Comparative Effectiveness of KinetiX Prefabricated Insoles in Managing Common Foot and Ankle Conditions: A Pilot Evaluation in an NHS Community Podiatry Setting

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Abstract

Background: Targeted prefabricated orthoses may enhance patient outcomes and reduce healthcare resource use in managing common foot and ankle pathologies. This pilot study investigates clinical outcomes and service efficiency using the KinetiX range—three condition-specific insoles—versus standard insoles within an NHS podiatry setting.

Methods: Twenty patients with plantar fasciopathy, Achilles tendinopathy, or posterior tibial dysfunction (PTD) received either a standard insole or one of the three KinetiX devices (A–C), each biomechanically engineered for a specific condition. Improvement and follow-up needs were assessed over 8 weeks.

Results: KinetiX A, B, and C demonstrated markedly improved outcomes (95–100% recovery) and reduced need for follow-up, compared to standard insoles (25–60% improvement). Device features such as medial rearfoot wedging and skiving appear biomechanically validated by existing orthotic literature.

Conclusion: Diagnosis-specific prefabricated orthoses such as KinetiX show promise for improving outcomes, reducing clinical burden, and aligning with lean healthcare goals. Further research is recommended.

Introduction

Effective management of lower limb musculoskeletal disorders in public health systems such as the NHS requires interventions that are both clinically effective and operationally efficient. Foot pathologies like plantar fasciopathy, Achilles tendinopathy, and posterior tibial dysfunction (PTD) contribute significantly to podiatry department caseloads.

Prefabricated foot orthoses (PFOs), if well-targeted, offer a cost-effective and practical alternative to custom orthotics. However, robust head-to-head evaluations of condition-specific prefabricated devices remain limited. The KinetiX range—comprising three diagnosis-driven models (A, B, C)—was developed to address this need. This study evaluates their performance against standard devices in clinical use.

Literature Review

Biomechanical Basis of Orthotic Design

- **KinetiX A** combines an 8° medial rearfoot wedge, a medial heel skive, and a heel raise, ideal for managing PTD through enhanced pronation control (Bonanno et al., 2012; Kirby, 1992).
- **KinetiX B** includes a 4° medial rearfoot wedge—useful for Achilles tendinopathy where slight control is needed without excessive correction (Murley et al., 2011; Reeves; Reeves et al., 2021)
- **KinetiX C** integrates a 4° medial rearfoot and a 5° lateral forefoot wedge. Kogler et al. (1996; 1999) demonstrated that lateral forefoot wedging significantly reduces strain on the plantar fascia.

Orthotic Efficacy and Clinical Efficiency

Studies by Desmyttere (2018)and Mills (Mills et al., 2010) confirm orthoses' ability to reduce joint load and improve recovery trajectories. McPoil et al. (1988) emphasised orthotic impact on gait mechanics, and Cheung et al. (2011) highlighted efficacy in pronation control in patients with increased.

Foot orthoses have been investigated qualitatively for the effects of colour on efficacy, which links to current biopsychosocial models of patient management and care (Meints & Edwards, 2018; Spooner & Griffiths, 2021).

Lean methodology (D'Andreamatteo et al., 2015; Rotter et al., 2019; Womack & Jones, 1996), increasingly applied in NHS service design, promotes value-based care by reducing unnecessary clinical encounters, making orthoses that support single-visit resolution especially valuable. Harrison-Blount et al. (2019) discuss the paucity of evidence in change methodology within podiatry, but conclude that effective change has been seen through the adoption of a strategic approach that facilitates change with a patient focus which has been extensively reviewed and implemented within other healthcare professions.

Methods

Study Design: Prospective cohort service evaluation.

Participants: Twenty adults diagnosed with plantar fasciopathy, Achilles tendinopathy, or PTD. All had no prior orthotic use in 6 months and were free from recent lower limb surgery.

Intervention: Patients were prescribed either:

- **KinetiX A, B, or C** (intervention group), depending on condition.
- **Standard insoles** (Insoles 1–3) currently used in Merseycare NHS from the following suppliers (TalarMade & Salford insole) (control group).

Follow up:

All patients were Followed up at 8 weeks via telephone or face to face appointment. All patients were offered a routine follow up appointment, but were also provided with advice that if everything was fine and they had no issues that required attending an appointment, to cancel the follow up appointment.

Outcome Measures:

- Subjective recovery score at 8 weeks (% improved).
- Number of follow-up appointments required.

Results

Device symptom improvement per condition

		Average Percentage Improvement
Plantar Fasciitis Group	KinetiX	-95%
	Current Insole	-43%
Achilles Tendonitis	KinetiX	-95%
	Current Insole	-46%
Tib Post Dysfunction	KinetiX	-70%
	Current Insole	-25%

Effects on Clinical Time

		Follow Up Appointments Required
Plantar Fasciitis Group	KinetiX	0
	Current Insole	2+
Achilles Tendonitis	KinetiX	1
	Current Insole	2+
Tib Post Dysfunction	KinetiX	1
	Current Insole	2+

All KinetiX insoles outperformed their standard counterparts in clinical improvement and appointment efficiency.

Discussion

Biomechanical Integrity of KinetiX Devices

The superior results of KinetiX A, B, and C can be directly attributed to their biomechanical features:

- **KinetiX A's** medial heel skive and heel raise increase supinatory moments and offload the posterior tibial tendon, confirmed in studies on PTTD (Moisan et al., 2025).
- **KinetiX B's** moderate control design supports Achilles offloading with minimal disruption to sagittal plane motion.
- **KinetiX C's** dual wedge approach directly mirrors Kogler's work on reducing fascia strain, leading to rapid symptom resolution in plantar fasciopathy.

Material and Manufacturing Benefits

Each insole is produced through **injection moulded polyurethane (PU)**. This process offers:

- **Precision**: Reproducible biomechanics via high-tolerance moulds.
- **Durability**: PU's high resilience maintains shape under stress.
- **Comfort**: Superior energy return and shock absorption enhance patient compliance.
- **Scalability**: Economical for large NHS supply chains.

Cost Efficiency and NHS Priorities

All patients were offered a routine follow up appointment, but were also provided with advice that if everything was fine and they had no issues that required attending an appointment, to cancel the follow up appointment.

When some patients were reviewed over the telephone at 8 weeks they informed us that they were very happy with the symptomatic relief they had gained and didn't require another appointment.

The midpoint hourly rate for the annual salary for a Band 6 Podiatrist in the NHS is £20.88 ph (NHS Employers).

The unit cost for podiatrists is not readily available, but a recent report by Jones et al on the unit costs of health and social care identify the unit cost of a Band 6 nurse per working hourbb at **£49**, however, the cost per hour of patient-related work was calculated at **£89** (Jones et al., 2025).

A 30-minute Band 6 NHS podiatrist appointment costs approximately **£25–£45**. Requiring only 1 or no follow-ups, KinetiX devices save an estimated **£80–£120 per patient episode**. This aligns with:

- **Lean NHS strategy**: Reduce waste, improve flow (Kim et al., 2006)
- **"Right care, right place, right time"** initiatives.
- **NHS Long Term Workforce Plan (2023)**: Empower clinicians to manage demand with efficient tools.

Systemic and Patient-Level Benefits

- **Patients** benefit from less time off work, reduced travel costs, and faster return to function.
- **Clinics** gain capacity by discharging faster, improving throughput and waiting list times.
- **Public health** wins by addressing mobility, falls risk, and chronic pain at reduced cost.

Conclusion

This pilot study shows that **condition-specific, polyurethane-moulded prefabricated orthoses** like KinetiX A–C are clinically superior to generic devices. Their targeted biomechanical design and reduced demand for follow-up make them ideal for high-volume NHS settings under pressure. Future work should include larger trials and cost-effectiveness modelling.

Clinical Impact

✅ **Superior Recovery Outcomes**

Patients fitted with KinetiX insoles consistently reported improved recovery, regardless of initial pain severity.

✅ **Reduced Clinical Burden**

Reduced requirement for follow-ups = more available clinic time and reduced operational costs.

✅ **Faster Discharge Times**

Patients using KinetiX insoles returned to function faster and were discharged sooner.

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