

**Table 16.1** Goniometric Examination of Ankle and Foot ROM

Motion	Location of goniometer	Movement	Normal range
Ankle dorsiflexion	P: Supine, knee flexed to 30° and gastrocnemius relaxed A: Just inferior to lateral malleolus S: Long axis of fibula M: Lateral border of foot	From neutral position (goniometer reading 90°), dorsiflex the ankle to the limit of motion.	0 to 10-30°
Ankle plantar flexion	P: Supine, knee flexed to 30° and gastrocnemius relaxed A: Just inferior to lateral malleolus S: Long axis of fibula M: Lateral border of foot	From neutral position (goniometer reading 90°), plantar flex the ankle to the limit of motion.	0 to 45-65°
Subtalar inversion	P: Prone, foot off edge of table with marks bisecting the superior and inferior aspects of the posterior calcaneus A: Midpoint, superior aspect of calcaneus S: Long axis of leg M: Long axis, midline of calcaneus	Invert the calcaneus to the limit of motion.	0 to 30-50°
Subtalar eversion	P: Prone, foot off edge of table with marks bisecting the superior and inferior aspects of the posterior calcaneus A: Midpoint, superior aspect of calcaneus S: Long axis of leg M: Long axis, midline of calcaneus	Evert the calcaneus to the limit of motion.	0 to 15-30°
MTP flexion	P: Seated, foot relaxed and resting on table A: Dorsum (2nd-4th) or side (1st and 5th) of MTP joint S: Long axis of metatarsal M: Long axis of proximal phalanx	Stabilizing the metatarsal, flex the MTP joint to the limit of motion.	0 to 40°
MTP extension	P: Seated, foot relaxed and resting on table A: Plantar surface (2nd-4th) or side (1st and 5th) of MTP joint S: Long axis of metatarsal M: Long axis of proximal phalanx	Stabilizing the metatarsal, extend the MTP joint to the limit of motion.	0 to 50° (2nd-5th) 0 to 70-90° (1st)
1st MTP abduction and adduction	P: Seated, foot relaxed and resting on table A: Dorsum of 1st MTP joint S: Long axis of 1st MT M: Long axis of proximal phalanx	Passively abduct and adduct the great toe to the limit of motion.	0 to 10-20°
1st IP flexion and extension	P: Seated, foot relaxed and resting on table A: 1st IP joint S: Long axis of proximal phalanx M: Long axis of distal phalanx	Extend and flex the IP to the full limit of motion with the MTP joint held in extension.	0 to 80-90°

P = patient positioning; A = goniometer axis; S = stabilizing arm; M = movable arm; MTP = metatarsophalangeal joint; IP = interphalangeal joint; MT = metatarsal.

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