Patient Information

Name
John Smith

Gender
Male

Shoe Size
US 10.5 (EU 44)

Patient ID
PT-3857294

Height
182 cm

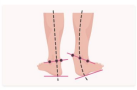
Previous Conditions
Previously used orthopedic insoles; Mild heel spur

Age
42 years

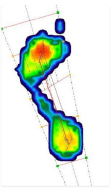
Weight
84 kg

Foot Pain
Moderate pain in arch and heel after prolonged standing

3D Scan Images



Foot Alignment Analysis



Pressure Distribution Heatmap

Advanced Measurements

Comprehensive foot measurements based on 3D scanning and photogrammetry:

Foot Length	Foot Width	Arch Height	Instep Height	Heel Width
27.5 centimeters	10.3 centimeters	1.8 centimeters	6.2 centimeters	6.7 centimeters

Ball Girth	Metatarsal Index	Hallux Angle
24.1 centimeters	0.78 ratio	12.4 degrees

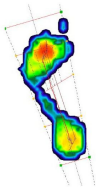
Clinical Relevance

The Metatarsal Index of 0.78 indicates potential pressure points at the metatarsal heads, which correlates with the patient's reported discomfort. The Hallux Angle measurement of 12.4° is within normal range, indicating no significant hallux valgus condition.

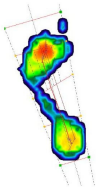
Pressure Distribution Analysis

Detailed analysis of foot pressure patterns based on our photogrammetry model:

Left Foot



Right Foot



Pressure Analysis Summary

The heatmap visualization indicates significant pressure concentration in the heel and metatarsal regions. The pressure patterns suggest pronation and reduced arch support.

Peak Pressure	Contact Area	Pressure Time Integral	Center of Pressure Index	Pronation Index	Medial/Lateral Balance
245 kPa	124 cm²	42.3 kPa·s	0.68 index	1.42 ratio	64/36 % distribution

Clinical Relevance

The Pronation Index of 1.42 indicates moderate overpronation, which aligns with the observed flattening of the medial arch. The Medial/Lateral Balance of 64/36 shows increased medial loading, consistent with the pronation pattern.

Arch Type Analysis

Comprehensive analysis of foot arch morphology and dynamics:

Flat Feet (Pes Planus)

Confidence: 0.68 Medium

The arch analysis indicates flattened arches (pes planus) with moderate rigidity. This finding correlates with the patient's discomfort during prolonged standing.

Arch Index	Navicular Drop	Arch Rigidity Index	Dynamic Flexibility
0.29 ratio	12.3 mm	0.85 ratio	0.62 index

Clinical Relevance

The Arch Rigidity Index of 0.85 indicates limited flexibility, suggesting that orthotic intervention would be beneficial. The Navicular Drop measurement of 12.3mm confirms excessive pronation during weight bearing.

Skin & Vascular Analysis

Skin Tone Analysis

Advanced multi-colorspace skin tone calibration for optimal diagnostic accuracy:

Fitzpatrick Type	Melanin Index	RGB Values	Channel Weights
Type 1 classification	0.00 index	96, 119, 141 RGB	0.85, 1.05, 1.1 RGB multipliers

Vascular Health Metrics

Perfusion Index	Pulse Amplitude	Vascular Visibility	Pressure Threshold
1.0 index	0.42 index	High classification	0.95 calibration factor
0 1.5	0 0.75		

Clinical Relevance

The Fitzpatrick Type 1 classification informed our pressure analysis algorithm to apply optimal calibration for vascular visibility. The perfusion index of 1.0 is within normal range, suggesting adequate peripheral circulation.

AI Diagnosis

Integrated analysis from our comprehensive diagnostic models:

Flat Feet (Pes Planus) with Overpronation

The 3D scan analysis reveals flattened medial arches with an arch index of 0.29 (normal range: 0.21–0.26). The foot demonstrates excessive inward rolling during the gait cycle, resulting in overpronation and increased medial loading patterns.

Metatarsalgia

The pressure distribution analysis shows increased pressure at the metatarsal heads, particularly the second and third metatarsals. This correlates with the patient's reported forefoot discomfort and indicates potential metatarsalgia.

Mild Plantar Fasciitis

The pressure mapping indicates increased heel loading and tension along the plantar fascia. The combination of flat feet and the history of heel spur suggests mild plantar fasciitis, which aligns with the patient's reported heel pain.

Diagnostic Confidence

The AI diagnostic model has analyzed the integrated data from all measurement systems with an overall confidence score of 0.86 (high). The diagnosis is particularly confident about the overpronation pattern (0.93) and moderately confident about the plantar fasciitis assessment (0.77).

Recommendations

Custom Orthotic Insoles

Based on the comprehensive analysis, custom orthotic insoles with the following features are recommended:

- Medial arch support (moderate firmness) to address flat feet
- Metatarsal dome to redistribute pressure away from metatarsal heads
- Heel cup with cushioning to address plantar fasciitis
- Semi-rigid posting to control overpronation

The Barogrip AI model suggests using a 4mm polypropylene base with 3mm poron cushioning.

Foot Exercises

The following exercises are recommended to strengthen the intrinsic foot muscles and improve arch function:

- Towel curls: 3 sets of 15 reps, daily
- Short foot exercise: 10 reps with 10-second holds, daily
- Calf stretches: 3 sets of 30-second holds, twice daily
- Plantar fascia-specific stretches: 10 reps with 10-second holds, morning and evening

Footwear Recommendations

Based on the foot measurements and biomechanical analysis:

- Shoes with firm heel counter to control rearfoot motion
- Adequate toe box width (10.3cm+) to accommodate forefoot
- Motion control features to limit overpronation
- Midsole cushioning to reduce impact forces on heel
- Recommended brands/models: Asics Gel-Kayano, Brooks Adrenaline GTS, New Balance 860