2025

FABRICADEMY
textile and technology academy

Unique bodies

Implications and applications

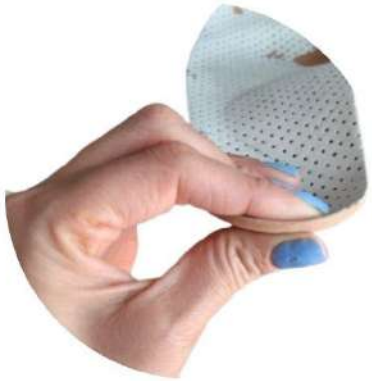
Who? Me

Lower limb discrepancy.

It is a condition in which there is a difference in the length of the leg bones, which can affect posture, gait, and weight distribution in the body.

In my case, I have a genetically shorter left leg by 1 cm. To prevent issues with my hips and back, I need to wear insoles that compensate for this asymmetry.

Left foot strike



Orthopedic insoles

Right foot strike

Right foot

Heel strike:
When touching the ground, the highest pressure is on the heel.

+1 CM

Left foot

Toe-off:

The pressure is concentrated on the forefoot and toes.

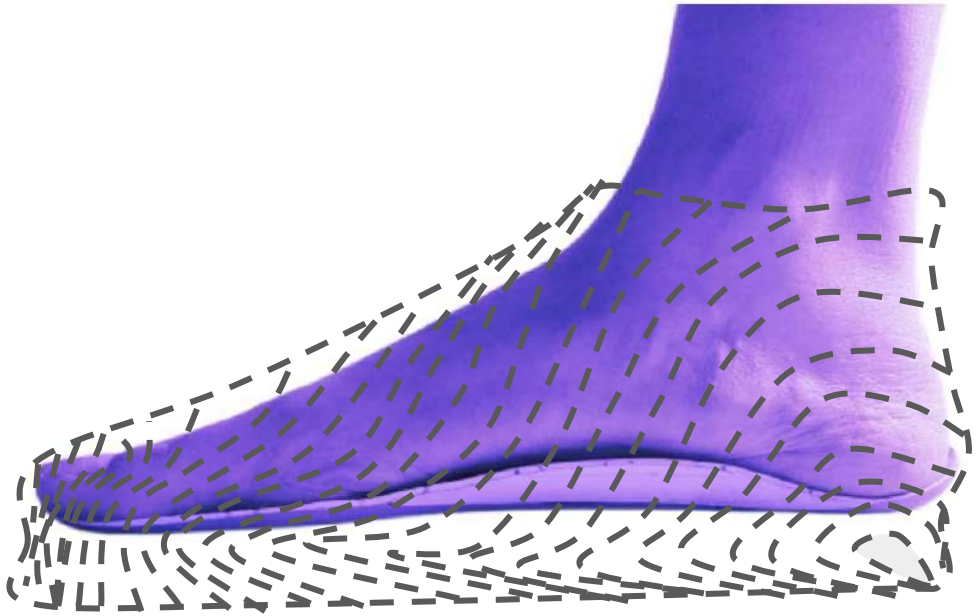
Orthopedic brace for spinal correction due to bone asymmetry

Midstance:

The weight is distributed across the arch and the metatarsal.

What?

I will design comfortable shoes that incorporate a 1 cm height adjustment directly into the right foot. The idea arises because insoles are often not compatible with open or perforated footwear, such as sandals. For this reason, I want to create a shoe where the correction is built into its structure, providing a unified solution instead of relying on an additional insole.



When?

You will be able to view my engraving in the table below.

Where?

FABLAB
PUEBLA

GANTT

Week	Date	Activity	Details
Week 1	Jan 20 - 28	Project Reconceptualization	Refine objectives, explore new solutions, and adjust the design approach.
		Foot Scan	Capture precise data using a 3D scanner for modeling.
		SoleMorph Testing	Generate parametric insoles and evaluate possible modifications.
Week 2	Jan 29 - Feb 4	Scan Analysis	Process foot data for a customized design.
		Material Exploration	Evaluate TPU and other options for flexibility and comfort.
Week 3	Feb 5 - 11	Initial Design Proposals	Create three proposals, from sketches to parametric models in Grasshopper.
		First 3D Printing Tests	Print small sections to assess structure and materials.
Week 4	Feb 12	Progress Presentation	Publish updates on the webpage, including images and case analysis.
	Feb 12 - 18	Design Refinement	Select a main proposal and adjust ergonomics.
		3D Printing at 30% Scale	Evaluate comfort and structure.
Week 5	Feb 19 - 25	Final Design Definition	Final adjustments in Grasshopper and ergonomic testing.
		Exploration of Root Growth in the Shoe	Research techniques for biological integration into the design.
Week 6	Feb 26 - 28	Video Preparation	Document the process, record, and edit the final presentation.
		Final Reflection	Evaluate the design and improvements for future versions.

Why

Personal Application.

This project will allow me to directly experience the product's functionality on my own body, ensuring that the solution is realistic, effective, and fit for its intended purpose.