in Down Syndrome Patients	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this project is to see if there is a link between Hypothyroidism and type 2 diabetes in patients with Down syndrome.</p> <p>Methods In order to test how Hypothyroidism relates to type 2 diabetes we surveyed 24 subjects, 12 with Down syndrome and 12 without. We hypothesized that if patients with Down syndrome have hypothyroidism then they are likely to develop type 2 diabetes. We surveyed patients within the same age group to check if a relationship exists between Hypothyroidism and type 2 diabetes in patients without Down syndrome.</p> <p>Results Our results showed that of all subjects surveyed, 25% of subjects without down syndrome had type 2 diabetes and hypothyroidism, and 33% of the same group had type 2 diabetes without hypothyroidism. Within the group that had Down Syndrome 25% of the subjects had type 2 diabetes and hypothyroidism, and 0% had type 2 diabetes without hypothyroidism. Even though the percentage of patients who had type 2 diabetes that did not have down syndrome was higher than the patients that had down syndrome, in all patients with down syndrome the patients had both type 2 diabetes and hypothyroidism.</p> <p>Conclusions Based on our data it was proven that all Down syndrome patients who had type 2 diabetes had hypothyroidism. Therefore we can conclude that hypothyroidism is a contributing factor to type 2 diabetes in patients with Down syndrome.</p>	
Summary Statement This project was to prove that a link exist betweentype 2 diabetes and hypohyroidism in patients with Down Syndrome.	
Help Received We did this project on our own. Our teacher, Mrs. Alshanableh helped with guiding and motivating us. Our mothers drove us to where we needed to be and supported us throughout the project.	