

Research Project Details	
Title	Dynamic CT Quantification of Ankle Kinematics Following Posterior Malleolus Fixation of Ankle Fractures
Investigator(s)	Dr. Prism Schneider, University of Calgary
Funding Period	2020-2023
Budget	\$85,759.00
Issue/Rationale	<p>The syndesmosis is a ligament complex spanning the ankle joint. If the ankle syndesmosis is not perfectly reconstructed after an injury, patients have worse functional outcomes and have difficulty returning to work.</p> <p>The syndesmosis is a dynamic structure and has natural motion, however, our current conventional imaging does not provide a complete picture of syndesmosis injury or surgical repair. Injuries of the syndesmosis may be missed or post-operative evaluation of syndesmosis repair may be inaccurate, because our imaging technique is based on a single snapshot image of the syndesmosis in a single ankle position. We therefore propose to use a novel imaging technique, called dynamic computerized tomography (CT) scanning, to determine the position of the syndesmosis throughout ankle range of motion after surgical fixation.</p>
Objective(s)	The data collected from this study will help to determine syndesmosis motion between different surgical fixation methods (posterior malleolus fixation and conventional surgical methods), to compare syndesmosis motion between posterior malleolus fixation and contralateral uninjured ankles, and to describe the relationship between abnormal syndesmosis motion and malreduction.
Anticipated Results/ Impact	Defining and comparing post-surgical syndesmosis motion will help surgeons to develop and select appropriate repair techniques for shorter immobilization time, earlier rehabilitation, and potentially earlier return to work. Knowledge gained from this study may also help apply dynamic CT to the investigation of other joints and orthopaedic problems.
Keywords	ankle, syndesmosis, dynamic CT, outcomes, posterior malleolus fixation, malreduction