

# CWSF 2015 - Fredericton, New Brunswick



## Kimia Raahemifar, Rishika Geda

### Binaural Beats: Bio-feedback Via Brainwave Entrainment

**Challenge:** Discovery

**Category:** Intermediate

**Region:** Waterloo-Wellington

**City:** Waterloo, ON

**School:** Waterloo Collegiate Institute

**Abstract:** This project explored immediate influences of binaural beat stimulation on brain bioelectrical signals and mood. Thirty participants were exposed to beta frequencies with a difference of  $f=30$  Hz. EEG data showed that the entrainment increased the participants' awareness rates immediately after exposure to binaural beats?an effect that persisted even after the stimulus had been removed, opening numerous pathways for innovation based on this research.

#### Biographies

Kimia - Kimia Raahemifar. Likes: debating, piano, art, history, literature, pragmatism, the Last of Us (yes, the zombie video game). I spend my time on my school work, taking on multiple leadership roles in extracurricular activities, and exercising. I've won various awards in public speaking, although my writing isn't nearly as strong. In the future, I hope to master both forms of communication - perhaps even in different languages. My partner, Rishika, and I were thinking of on-call workers and how vital their level of awareness is. This, in turn, inspired a question - is there a novel and natural approach that could profoundly affect our brainwave...

Rishika - I am a Grade 10 student in the Pre-Advanced Placement program at Waterloo Collegiate Institute. I'm very interested in research in the fields of neuroscience and life science. This year for science fair, my partner Kimia and I explored the immediate influences of binaural beat stimulation on brain bioelectrical signals and mood. My dream is to study medicine and specialize in surgery. Apart from the sciences, I have a great passion for law, history, and politics; these interests also come in handy for another passion of mine?competitive debate. Music is also a big part of my life?I enjoy singing, playing violin, and I'm currently comp...

#### Awards

#### Value

Excellence Award - Intermediate - Silver Medal Sponsor: Youth Science Canada	
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
Total	\$2 000