

Orthotic Prescription by Pathology

Clinical Decision Guide: Indications, Features and Biomechanical Rationale

Orthotic prescription should be driven by clinical assessment findings and biomechanical rationale rather than diagnosis alone. The same pathology may present with different underlying biomechanical drivers requiring different prescriptions. Use this reference as a clinical starting point — assessment findings should always override generic recommendations.

Pathology	Shell Type	Key Modifications	Biomechanical Rationale	Additional Considerations
PLANTAR HEEL & FASCIA				
Plantar Fasciitis / Fasciosis	Semi-rigid polypropylene	Deep heel cup; medial rearfoot post/wedge (if pronated — prefer over heel skive to avoid compressive load at calcaneal origin); heel raise 6–8mm; plantar fascial groove; medial arch fill	Reduce STJ pronation via rearfoot posting; offload fascial origin; reduce tensile load at calcaneal insertion; rearfoot post preferred over medial skive to avoid compressive calcaneal loading	Consider reverse Morton's if FHL present; Poron heel cushion under top cover
Heel Fat Pad Syndrome	Soft-medium EVA or accommodative	Deep heel cup; Poron/Plastazote heel cushion; no rigid heel skives	Restore shock absorption; redistribute calcaneal pressure	Avoid rigid modifications; prioritise cushioning; Plastazote total contact in elderly
Calcaneal Stress Fracture (recovery)	Accommodative total contact	Deep heel cup; Poron full contact; avoid all pressure-concentrating modifications	Offload calcaneus; distribute load across entire plantar surface	Cam boot primary; orthotics for transition phase only; no rigid shell
ACHILLES & CALF				
Mid-portion Achilles Tendinopathy	Semi-rigid	Heel raise 6–8mm (bilateral); neutral cast; avoid overcorrection	Reduce Achilles tensile load; avoid compressive loading at mid-tendon	Address contributing pronation/supination biomechanics; load management primary treatment
Insertional Achilles Tendinopathy	Semi-rigid	Heel raise 8–12mm; no posterior heel counter modifications; deep heel cup only if no Haglund's	Reduce Achilles insertion load; reduce dorsiflexion end-range stress	Haglund's deformity may require bespoke heel counter modification; avoid compression at insertion
Sever's Disease (paediatric)	Semi-rigid or EVA	Heel raise 6mm bilateral; deep heel cup; cushioned top cover	Reduce traction at calcaneal apophysis; cushion growth plate	Bilateral raises essential; reassure family — self-limiting condition
FOREFOOT & TOE				

Pathology	Shell Type	Key Modifications	Biomechanical Rationale	Additional Considerations
Metatarsalgia (generalised)	Semi-rigid	Met dome/bar (proximal to met heads); forefoot cushioning; sulcus top cover	Redistribute plantar pressure from met heads to met shafts	Ensure met dome is correctly placed — proximal to heads; Poron topping
Morton's Neuroma	Semi-rigid	Intermetatarsal/neuroma pad; met dome; consider lateral forefoot wedge	Splay metatarsals; reduce intermetatarsal nerve compression	Conservative first; wider footwear essential; corticosteroid injection may be concurrent
Hallux Rigidus	Semi-rigid to rigid	Morton's extension (full-length 1st ray); stiff shell	Block painful 1st MTPJ dorsiflexion; reduce propulsive loading at joint	Rigid carbon fibre insert may provide superior 1st ray stiffness; rocker-bottom footwear adjunct
Functional Hallux Limitus	Semi-rigid	Reverse Morton's / 1st ray cut-out; kinetic wedge; medial rearfoot post (if pronated) or heel skive (if no plantar heel pain)	Facilitate 1st MTPJ dorsiflexion; activate windlass; reduce late-stance pronation	Distinguish from structural hallux rigidus — opposite modifications needed
Hallux Valgus	Semi-rigid	Medial heel skive; forefoot varus post; reverse Morton's / kinetic wedge	Reduce pronation driving hallux abduction; promote windlass; reduce 1st MTPJ deviation forces	Orthotics slow progression; do not correct established deformity; toe separators adjunct
Sesamoiditis	Semi-rigid	Dancer's pad (U-shaped sesamoid offload); Poron cushioning	Offload sesamoid complex; reduce propulsive compressive load	Avoid Morton's extension — increases sesamoid load; consider total offloading in acute phase
Plantar Plate Injury	Semi-rigid	Met dome proximal to affected met head; forefoot offload; consider toe prop	Reduce MTPJ dorsiflexion loading; offload plantar plate	Buddy strapping adjunct; taping to hold toe in plantarflexion during acute phase
MIDFOOT & ANKLE				
PTTD / Adult Acquired Flat Foot	Rigid poly propylene	Medial heel skive; medial flange; forefoot valgus post; deep heel cup	Maximum STJ supinatory control; support collapsed medial arch; resist talar plantar/adduction	Stage I-IIa: conservative; Stage IIb+: orthotics adjunct to surgical planning; AFO may be required
Peroneal Tendinopathy	Semi-rigid	Lateral heel skive; lateral flange; forefoot valgus post	Reduce supination moments; reduce peroneal eccentric demand; improve lateral stability	Address underlying pes cavus/supinated foot type comprehensively
Lateral Ankle Sprain (recurrent)	Semi-rigid	Lateral flange; lateral heel skive; lateral forefoot wedge	Resist calcaneal inversion; improve lateral proprioception and mechanical stability	Address ankle and hip strength; lateral flange is mechanical deterrent to inversion
Cuboid Syndrome	Semi-rigid	Cuboid pad (lateral midfoot support); lateral arch support	Support cuboid against plantar displacement; reduce peroneus longus traction	Often associated with hypermobile lateral column; lateral arch fill important
KNEE & SHIN				

Pathology	Shell Type	Key Modifications	Biomechanical Rationale	Additional Considerations
Patellofemoral Pain Syndrome	Semi-rigid	Medial rearfoot post/wedge (or medial heel skive if no plantar heel symptoms); forefoot varus post	Reduce tibial internal rotation driven by STJ pronation; reduce patellofemoral joint stress	Effect is modest — combine with hip strengthening; evidence supports combined approach
Medial Tibial Stress Syndrome	Semi-rigid	Medial rearfoot post/wedge (or heel skive if no heel pain); forefoot varus post; shock-absorbing top cover	Reduce tibial bending forces from excessive pronation; attenuate impact loading	Gradual return to running; address training load as primary driver
Iliotibial Band Syndrome	Semi-rigid	Lateral heel skive; lateral forefoot wedge	Reduce knee internal rotation and adduction from pronation-related tibial rotation changes	Limited direct evidence — address hip strength and running mechanics primarily
HIP & PELVIS (orthotic role)				
GTPS / Gluteal Tendinopathy	Semi-rigid	Address leg length discrepancy (heel raise to short limb); correct excessive pronation	Reduce contralateral pelvic drop via improved lower limb alignment; reduce hip adduction	LLD correction most important orthotic consideration; gradual raise introduction
Leg Length Discrepancy	Heel raise to short limb	50–75% of measured LLD as initial correction; build up gradually	Reduce pelvic obliquity; equalise limb loading; reduce spinal and hip compensation	Full correction rarely appropriate — start conservatively; monitor with patient

IMPORTANT: Assessment-Driven Prescription

This table represents common prescribing patterns based on typical biomechanical presentations. Clinical assessment — including STJ position, forefoot-to-rearfoot relationship, ankle dorsiflexion range, FPI score, and gait analysis — should always direct the final prescription. Modifications are frequently combined; consider the cumulative biomechanical effect of all components together.