ANATOMY OF ANKLE AND FOOT

Motor Root

Anterior:

- Tibialis Anterior: L4
- Extensor Hallucis Longus: L5
- Extensor Digitorum longus: L5,1
- Peroneus Tertius: L5 1
- Extensor Digitorum Brevis: S1,2 [like intrinsic muscle]

Lateral aspect:

[Dorsal medial to lateral= dorsal under extensor retinaculum]

- Tibialis Anterior
- EHL
- Artery [Dorsal pedal A] and Anterior tibial N
- EDL
- Peroneus Tertius

Behind the Lateral malleolus

Medial side

- Under Flexor retinaculum from superior to inferior

- Tibialis Posterior
- EDL
- Posterior tibial artery
- Posterior tibial Nerve
- EHL
**Peroneus longus and brevis**  L5,S1 [S1]

**Posterior:**
- Tibialis Posterior  **L4**
- Gastrosoleus,
- Flexor Hallucis Longus  S1-2
- Flexor Digitorum longus Rest  S1-2

**Sensation:**
- Dorsum: L5
- Plantar: S1
- Medial border L4
- Lateral border S1

**Superficial Peroneal nerve:** At the anterior border of Peroneus longus, SPN emerges at the junction of middle 1/3 with lower third and then divides into 2 branches supplies dorsum except the first web space supplied by the deep peroneal nerve.
The medial border of the foot is supplied by the saphenous nerve and lateral border of the foot by the sural nerve.

**Deep peroneal N:** Supplies EDB and additional supply to I Dorsal interosseous and web space.

Sensation: Lateral 1.5 by Lateral Plantar Nerve and Medial 3.5 Median Plantar Nerve

**Dorsalis pedis:** Dips in the I web space to join Lateral peroneal artery.

Branches: Lateral Tarsal artery (under EDB and talus)

- Arcuate artery: base of the metatarsal: 3 cleft
- 1 Metatarsal dorsal artery: I cleft and medial side of the toe

**Medial side[ Flexor retinaculum from superior to inferior]**

- Tibialis Posterior
- EDL
- Posterior tibial artery
- Posterior tibial Nerve
- EHL
Layers of Sole of the foot
Layer I  AH; FDB; ADMI

II. FHL and FDL and Lum & Acc

III. FH, Adductor, FDMI

IV Peroneus longus, Tib Post, Interossie[4 Dorsal, 3 plantar]

Lateral Ligaments

Superficial
Anterior Talo-navicular ligament
Calcaneofibular ligament
Posterior talo-fibular ligament

Deep
Calcaneo-fibular ligament

Medial ligaments
Plantar fascia: Medial calcaneal process
5 slips (hand 4)
Distal to Head (S Trans met lig) → 2 slips → distally to DTMLi and proximal phalanx

Sup Deltoid: ATNL, MTCL, PTTL (Navicular tuberosity, S tali, Medial tubercle)

Deep Deltoid: Tibio-talar*: Below the comma shaped articular surface
**Posterior Tibial Nerve:**

- **Lateral Plantar Nerve**
  
  **Main trunk**
  - Abd Mi Q

  **Fl Acc**

  **Skin:** lateral part of the heel

**Superficial**

- FDMi
2 interossie of IV (IV D and III P)

Skin 1 and $\frac{1}{2}$ + communicating

Deep

Medial interossie I, II, III (First is also by deep pero)

Lateral 3 lumbrical: Adductor Hallucis

Main trunk lies between: I and II layer of the sole; Deep lies : Between III and IV layers

**b. Medial plantar nerve** Abd H; FDB, FHB

Medial lumbrical

Skin 3 and 1/2

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**Muscles of sole of the Foot**

<table>
<thead>
<tr>
<th>4-107; 104</th>
<th>Origin</th>
<th>Insertion</th>
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<tbody>
<tr>
<td>FDB (MPN)</td>
<td>Medial process of calcaneum (inferior surface)</td>
<td>Base of the middle phalanx (FDS)</td>
</tr>
<tr>
<td>Abd Hal (MPN)</td>
<td>medial surface of C (prox to F A)</td>
<td>Medial side of the base of PP</td>
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<tr>
<td>Abd Dig Min (LPN)</td>
<td>Medial and lateral (inferior)</td>
<td>Lateral side of PP and Met head V</td>
</tr>
<tr>
<td>Fl Acc (LPN)</td>
<td>Medial large and small lateral</td>
<td>Lateral side of FDL</td>
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</tbody>
</table>
| Lumbrical | 3 lateral: bicipital = LPN[deep]  
1 medial: Uni = MPN (hand 2 L) | Medial side (great toe side) to EE |
<p>| FHB (MPN) | <strong>Cuboid and lateral cuneiform</strong> + TP tendon | 2 sesmoid bone ➔ base of PP (medial with AbH &amp; Lat AdH) |
| ADD Hal (LPN) | Oblique= II, III, IV + L plantar lig | Lateral side of PP with FHB |</p>
<table>
<thead>
<tr>
<th></th>
<th>Transvers=deep Met. lig is</th>
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<tbody>
<tr>
<td><strong>FDM (LPN)</strong></td>
<td>Base of the V met and Per Longus</td>
</tr>
<tr>
<td><strong>PI (LPN)</strong></td>
<td>Lateral 3; Metatarsal</td>
</tr>
<tr>
<td><strong>DI (LPN)</strong></td>
<td>Bipinnate</td>
</tr>
</tbody>
</table>
The plantar fascia is made up of predominantly longitudinally oriented collagen fibers. There are three distinct structural components: the **medial component**, the **central component** (plantar aponeurosis), and the **lateral component** (see diagram at right). The central component is the largest and most prominent.

**SUBTALAR JOINTS**

Talo-calcaneal joint: Posterior facet is the important part

Anterior Talo calcaneonavicular joint. : Anterior and middle facet + Spring lig (fibrocartilaginous upper part + navicular bone, articulating with head of the talus as a single synovial cavity

**Short Plantar lig:** Ant tubercle of calcaneum to the proximal to post ridge of cuboid

**Long plantar lig:** Anterior to calcaneal tub and bridges PL Anterior ridge of the groove.

**Spring:** Plantar Calcaneonavicular ligament: Susten Tali to Navicular bone; Takes part in ball and socket; upper surface if fibrocartilage; Although it is called, it is not elastic

**Y ligament:** top of the calcaneus under the EDB ; one limb to the cuboid and other to the navicular
Interossie ligament and cervical ligament