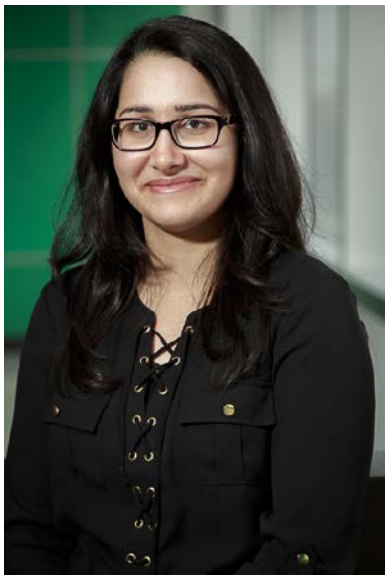
Alberta SPOR SUPPORT Unit

Shima Afhami



Biography

Shima is a Masters student in the Nutrition & Metabolism program at the University of Alberta, under the mentorship of Dr. Andrea Haqq and Dr. Jens Walter. Since the beginning of her post-secondary education, she has always had a strong commitment to contributing to science literacy, patient advocacy and research through her community and academic involvements.

Her passion for applied science led her to enroll in the Science 100 program, a full year interdisciplinary course, offered at the University of Alberta for a select number of first-year students. Her interest in obesity research began through the self-directed Capstone research component of this program. She continued to do research throughout her undergraduate years with projects focused on the field of comparative cognition and decision making.

After graduating with her BSc in Psychology & Biology, she was employed as a research coordinator for a neuroscience laboratory in the pediatric department at the University of Alberta where she worked with children with intellectual disabilities. During this time, she had the opportunity to become involved in patient care and gained valuable insight on the importance of patient-oriented research.

With obesity and related maladies on the rise, research linking nutrition and disease has become increasingly important. Shima's current novel program of study examines the role of the microbiome in the development of hyperphagia and disordered metabolism associated with Prader-Willi Syndrome (PWS) and childhood obesity. She hopes that this research can lead to improved healthcare outcomes and improved quality of life for patients with PWS and obesity.

CIHR IRSC Canadian Institutes of Health Research Instituts de recherche en santé du Canada

ALBERTA INNOVATES

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Project Summary

Profiling of the gut microbiome in children with Prader-Willi Syndrome (PWS): a fiber intervention to target hyperphagia

In Canada, over 30% of children are overweight or obese; insight into the pathogenesis and treatment of childhood obesity is urgently needed. Prader-Willi Syndrome (PWS) is the most common syndromic form of obesity. Children with this genetic condition exhibit insatiable appetite, progressive weight gain and are at a greater risk to develop obesity at a young age. Children with obesity have been shown to have drastically lower quality of life scores compared with the general population, and these scores are even lower in children with PWS. Attempts to control weight and prevent metabolic decompensation through dietary interventions have had limited success in PWS.

Human gut bacteria plays an important role in food digestion. Changes in the gut microbiome have been identified as a major contributor to the development of obesity and related complications. Currently, the specific role of the gut microbiome in control of appetite and metabolism in PWS and childhood obesity needs more research.

Shima's research will compare the gut microbial composition of infants/children with PWS to matched controls. She will also assess their food seeking behavior and appetite. This research also aims to determine if 3 weeks of a high fiber treatment in children with PWS alters their gut microbiome composition. She will assess if these changes result in a reduced level of hunger, food intake, rate of weight-gain or improve metabolism. Shima's research hopes to provide vital information on how to improve health outcomes and quality of life in children with PWS and obesity.