

Diabetic & High-Risk Foot Prescribing

Offloading Principles, Material Selection, and Safe Prescribing in the At-Risk Foot

Orthotic prescribing in the diabetic and high-risk foot requires a fundamentally different approach to standard biomechanical prescribing. The priorities shift from motion control and correction to pressure redistribution, shear reduction, and ulcer prevention. Errors in high-risk foot prescribing can have serious consequences — including ulceration, infection, and amputation. This reference covers the key principles, risk stratification, material selection, and prescribing approach for the at-risk foot.

1 Risk Stratification (NICE/IWGDF Framework)

! VASCULAR & NEUROLOGICAL ASSESSMENT REQUIRED

Always perform vascular and neurological assessment before prescribing for a diabetic patient. Orthotic prescribing without knowledge of vascular status and protective sensation is unsafe.

Risk Category	Criteria	Review Frequency	Orthotic Approach
Low risk (NICE Category 0)	No neuropathy, no vascular disease, no deformity	Annual	Standard biomechanical prescribing as per assessment; no special precautions beyond normal clinical practice
Moderate risk (NICE Category 1)	One of: neuropathy, PAD, or deformity	3–6 monthly	Accommodative priority; Plastazote/Poron top cover; total contact approach; pressure redistribution; assess footwear carefully
High risk (NICE Category 2)	Two or more of: neuropathy, PAD, deformity; or previous ulceration	1–3 monthly	Specialist footwear + custom orthosis; total contact insole; Plastazote Grade 1 contact layer; refer to multidisciplinary diabetic foot team
Very high / active ulcer (NICE Category 3)	Active ulceration, infection, Charcot	Urgent MDT	Total contact casting or specialist offloading boot — orthotic insoles are NOT appropriate for active ulceration; refer urgently

2 Core Prescribing Principles for the At-Risk Foot

Aspect	Detail
Pressure redistribution over correction	The primary goal in neuropathic/at-risk feet is to reduce peak plantar pressure below ulceration threshold (~200 kPa is a commonly cited reference). Motion control is secondary to pressure redistribution.
Total contact approach	The entire plantar surface should be in even contact with the orthosis — no voids, no focal loading points. Plastazote Grade 1 moulds to the foot and provides total contact. Avoid rigid shells with unsupported arch voids.
Shear reduction	Horizontal shear forces contribute to ulceration as much as vertical pressure. Top cover materials must reduce friction — leather, microfibre, and Poron all reduce shear better than EVA.
No rigid modifications at bony prominences	Medial heel skives, rigid met domes, and hard edge modifications that concentrate load at bony prominences are contraindicated in neuropathic feet. Any modification that increases focal pressure is hazardous.
Depth and fit verification	At every appointment, physically check the orthosis in the patient's footwear. Confirm no edge pressure, no areas of focal loading, and that the device has not compressed or deformed. Neuropathic patients cannot feel fit problems.
Review interval is clinical, not convenient	High-risk patients require frequent review. Material breakdown, deformity progression, and new pressure areas develop quickly. Review at 1–3 months; do not extend intervals without clinical justification.

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Material Selection for the High-Risk Foot

Material	Role	Key Properties	Cautions
Plastazote Grade 1 (softest)	Contact layer	Heat-moulds to foot shape; total contact; minimal shear; pressure redistribution	Compresses over time — replace every 3–6 months; monitor for loss of offloading effect
Plastazote Grade 2/3	Base/mid layer	More durable than Grade 1; provides structure beneath Grade 1 contact layer	Not for direct contact in neuropathic feet — too firm as a single-layer solution
Poron (standard / Fusion)	Mid-layer cushioning	Excellent shock absorption; low compression set; Poron Fusion adds shape retention	Use as middle layer beneath Plastazote contact layer; not as sole contact material in high-risk feet
Poron XRD	Impact protection	Rate-dependent stiffening; exceptional impact attenuation; suitable under active patients	Best for moderate-risk active diabetics; use beneath a soft contact layer
EVA (soft grades 35–45A)	Shell / base	Cost-effective; heat mouldable; accommodative	Compresses significantly over time — monitor and replace; higher grades inappropriate for neuropathic feet
Microfibre / leather	Top cover	Reduces shear; breathable; durable	Ensure no seams at plantar surface; check for friction points at fitting
Hard TPU / rigid polypropylene	Contraindicated as shell	—	Rigid shells are generally contraindicated in at-risk feet unless prescribed within specialist MDT context

4 Common High-Risk Foot Indications

Presentation	Orthotic Approach	Additional Actions
Neuropathic plantar callosity	Total contact Plastazote insole; debride callus at same appointment; review 4–6 weekly	Footwear assessment essential; refer if callus recurs rapidly despite offloading
Hammertoe / claw toe (neuropathic)	Deep toe box footwear + total contact insole; silicone toe orthosis for dorsal protection	Assess for dorsal ulceration risk; refer if skin breakdown present
Hallux valgus (neuropathic)	Wide toe box + accommodative total contact insole; offload medial 1st MTP	Refer for surgical assessment if progressive; protective padding for medial prominence
Charcot neuroarthropathy (resolved/reconstructed)	Specialist total contact insole + therapeutic footwear; custom moulded to reconstructed foot shape	MDT management; orthotic prescribing only in post-acute phase with consultant input
Heel ulcer (healed/offloaded)	Heel aperture or horseshoe pad within total contact insole; redistribute to midfoot	Do not prescribe over active ulcer; confirm wound closure before orthotic issue
Forefoot ulcer (healed)	Met head aperture/offloading within total contact insole; total contact forefoot coverage	Pressure plate confirmation of offloading effect if available; 4-weekly review minimum

5 Documentation & Referral Requirements

DOCUMENT VASCULAR & NEURO STATUS

Record ABPI or vascular assessment status, 10g monofilament result, and vibration perception threshold at every orthotic review. This is a medicolegal requirement for high-risk foot management.

REFER WHEN IN DOUBT

Any active ulceration, exposed tendon/bone, cellulitis, unexplained swelling, or rapidly progressive deformity requires urgent MDT referral. Orthotic prescribing in these presentations without specialist oversight is unsafe.

PHOTOGRAPH AT EACH VISIT

Plantar photographs provide objective documentation of pressure area development, callus distribution, and ulcer status. Essential for medicolegal records and MDT communication.

THERAPEUTIC FOOTWEAR REFERRAL

Patients at high/very high risk who cannot be adequately managed with standard depth footwear should be referred for NHS therapeutic footwear assessment. Document this referral in the clinical record.

In the high-risk foot, the consequences of a prescribing error are irreversible. When clinical complexity exceeds your competence or resource, refer promptly. Timely referral to a multidisciplinary diabetic foot team is always the right clinical decision.