ISAKOS CONGRESS 2025 | MUNICH GERMANY June 8–11

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# Anatomical Characterization Of The Distance Between Femoral Insertions Of The Lateral Collateral Ligament And Popliteal Tendon In The Chilean Population: Implications For The Treatment Of Posterolateral Corner Injuries


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# Faculty Disclosure Information

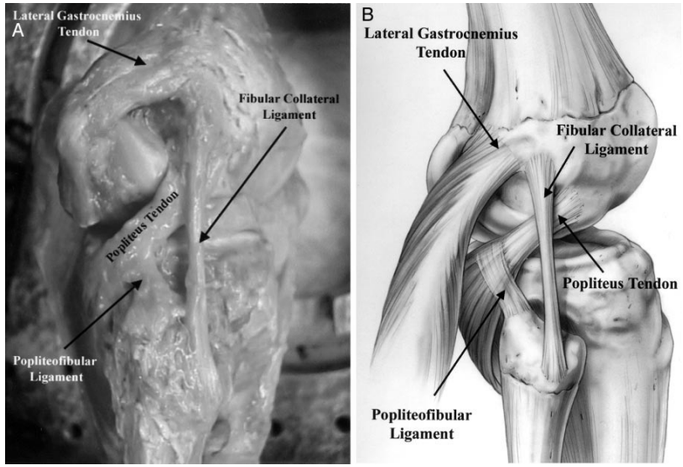
- The author, Rodrigo Olivieri, reports speaking fees from Johnson & Johnson Medtech.
- The remaining authors declare no conflicts of interest.

# Introduction

The posterolateral corner (PLC) plays a crucial role in stabilizing and restricting varus and external rotation of the knee in both static and dynamic conditions.

The anatomical structures include primarily the lateral collateral ligament (LCL), the popliteal tendon (PT), and the popliteofibular ligament (PFL).

The anatomical descriptions of the PLC, particularly the distance between the anatomical insertions of the LCL and the PT, exhibit significant variations based on the studied population and the technique employed.




LaPrade RF, Ly TV, Wentorf FA, Engebretsen L. The posterolateral attachments of the knee: a qualitative and quantitative morphologic analysis of the fibular collateral ligament, popliteus tendon, popliteofibular ligament, and lateral gastrocnemius tendon. *Am J Sports Med*. 2003;31(6):854-860.

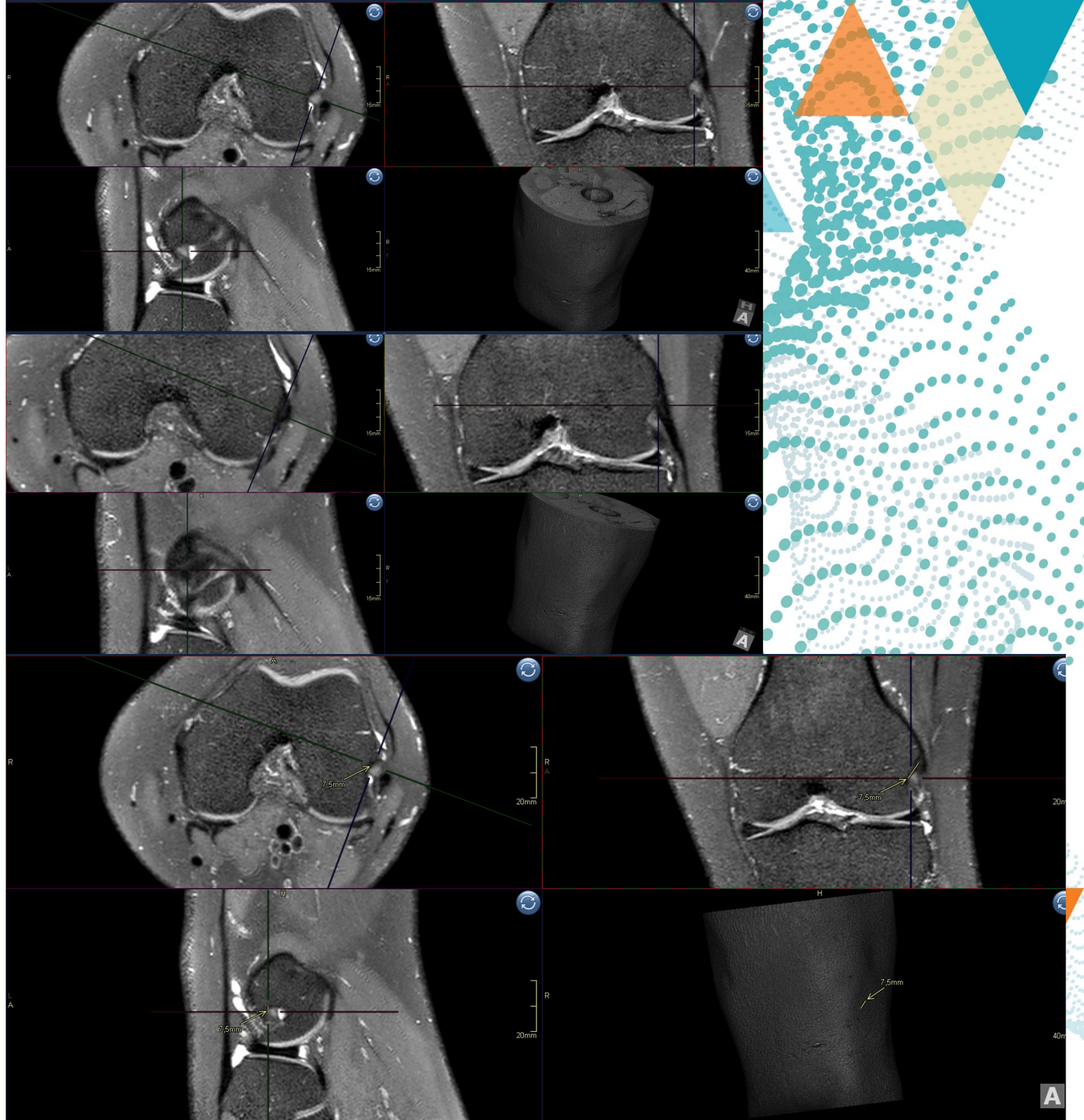
# Objective

To describe the anatomy of the femoral insertions of the LCL and PT in patients without PLC injuries or other types of associated knee ligament injuries in the Chilean population, specifically focusing on the distance between these insertions.

# Methods

- A cross-sectional observational imaging study was conducted at our center involving patients over 18 years old, between October 2023 and February 2024.
- Knee magnetic resonance imaging (MRI) reconstructions were obtained using a 1.5 Tesla MRI scanner, with isotropic voxels of 0.65 x 0.65 x 0.65 millimeters (mm).
- The distance between the central point of the LCL and PT insertion footprints (centroid) was then measured by 2 musculoskeletal radiologists.
- An intraclass correlation coefficient (ICC) concordance analysis was performed, and their 95% confidence intervals were calculated. Subsequently, a paired t-test was conducted to compare the means of the measurements taken by the two evaluators. A p-value $< 0.05$ was considered indicative of statistical significance.
- Based on the average centroid distance previously reported, a sample size of 40 patients was calculated.

- LCL insertion footprints (centroid)
- PT insertion footprints (centroid)
- Distance between the LCL and PT centroids



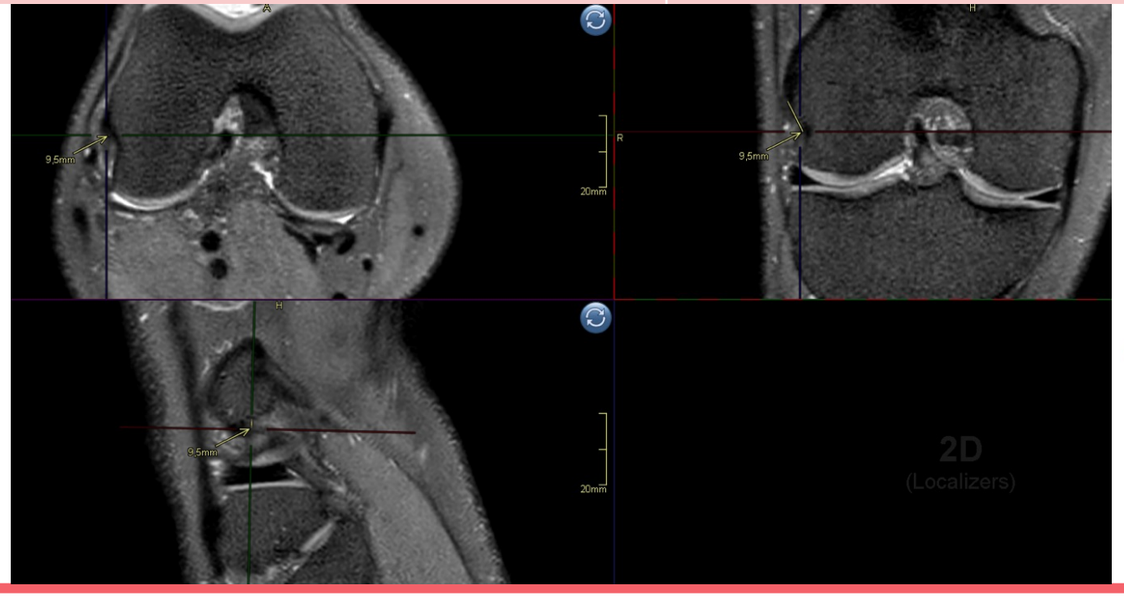
# Results

- A total of 43 patients were included, 22 males (51.2%) and 21 right knees (48.8%).
- Average values:
- 50.4 years (SD 11.7)
- Height 1.66 m (SD 0.09)
- Weight 77.7 kg (SD 12.5)
- Body mass index 28.3 kg/m² (SD 4.8).

# Results

Average distances between the femoral insertion centroids of the LCL and PT

| Evaluator n°1 | Evaluator n°2 | ICC | Average distance |
|---|---|---|---|
| 11.5 mm (range 8.6-14.2) | 11.8 mm (range 7.5-17.1) | 0.83 (good correlation) | 11.7 mm |




Isometric 3D reconstruction of the knee. The arrow indicates the distance between the center of the LCL footprint and the center of the PT footprint.

# Discussion

- The average distance in the Chilean population differs from both the minimum (8.18 mm) and maximum (18.5 mm) values previously described in the literature, which were reported in ethnically distinct populations.

- This has important implications for both the diagnosis and the surgical management of these injuries.

# Conclusions

- ✓ The average distance between the centroids of the femoral insertions of the LCL and PT was **11.7 mm in our population**. These data should be considered when planning the treatment of PLC injuries.

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