

## CWSF 2015 - Fredericton, New Brunswick



### Nikhil Patil

#### Beta Cells' Ability to Secrete Insulin under Glucotoxic Conditions

**Challenge:** Health

**Category:** Intermediate

**Region:** Waterloo-Wellington

**City:** Waterloo, ON

**School:** Waterloo Collegiate Institute

**Abstract:** Despite obesity being correlated with diabetes, there is yet to be conclusive evidence regarding what links the two together. Beta cells' ability to secrete insulin was diminished after exposure to hyperglycemic conditions. Glucotoxic states are likely to be induced in obese patients who are developing type 2 diabetes. It was found that glucose toxicity could be a significant factor connecting obesity with type 2 diabetes.

### Biography

My name is Nikhil Patil and I am a grade 10 student attending Waterloo Collegiate Institute. I have participated in science fair twice previously (grades 7 and 8), reaching CWSF both times and winning a bronze and silver medal. I play rep soccer for Waterloo as well as participate in many school extracurricular activities (debate, science club and orchestra). I have always had a passion for science and biology in particular, however I was unable to conduct cellular experimentation. I would like to pursue a career in the medical field. I was drawn towards research relating to type 2 diabetes after becoming aware of some shocking statistics indicating the increasing prevalence of obesity and type 2 diabetes at a young age. I believe that increased knowledge is the first step towards the development of an effective treatment or cure. My research aimed to determine a potential linking factor between obesity and type 2 diabetes. I would like to continue research on glucose toxicity along with extending my project to include experimentation in a clinical setting. My advice to anyone participating in science fair is to manage their time well, as even simple tasks can take a significant amount of time.

Youth Science Canada  
PO Box 297  
Pickering ON L1V 2R4  
[www.youthscience.ca](http://www.youthscience.ca) / [info@youthscience.ca](mailto:info@youthscience.ca)  
416-341-0040