

Footwear Assessment & Orthotic Compatibility

Evaluating Footwear for Orthotic Prescribing and Patient Advice

Footwear is the single most common reason orthotics fail clinically — either because the device cannot physically fit, or because the footwear undermines the prescription's mechanical effect. Assessing footwear must be part of every orthotic consultation. This reference covers what to look for, minimum requirements, incompatible footwear types, and how to advise patients.

1 The 6-Point Footwear Assessment

Aspect	Detail
1. Depth (volume)	The single most critical factor. Remove the original insole — if the orthosis cannot fit in the space vacated by the insole without the heel sitting proud, the shoe is incompatible. Minimum depth for a 4mm shell + 3mm top cover = 7mm more than the original insole.
2. Width (forefoot)	Forefoot width must accommodate the orthosis without causing lateral compression or the device buckling. Particularly important for full-width shells and medial/lateral flange modifications.
3. Heel counter	A firm, structured heel counter stabilises the rear of the orthosis and prevents the device migrating forwards or rocking. Soft, collapsed, or absent heel counters undermine rearfoot control modifications significantly.
4. Removable insole	Most sports and supportive shoes have a removable sockliner. This MUST be removed to accommodate the orthosis. If the insole is glued in, the shoe depth is effectively reduced by 3–6mm — assess accordingly.
5. Lacing / closure system	Lace-up or adjustable closure is strongly preferred — it allows the upper to accommodate the volume added by the orthosis. Slip-on, elastic, or fixed-width shoes significantly limit orthotic compatibility.
6. Sole rigidity and rocker geometry	Excessively rigid soles with no flex point may conflict with orthotic mechanics. Conversely, a well-positioned rocker can complement certain prescriptions (hallux rigidus, equinus management, Achilles tendinopathy).

2 Minimum Footwear Requirements by Prescription Type

Prescription Type	Minimum Depth Required	Heel Counter Requirement	Lacing Required?
Standard functional orthosis (3mm shell + 3mm cover)	≥6mm above original insole bed	Firm and structured	Strongly preferred
Cushioning/accommodative orthosis (4–6mm EVA/Poron)	≥6–8mm above insole bed	Moderate	Preferred but not essential
High-control rigid orthosis (4mm PP + medial flange)	≥8mm + width for flange	Very firm — essential	Yes — slip-on incompatible
Paediatric orthosis (2–3mm shell)	≥5mm above insole bed	Moderate to firm	Velcro or lace preferred
Heel raise only (3–6mm)	≥3–6mm above insole bed	Any	Any
3D-printed bespoke shell	Depends on shell design — measure individual device	Firm preferred	Yes for high-control designs

3 Footwear Compatibility by Type

Footwear Type	Compatibility	Notes / Advice
Running / training shoe	Good	Generally excellent orthotic compatibility; removable insole; firm heel counter; lace-up. Ideal for most functional prescriptions.
Walking shoe / boot	Good	Usually compatible; check depth and heel counter firmness. Wide-fit options available for flanged devices.
Work boot (safety/steel toe)	Good	Usually deep enough; steel toe cap may limit forefoot prescription length — use 3/4 or sulcus length.
Court shoe (tennis/squash)	Good	Usually compatible; lateral stability of court shoe complements lateral flange modifications.
Football boot / cleat	Limited	Very low volume — thin insole only; 2mm shell maximum; no room for significant modifications. Consider sulcus-length minimalist device only.
Cycling shoe	Limited	Extremely low volume; stiff carbon sole; minimal orthotic accommodation. Specialist thin carbon orthosis only; forefoot modifications very limited.
Dress shoe (Oxford/leather)	Limited	Low volume; narrow toe box; often no removable insole. 3/4-length thin shell maximum; advise patient on footwear choice.
Flat pump / ballet flat	Incompatible	No heel counter, no depth, no fixation. Cannot accommodate any functional orthosis. Patient must change footwear or accept management limitations.

Footwear Type	Compatibility	Notes / Advice
Flip flop / sandal	Incompatible	No enclosure — orthosis cannot be retained. Specialist sandal orthoses exist but are outside standard prescribing.
High heel (>4cm)	Incompatible	Heel elevation changes orthotic mechanics fundamentally; rearfoot control modifications are ineffective. Address heel height as part of management.
Slipper / moccasin	Incompatible	No structure, no fixation, no depth. Specialist accommodative orthoses for elderly/housebound patients only.

4 Assessing Wear Patterns

Wear Pattern	Clinical Significance
Heel wear — medial (excessive)	Indicates calcaneal eversion / pronation at heel strike. Confirms rearfoot medial control indication.
Heel wear — lateral (excessive)	Indicates calcaneal inversion / supination at heel strike. Confirms lateral accommodation or cavus foot type.
Forefoot wear — under 2nd/3rd met heads	Central metatarsalgia loading pattern — met dome/offloading indicated.
Forefoot wear — under 1st met head/hallux	Excessive hallux loading — assess for FHL, sesamoiditis, hallux rigidus.
Forefoot wear — lateral (4th/5th)	Lateral forefoot overload — pes cavus, lateral instability, supination pattern.
Heel counter collapse (medial)	Indicates severe or long-standing pronation overwhelming shoe structure — significant footwear change required alongside orthosis.
Toe box distortion	Indicates toe deformity (hammer/claw/hallux valgus) — assess for dorsal pressure; advise wide or deep toe box footwear.
Even, symmetric wear	Suggests reasonable biomechanical loading — useful baseline for post-orthosis comparison at review.

5 Patient Footwear Advice Framework

BRING YOUR SHOES

Ask every patient to bring their most-used footwear to the first appointment. Footwear assessment before prescription is not optional — it determines what prescription is actually possible.

REMOVE THE INSOLE

Always demonstrate to the patient that the original insole must come out. Many patients wear the orthosis on top of the original insole, halving the available volume and causing discomfort.

ADVISE ON FOOTWEAR INVESTMENT

For high-control prescriptions, the orthosis will not work effectively in incompatible footwear. Advise patients that footwear investment is part of their treatment — a £300 orthosis in a flat pump is ineffective.

REVIEW FOOTWEAR AT FOLLOW-UP

Footwear changes over time — worn-down counters, new shoes, seasonal changes. Reassess footwear compatibility at every orthotic review appointment.

An orthosis is only as effective as the footwear it is worn in. Footwear assessment should be documented in every orthotic consultation — it is a clinical decision, not an afterthought.