Paediatric Orthotic Considerations

Prescribing Principles for Children and Young People

1 Developmental Anatomy & Age Norms

Age Range	Arch Development	RCSP Norm	FPI-6 Norm	Clinical Notes
0–2 years	Fat pad obscures arch	−4 to −6 valgus	N/A	Physiological flat foot normal
2–4 years	Arch begins forming	−2 to −4	0–6	Weight-bearing flat foot still normal
4–6 years	Arch developing	−1 to −3	0–4	Monitor if symptomatic
6–8 years	Near-adult arch	0 to −2	0–3	Pathological flat foot if persistent with symptoms
8+ years	Adult-like arch	0 to −1	−1 to +1	Treat if symptomatic and not resolving

2 Indications for Paediatric Orthotic Intervention

Table A — Intervene (Symptomatic Conditions)

Condition	Age Threshold	Key Criteria	First-Line Approach
Paediatric flexible flat foot	>6 years	Pain, fatigue, activity limitation	Functional orthosis, activity modification
Sever's disease	8–14 years	Heel pain at traction apophysis	Heel raise, cushioning, load management
Juvenile idiopathic arthritis	Any	Joint inflammation, altered gait	Custom orthosis + MDT liaison
Cerebral palsy	Any	Equinus, spastic valgus	AFO/SMO, specialist referral
Down syndrome	Any	Hypermobility, ligamentous laxity	UCBL or custom semi-rigid
Metatarsus adductus (residual)	<2 years	Forefoot adduction, footwear issues	Stretching; orthosis if rigid

Table B — Do NOT Intervene (Non-Indications)

Condition	Reason
Asymptomatic flat foot <6 years	Physiological norm; intervention not evidenced
Mild in-toeing	Usually self-resolves by age 8
Mild out-toeing	Rotational variant; resolves spontaneously
Asymptomatic flexible flat foot any age	No evidence orthoses alter long-term arch development

3 Prescribing Differences: Children vs Adults

Feature	Paediatric Approach	Adult Approach	Rationale
Shell rigidity	Semi-rigid preferred	Variable	Growth and compliance
Posting magnitude	≤4° maximum; conservative	Up to 8–12°	Growth plates; risk of over-correction
Review frequency	Every 3–6 months	6–12 months	Foot growth rate
Material thickness	Thinner shells (2–3mm EVA/polypropylene)	3–4mm standard	Weight, fit in footwear
Intrinsic vs extrinsic	Prefer intrinsic where possible	Either	Better control, less bulk
Growth allowance	Size up by one shoe size	N/A	Accommodate growth
Patient engagement	Parent/carer education essential	Direct patient	Compliance dependent on carer

4 Conditions Requiring Early / Specialist Intervention

 Warning

The following conditions warrant early specialist referral or MDT involvement. Orthotic management alone is insufficient — coordinate with paediatric orthopaedics, rheumatology, or neurology as appropriate.

Condition	Red Flag Features	Referral Pathway	Orthotic Role
Tarsal coalition	Rigid flat foot, peroneal spasm, pain >10 years	Orthopaedics	Symptom management only; not curative
Clubfoot (residual)	Rigid equinovarus, relapse post-Ponseti	Paediatric orthopaedics	Post-treatment maintenance
Cerebral palsy	Equinus, scissor gait, neurological involvement	MDT (physio, orthotics, neuro)	AFO/SMO in MDT context
Juvenile idiopathic arthritis	Persistent joint swelling, morning stiffness	Paediatric rheumatology	Offloading, shock absorption
Down syndrome	Severe ligamentous laxity, gait instability	Paediatric physio + podiatry	UCBL or custom rigid

5 Common Prescribing Mistakes

Mistake 1 — Over-treating asymptomatic flat foot

Over-treating asymptomatic flat foot in children under 6 — physiological valgus is normal and orthoses are not evidenced for arch development in asymptomatic children.

Mistake 2 — Applying adult prescription principles

Applying adult prescription principles to children — conservative posting, thinner shells, and regular review are essential in a growing foot.

Mistake 3 — Failing to account for growth

Failing to account for growth — children's feet can grow 1–2 shoe sizes per year; orthoses must be reviewed every 3–6 months and replaced promptly.

Mistake 4 — Prescribing without parent/carer education

Prescribing without parent/carer education — compliance in paediatric patients depends almost entirely on the carer's understanding of purpose and wear schedule.

Clinical Summary

Paediatric orthotic prescribing requires age-referenced norms, conservative prescription, frequent review, and carer engagement. Asymptomatic flat foot in young children is physiological — intervene only when there is pain, fatigue, or activity limitation, and always reassess as the child grows.