

Gait characteristics associated with the foot and ankle in inflammatory arthritis: a systematic review and meta-analysis

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Additional File 4: Kinematic gait parameters measured and methods of data acquisition

Author	IA	Parameters measured	Kinematic Assessment Method & model	Biomechanical Model
Barn (1)	RA	Peak rearfoot eversion, peak rearfoot plantarflexion, lowest navicular height, peak midfoot inversion, peak forefoot abduction, peak forefoot dorsiflexion	3D analysis	Hyslop (2)
Dubbeldam (2)	RA	Tibio-talar dorsiflexion, medial arch collapse, hallux dorsiflexion, subtalar eversion, mid-/hindfoot supination, fore-/midfoot supination, leg/hindfoot external rotation, forefoot/ankle abduction metatarsal 1-5 angle, hallux abduction	3D analysis	(Heidelberg) Simon (3)
Turner (4)	RA	Rearfoot terminal stance plantarflexion, rearfoot midstance eversion, forefoot midstance inversion, forefoot peak abduction, lowest navicular height, peak hallux dorsiflexion	3D analysis	Carson (5)
Turner (6)	RA	Initial foot contact angle, terminal stance heel rise, minimum navicular height in stance, maximum rearfoot eversion in stance,	3D analysis	Carson (5)
Turner (7)	RA	Initial foot contact angle, terminal stance heel rise, minimum arch height, peak eversion	3D analysis	Carson (5)
Weiss (8)	RA	Trunk tilt range, trunk lateral sway range, hip flexion extension range, hip abduction, knee flexion extension range, ankle plantarflexion, ankle dorsiflexion	3D analysis	Newington (9)
Khazzam (10)	RA	Sagittal, coronal and transverse motion of the hindfoot, forefoot and hallux at load response, midstance, terminal stance, pre-swing, initial swing, mid-swing and terminal swing	3D analysis	Milwaukee (11)
Laroche (12)	RA	Range of motion of MTP joints, foot angle at toe-off	3D analysis	Courtine (13) & Borghese (14)
Laroche (15)	RA	Mean articular amplitudes of MTP joints, mean plantar/dorsi flexion ROM of MTP joints	3D analysis	Courtine (13) & Borghese (14)
Woodburn (16)	RA	Peak dorsiflexion & plantarflexion & ROM, Peak inversion & eversion & ROM, peak adduction, abduction & ROM for the rearfoot & forefoot, minimum & maximum height & displacement of the navicular, peak extension, flexion & ROM of the hallux	3D analysis	Carson (5)
Turner (17)	RA	Max ankle joint dorsi/plantarflexion, maximum inversion/eversion, maximum internal/external rotation, range of ankle joint motion in sagittal, frontal and transvers plane, toe off angle, time to maximum eversion motion time integral of sagittal, frontal and transverse ankle motion	Electromagnetic tracking	N/A
Woodburn (18)	RA	Dorsi/plantarflexion, inversion/eversion & internal/external rotation of ankle joint during stance phase of gait	Electromagnetic tracking	N/A
Woodburn (19)	RA	Dorsi/plantarflexion, inversion/eversion & internal/external rotation of ankle joint during stance phase of gait	Electromagnetic tracking	N/A
O'Connell (20)	RA	Ankle motion during stance, mean heel rise during stance phase of gait	3D analysis	Siegel (21)

Author	IA	Parameters measured	Kinematic Assessment Method & model	Biomechanical Model
Siegel (21)	RA	Foot to floor contact angle, degree of heel rise at toe off, foot out toe angle, plantar/dorsiflexion/inversion/eversion/abduction/adduction of the foot	3D analysis	Siegel (21)
Isacson (22)	RA	Hip, knee & ankle joint flexion/extension, abduction/adduction, rotation	Electrogoniometry	N/A
Stauffer (23)	RA	Standing knee flexion, sagittal, coronal & transverse knee motion, stance phase knee flexion	Electrogoniometry	N/A
Del Din (24)	AS	Flexion/extension, abduction/adduction and internal/external rotation of the trunk, pelvis, hip and ankle. Only flexion/extension reported at the knee	3D analysis	Leardini (25) & Sawacha (26)
Mangone (27)	AS	Pelvis ROM, pelvic tilt, pelvic rotation, shoulder rotation, hip flexion	3D analysis	Davis (28)
Zebouni (29)	AS	Hip flexion & extension, knee flexion & extension	Electrogoniometry	
Woodburn (30)	PsA	Peak ankle/rearfoot dorsiflexion, peak ankle/rearfoot eversion, peak ankle/rearfoot internal rotation, navicular height	3D analysis	Hyslop (31)

IA = inflammatory arthritis, RA = rheumatoid arthritis, AS = Ankylosing spondylitis, PsA = psoriatic arthritis, ROM = range of motion, 3D = three-dimensional, N/A = not applicable

Additional File 4: Reference List

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