

Donald Golden - University of Calgary

Project: *"Menstrual cycle effects on knee laxity and structure in females with Hypermobility Spectrum Disorders and hypermobile Ehlers-Danlos Syndrome"*

Background



About 1 in 600 to 1 in 900 people live with Hypermobility Spectrum Disorder (HSD) or hypermobile Ehlers-Danlos Syndrome (hEDS). A defining feature of HSD/hEDS is joint laxity, or excessive movement of a joint. As such, HSD/hEDS can lead to frequent joint injuries, increased risk for early-onset osteoarthritis, and potential disability.

In about 80% of healthy females, joint laxity changes during the menstrual cycle. The impact of hormonal changes

during the menstrual cycle on joint laxity in women with HSD/hEDS has not been studied. In addition, connective tissues such as ligaments, tendons, and cartilage contribute to the stability of a joint. How the menstrual cycle affects connective tissues in the knee is unknown.

The aims of this study are to investigate if hormonal changes during the menstrual cycle affect both knee laxity and connective tissue structures in females with HSD/hEDS. Twenty females with HSD/hEDS with regular menstrual cycles will be recruited from a local clinic. During three distinct phases of the menstrual cycle, we will analyze blood hormone levels, the stability of the knee joint using a clinical examination, and the microstructural components of knee connective tissues using MRI (magnetic resonance imaging).

Studying how hormonal changes affect connective tissues and laxity in the knees of women with HSD/hEDS may show if there is a greater risk of injury during specific times in the menstrual cycle. This information may help guide strategies to prevent injuries and improve the lives of these patients. Additionally, evaluating changes in the connective tissues of the knee during the menstrual cycle may have implications for understanding the mechanisms of injury risk for females in the general population.

Bio

I am currently pursuing a master's degree in medical science at the University of Calgary, supervised by Dr. Ranita Manocha and Dr. David Hart. I'm also a certified athletic therapist. I attained a bachelor's degree in health and physical education, with a specialization in athletic therapy from Mount Royal University. My research interests include joint function as it relates to pathology, and interventions to improve the quality of patient care.

During my undergraduate studies, I worked as a research assistant under Dr. Jared Fletcher, investigating the role of altered-muscle tendon function and how biomechanical factors during locomotion relate to pain, weakness, and fatigue in hypermobile Ehlers-Danlos Syndrome (hEDS). Through my experiences as an athletic therapist and student researcher, I found that my interests lie in how the musculoskeletal system influences physical functioning and quality of life, especially in injury and chronic illness. I have become a firm proponent of evidence-informed practice and patient-oriented research through seeing first-hand how building effective communication to identify a patient's priorities can substantially improve their health outcomes.

Performing research to answer clinically relevant questions that can be implemented to improve quality of life for individuals is my dream for a career. My aspirations are to build a career as a clinician-scientist, in which I can fully embrace scientific investigation and knowledge translation into clinical practice.