The Lateral Retromalleolar Groove
An Anatomic Study

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Background

- Clinical literature gives varied descriptions of the retromalleolar groove.
- Pathoanatomy of peroneal groove can be a cause of peroneal tendinopathies, peroneal instability and lateral ankle pain.*
- The pathology 1st described by Monteggia in a ballet dancer in 1803*.  


Treatment of Peroneal Instability

- Non operative management
  Acute dislocations but with a high failure rate (73%)\(^1\).

- Surgical management - 5 basic categories:
  (i) Anatomical reattachment of the retinaculum;
  (ii) Reinforcement of the retinaculum;
  (iii) Bone-block procedures;
  (iv) Re-routing the tendons;
  (v) Fibular Groove deepening procedures.\(^2\)\(^3\)
Aims

- Some MRI data already available*

- No quantitative data currently available regarding groove geometry

- Our aim was to establish the morphometric features of peroneal groove using 3D mapping techniques.

Methods/ Materials

- 12 embalmed lower extremities
  - Age / Sex Matched
    - Unpaired
    - 6M : 6F
    - 6R : 6L
  - Mean age: 73 (range; 61 – 94)
Anatomy
Results

The concave groove most frequent (58%)

Male

Female
## Results

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6.0 (5.8-6.7)</td>
<td>5.3 (4.4-5.9)</td>
</tr>
<tr>
<td>cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>5.4 (5.0-6.1)</td>
<td>4.5 (3.7-5.3)</td>
</tr>
<tr>
<td>mm</td>
<td></td>
<td></td>
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<tr>
<td>Depth</td>
<td>2.2 (0.8-3.3)</td>
<td>0.1 (-0.3-2.1)</td>
</tr>
<tr>
<td>mm</td>
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</table>

- All values within 2 SD of mean
Results

• The deepest part of groove was 2.4 cm (1.3 – 3.7 cm) from tip of fibula. *(Musculo-tendinous junction of PB)*

• The length of deep part was 1.9 cm (1.4 – 2.8 cm).

CLINICAL REVELANCE

▪ Knowledge of peroneal groove geometry in operative treatment of peroneal subluxation
  ▪ Locating the deepest part (PB)
  ▪ Extend of surgical deepening


