



CWSF 2015 - Fredericton, New Brunswick



Biography

Nearly 1 out of every 10 Canadians over the age of 40 suffers from osteoporosis and related fractures. The application of work done within orthopedics and kinesiology inspired me to pursue a research endeavour within the field of biomedical engineering. The basis of my project is on redeveloping standard acrylic bone cements into biodegradable materials as trabecular bone-replacing material. Future research includes experimenting with the cement properties-adding strengthening agents, antibiotics, and retardants into the solution to suit a range of applications. My advice to students thinking about doing a project would be to pursue it. Find something that both interests you and has a meaningful application. Think about something you would change in the world.

Samna Aziz

Investigating Ceramic Calcium Phosphate Cements as Bone Replacing Material

Challenge:	Innovation
Category:	Senior
Region:	Bay Area
City:	Hamilton, ON
School:	Westmount S.S.
Abstract:	Degradable and biocompatible calcium phosphate cements serve as potential bone-replacing material for acrylic cements, which have high tensile strength and risk releasing toxic residual monomers. A cement solution of Beta Tricalcium Phosphate and Monobasic Calcium Phosphate Monohydrate was developed and the properties tested/observed. The tensile strength of the solution fell into the range of that of trabecular bone. making it effective and suitable for application.

Awards	Value
Canadian Society for Clinical Chemists Award - Senior	
Sponsor: Canadian Society for Clinical Chemists	
The Manning Innovation Achievement Award - Senior	
Sponsor: Ernest C. Manning Awards Foundation	
The Manning Innovation Achievement Award	\$4 000
and \$4000 Manning Young Canadian Innovation Award and also receive	
an additional \$3000 towards their post-secondary education.	
Sponsor: Ernest C. Manning Awards Foundation	
Excellence Award - Senior - Bronze Medal	
Sponsor: Youth Science Canada	
University of Ottawa Entrance Scholarship	\$1 000
Senior Bronze Medallist - \$1000 Entrance Scholarship	
Sponsor: University of Ottawa	
Western University Scholarship	\$1 000
Bronze Medallist - \$1000 Entrance Scholarship	
Sponsor: Western University	
Total	\$7 500

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