

Blount's Disease: When to Treat with a KAFO

Miriam Williams¹ | ¹The Royal Wolverhampton NHS Trust



Introduction

Blount's disease is a progressive tibia vara deformity of childhood that, untreated, can worsen limb malalignment and function; an elevated body mass index is a recognised prognostic factor [1]. Knee-ankle-foot orthoses (KAFOs) apply corrective forces to guide realignment during growth and may defer or avoid surgery. Evidence for conservative orthotic management remains limited. Our service runs a joint monthly clinic combining orthotist and technician expertise to optimise assessment, fabrication, fit, and follow-up in paediatric Blount's disease.

Method

Children diagnosed with Blount's disease attended a dedicated monthly clinic staffed jointly by a senior orthotist and an orthotic technician. Assessment at each visit comprised gait observation, limb alignment measurement, and photographic documentation. Custom KAFOs were designed and fabricated for each child. Review appointments were undertaken every three months to monitor growth, adherence, and deformity correction. We report three representative cases, summarising age, disease stage, orthotic design, adherence, and clinical progression.

Results

Three children (ages two, three, and three years) with early- to mid-stage Blount's disease were managed with KAFOs. All showed improved knee alignment across follow-up, with a mean correction of 15 degrees, and none progressed to surgery. Parent-reported daily wear exceeded eight hours in every case. The integrated clinic enabled same-day adjustments, shortened waiting times, and improved initial fit. Parents valued the combined orthotist and technician input and reported greater child engagement and reduced anxiety at fittings. Accommodating rapid skeletal growth was the principal challenge. These early findings suggest that KAFO management within a collaborative clinic can achieve favourable clinical and experiential outcomes, although the small sample limits generalisability.



Discussion

Joint orthotist and technician clinics offer an efficient, service-user-focused pathway for the conservative management of paediatric Blount's disease with KAFOs. Embedding technical expertise within the clinical encounter streamlined fabrication, improved fit, and supported adherence through timely adjustment. Favourable outcomes were achieved in early-stage cases alongside strong parental satisfaction, and the model may offer a template for other paediatric orthotic pathways requiring custom fabrication and close monitoring.

Adherence is likely shaped by the functional and psychosocial demands placed on the child and family. Prolonged KAFO use can restrict daytime activity and may raise difficulties with fit, skin integrity, growth, and participation in age-appropriate routines [2]. Under the current protocol, children wear the KAFO for 23 hours per day for 10 months, then night-time only for a further six months, representing a considerable burden of treatment. Larger prospective studies using objective gait and kinematic measures [3] are required to confirm effectiveness and to identify which children benefit most.



Mean average deformity correction

Limitation

Our findings are broadly consistent with those of Inaba et al. [4]; however, case numbers at our centre are small, and the results should be interpreted with caution.

References

1. Scott AC, Kelly CH, Sullivan E. Body mass index as a prognostic factor in development of infantile Blount disease. *J Pediatr Orthop*. 2007;27(8):921-5.
2. Alsancak S, Guner S, Kinik H. Improved gait parameters after orthotic treatment in children with infantile tibia vara. *Sci Rep*. 2020;10(1):3187.
3. Yuan Z, Thacker MM, Church C, Henley JD, de Jesus Salazar-Torres J, Miller F. Evaluation and prediction of knee kinematics and kinetics in children with Blount disease. *Gait Posture*. 2026;129:110226.
4. Inaba Y, Saito T, Takamura K. Multicenter study of Blount disease in Japan by the Japanese Pediatric Orthopaedic Association. *J Orthop Sci*. 2014;19(1):132-40.