Alberta SPOR SUPPORT Unit

Alex Su

Biography

Hi I'm Alex, a first year graduate student at the University of Alberta. I am currently working on my MSc in Rehabilitation Science in the Faculty of Rehabilitation Medicine and my educational background consists of a BSc in Biological Sciences and Chemistry. My career aspiration is to become a Clinical Scientist in Physical Therapy and some of my key interests include pediatrics and neurology.

During my undergraduate degree, through volunteering and courses, I have pursued my research interests by having conducted neurophysiology research, involvement in biomechanics research, and conducting and presenting spine-related clinical research projects.

Outside of academics, I have been a strong proponent of community involvement and have had the opportunity to take on an executive role in student leadership, coaching high school football, and volunteering at The Steadward Centre to assist individuals with impairment.

In my spare time, my hobbies and interests include watching and playing hockey and basketball, writing poetry, and listening to and playing music. One of my goals is to learn the cello within the next five years.

A question that I've been asked a lot from others is, "why did you choose research?" I believe a sound understanding of the current research and its issues within my field will help me better advocate for collaborative and multidisciplinary approaches to remove barriers and improve quality of care. With this foundation, I hope to greater apply quality scientific research, emphasize patient-related outcomes and patient-oriented research, and help improve scientific communication to the public.

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Project Summary

The Immediate Effects of Scoliosis-specific 3D Autocorrection Exercises on the Apical Vertebral Translation and Coronal Balance in Adolescents with Idiopathic Scoliosis

Adolescent Idiopathic Scoliosis (AIS) is a 3D structural deformation of the spine with torsion and rotation of the spine with marked lateral curvature that occurs without known reason in otherwise healthy individuals. Additionally, scoliosis impacts quality of life and activity, can cause pain, and hinders self-image. AIS is a lifelong progressive condition that impacts 2-3% of adolescents worldwide and can occur equally in both genders but females are eight times more likely to reach curve severities requiring treatment.

Currently, the protocol for the treatment of AIS is to observe smaller curves, brace moderate curves, and consider surgery for larger curves. Non-surgical treatments aim to promote symmetrical spinal growth and prevent curve progression and is most effective when implemented before the rapid adolescent growth period.

Exercise is an increasingly requested method to treat AIS but there is limited understanding of how exercise achieves its results and which exercises provide the best spinal corrections. The development of an award winning ultrasound imaging protocol from our research team has allowed safe non-invasive examination of the 3D alignment of the spine.

My project will use this space-locating assisted ultrasound imaging to quantify the changes that scoliosis-specific exercises have on the apical vertebral translation (lateral deviation of the spine) and coronal balance (head-pelvis alignment) in a total of eleven positioning's and exercises, in standing, lying, and sitting positions. The results of this project will create an evidence base to help clinicians and knowledge users decide which exercises will give the best corrections.