



Objective Assessment Skills

Palpation

- Medial and lateral malleolus
- Ankle joint line
- Talar dome
- Navicular
- Cuboid
- 5th Metatarsal
- Subtalar joint
 - Sustentaculum Tali
 - Sinus Tarsi
- Calcaneal tuberosity

ROM

- Knee To Wall
 - Move longest toe up to the line
 - Middle line on the device aligned with the middle of the knee
 - Lunge forward with the knee as far as you can, maintaining alignment, until the heel comes up
 - Repeat 3 times to allow for learning effect and to get the maximum ROM
- Big toe extension
 - Need >45° of big toe to function normally
 - Test is to determine whether there is sufficient within 1st MTPJ and how this relates to foot posture.
 - Grasp the proximal phalange of hallux and extend big toe - arch should increase.
 - If unable to get any toe extension - may indicate plantar fascia not allowing movement
 - To determine if it is the plantar fascia - rotate the foot outwards and if there is more movement >45° then it is likely more plantar fascia
 - If this makes no change then it is likely the 1st MTP joint.

Strength

- Calf – think about if you are assessing capacity or strength
 - Gastrocnemius
 - Soleus
- Foot Intrinsic with HHD
 - Seated position ideal - these patients may have pain in standing and easier to control the movements in sitting.
 - Patient's foot onto a large book so that dynamometer can slot underneath - fixate the dynamometer to the ground so the test is repeatable. Transducer will be under the IP joint with the head of the MT stabilised by the book.

- To bias intrinsic - bias flexion at the MTP joint while IP joints extended - position foot so metatarsal is stabilised but patient can reach off the block and that toe is in neutral with dyno underneath - NOT in extension.
- Big toe flexion with HHD
 - Push down with big toe as hard as can but keep the heel down.
 - When doing max test, provide stabilisation to the foot so it doesn't lift.
 - 3 tests with adequate rest in between
- Smaller toe flexion with HHD
 - Slightly further forward so that as much of metatarsal is stabilised but enough of the toes are off the block
 - Push down as hard as can - provide stabilisation to foot.
 - If getting clawing - cue to keep the toes extended.
 - 3 tests with adequate rest

Neuromuscular assessment

- Can they perform a movement in the plane that the movement was intended or are there compensations?
- Need to give the client some time to practice that task before we note down our assessment because it is often an unfamiliar movement
- Starting position:
 - Sitting comfortably - 90° at hip and knee with ankle in neutral
 - May progress to standing if we don't see anything in sitting.
 - Not a lot of normative data so good to compare to the opposite side.
- Extension of the big toe without the small toes
 - Keep foot as still as possible.
 - Just try to lift the big toe - possibly try passive movements
 - Need to give the client some time to practice that task before we note down our assessment because it is often an unfamiliar movement.
 - Watch for compensations by supinating the foot or lifting the 1st MTPJ.
 - Can they do this without lifting the little toes - studies show this movement actually recruits the extensors of the little toes - feedback to see if the patient can change this i.e.: try to keep the little toes down
- Extension of the small toes without the big toe
 - Keep foot as still as possible
 - Watch for compensations at the ankle - pronation of the foot/eversion of the ankle. Also, can see the knee moving medially.
- Toe spread out
 - Allow the toes to come off the ground slightly, then from there try to spread the toes away from each other.
 - From there try and bring the big and little toe back down to the floor while the other toes stay extended.
 - Again, allow for practice.

- Foot doming - "Short Foot exercise"
 - Try and keep the foot still (heel and ball of foot in contact with the ground).
 - Try and draw the ball of the foot towards the heel
 - Palpate Abd hallucis or plantar aspect - may feel contraction through more superficial muscles like FDB, FHB.
 - Compensation - using Tib Ant as it inserts into cuneiforms which will supinate and invert the foot/ankle. Can often see prominence of Tib ant tendon.
 - Another compensation showing excessive contributions from the extrinsic muscles is the toes - if it is done well, we are look for short flexors to be working - FDB, quadratus plantae, lumbricals.
 - Long flexors (FDL, FHL) attached distally on phalanges compared to short flexors - we would often see clawing if they are using extrinsic muscles.
 - Try keeping the toes relaxed and long
 - Give the patient feedback to correct performance.

Other Tests

- Calcaneal Squeeze test
 - To exclude stress fracture
- Tarsal Tunnel
 - In the Tarsal tunnel sits the Tibialis posterior tendon, FDL tendon, FHL tendon, Posterior Tibial Artery, and the Tibial nerve
 - Tinel's test posterior to the medial malleolus
 - Firm tap in the tarsal tunnel posterior the malleolus – looking to elicit reproduction of the patient's symptoms
 - Triple Compression Test
 - Max plantarflexion and foot and heel inversion then manually compress the posterior tibial nerve posterior to the medial malleolus.
 - Compression applied for 30seconds
 - Positive test is reproduction of the patient's symptoms or numbness/paraesthesia.