Skate Brace

Designed by Jacob McMullen

4-7

Research

8-11

Development

12-15

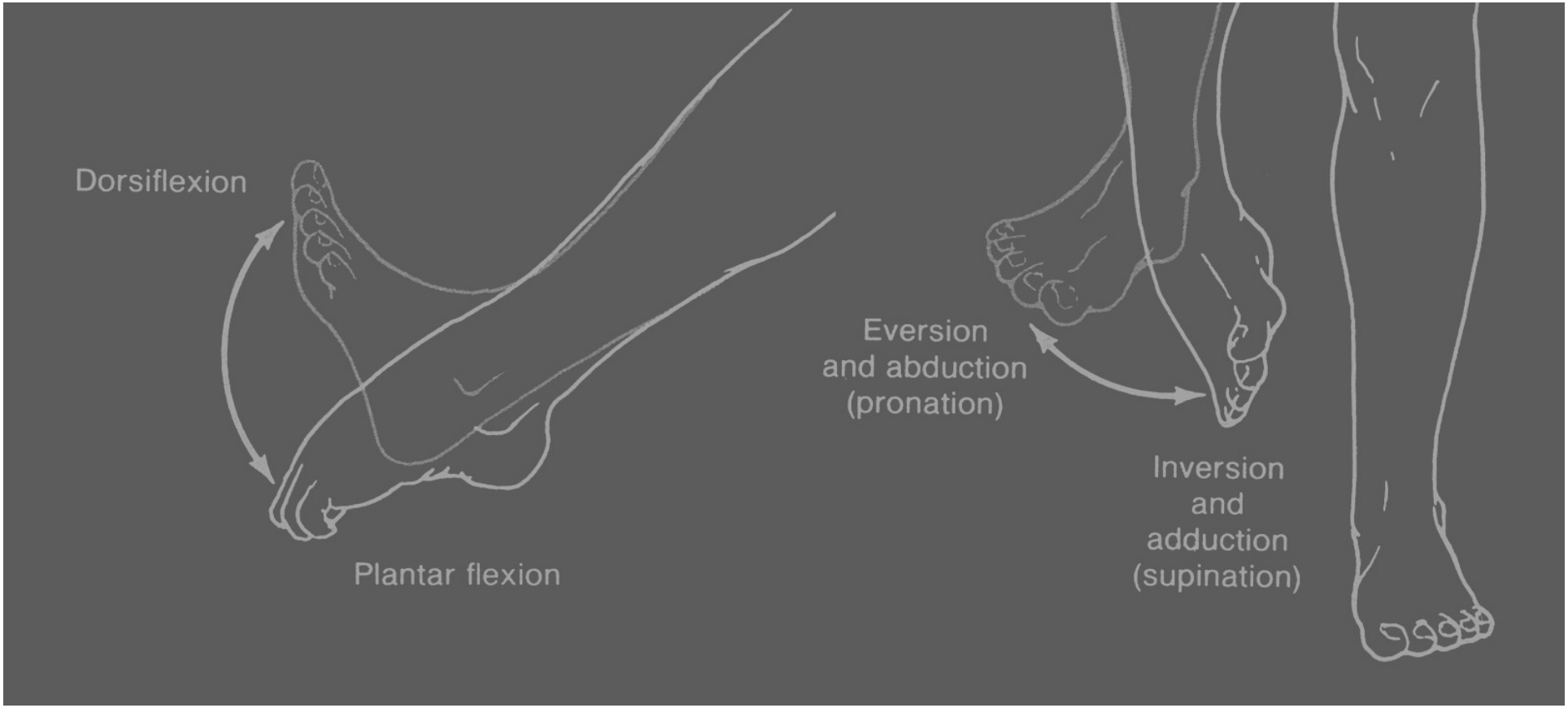
Final

Prompt

Focusing on the sports industry we looked to improve the overall ergonomics of a product in a way that would prevent injury or enhance performance.

Executive Summary

38% of all skateboarding injury's are to the wrist and ankle, making them the number one injury in skateboarding. Although wrist guards exist, there is no current ankle protection on the market suitable for skateboarders. This is due to their need to rotate their ankle in all directions in order to perform skateboard maneuvers.



Ankle Ergonomics

The average ankle can move up (dorsiflexion) **20 degrees** and down (plantarflexion) **45 degrees,** however the inversion of a person's ankle varies greatly.

Product Selection

After researching, I chose Active Ankles semi-rigid hinged ankle brace to be the basis for my design since it allowed for the dorsiflexion and plantarflexion of the ankle.

Digital Ergonomics

After collecting the subjects responses the results were relatively unanimous. They found the website easy to navigate and successful in offering the necessary information for them to make their purchase.

How easy was it to locate the product on this website?

Was there an acceptable amount of information provided about the product?

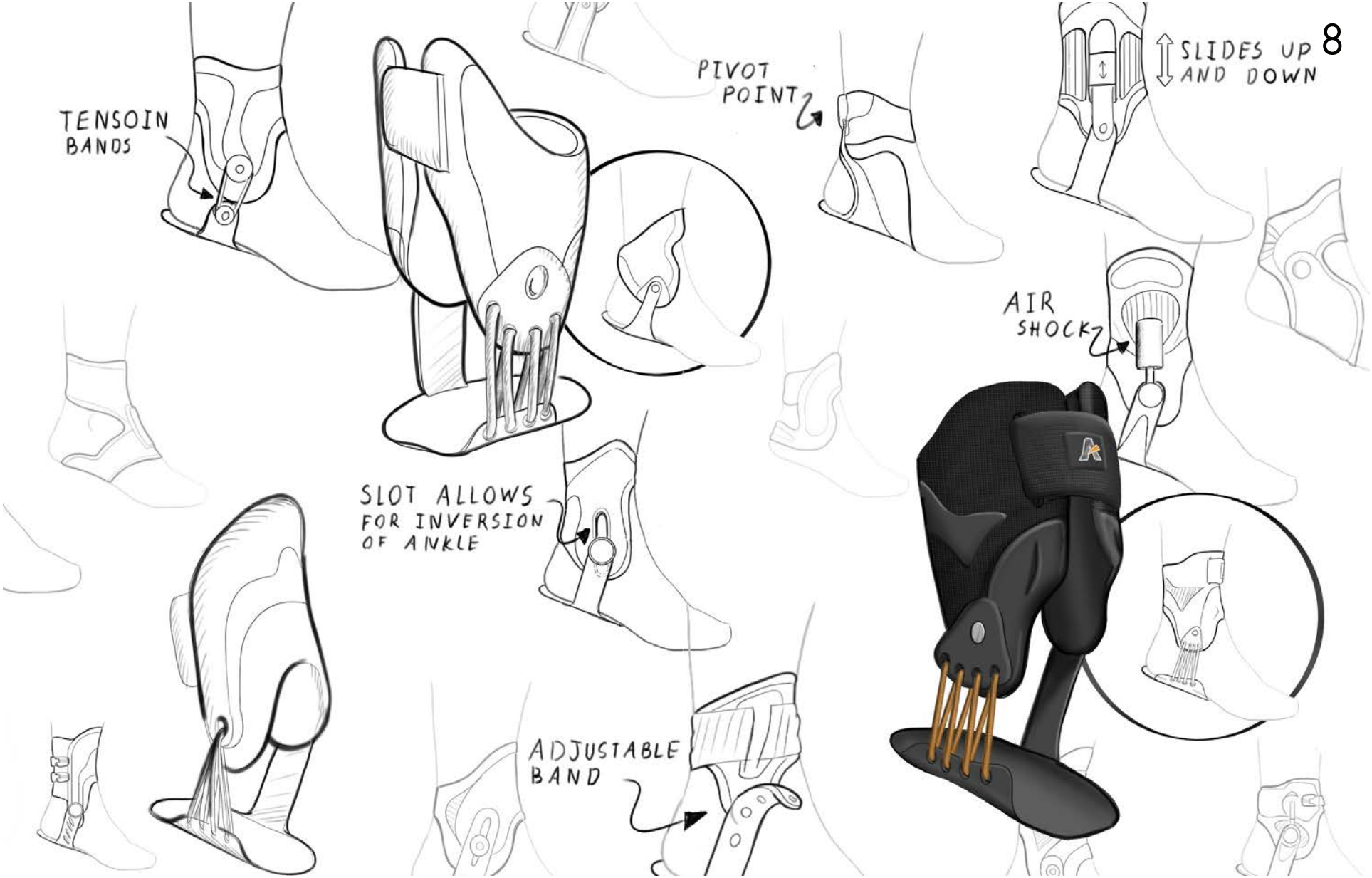
Were the images of the product clear and easy to see?

How many pop up adds did you come across?

How easy was the website to navigate through (any broken links)?

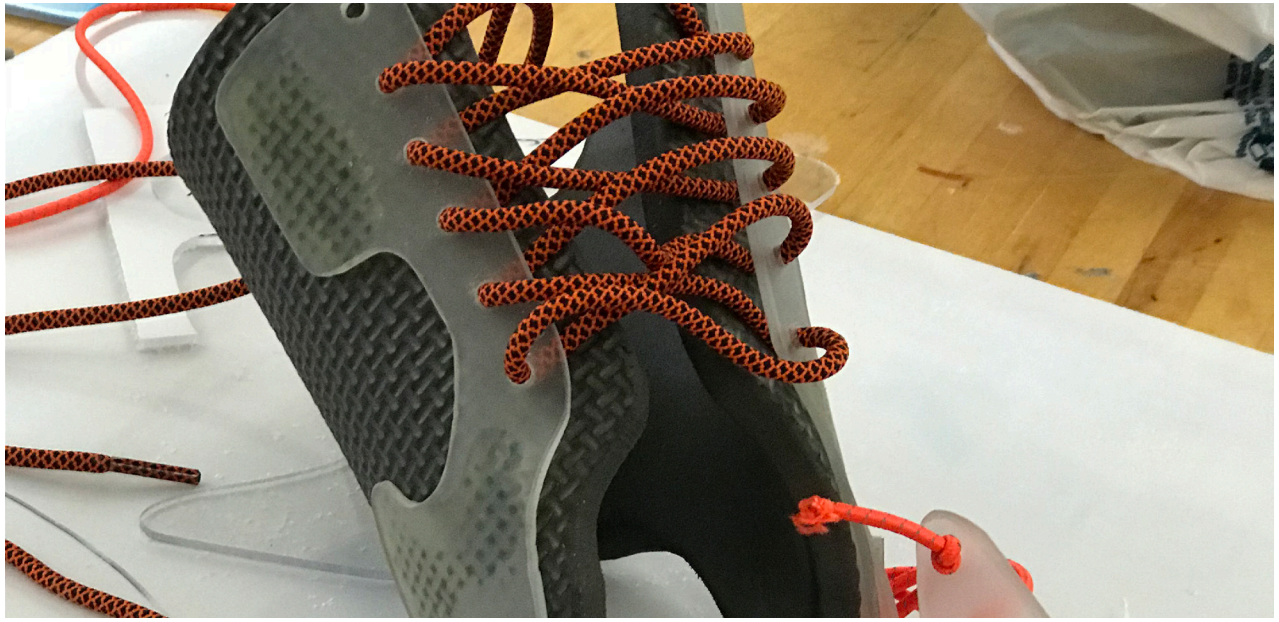
How well does the website design reflect the product?

How would you rate your overall experience with the website?



Ideation

Sketches explored mechanisms that could possibly allow for the inversion of the ankle.



Prototypes

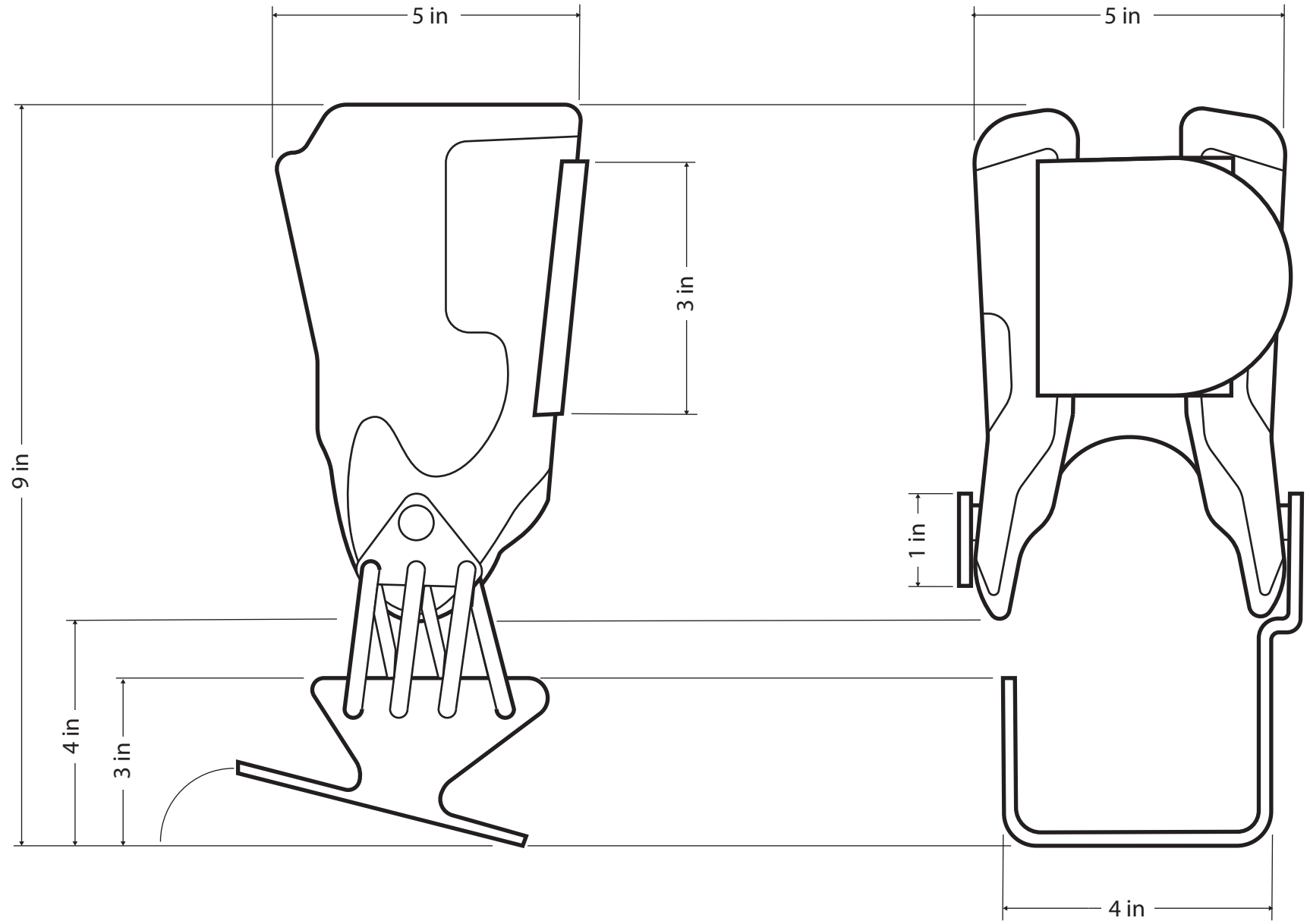
Worked with a number of materials and shapes to find the one that would give the most protection while still offering flexibility.

Testing

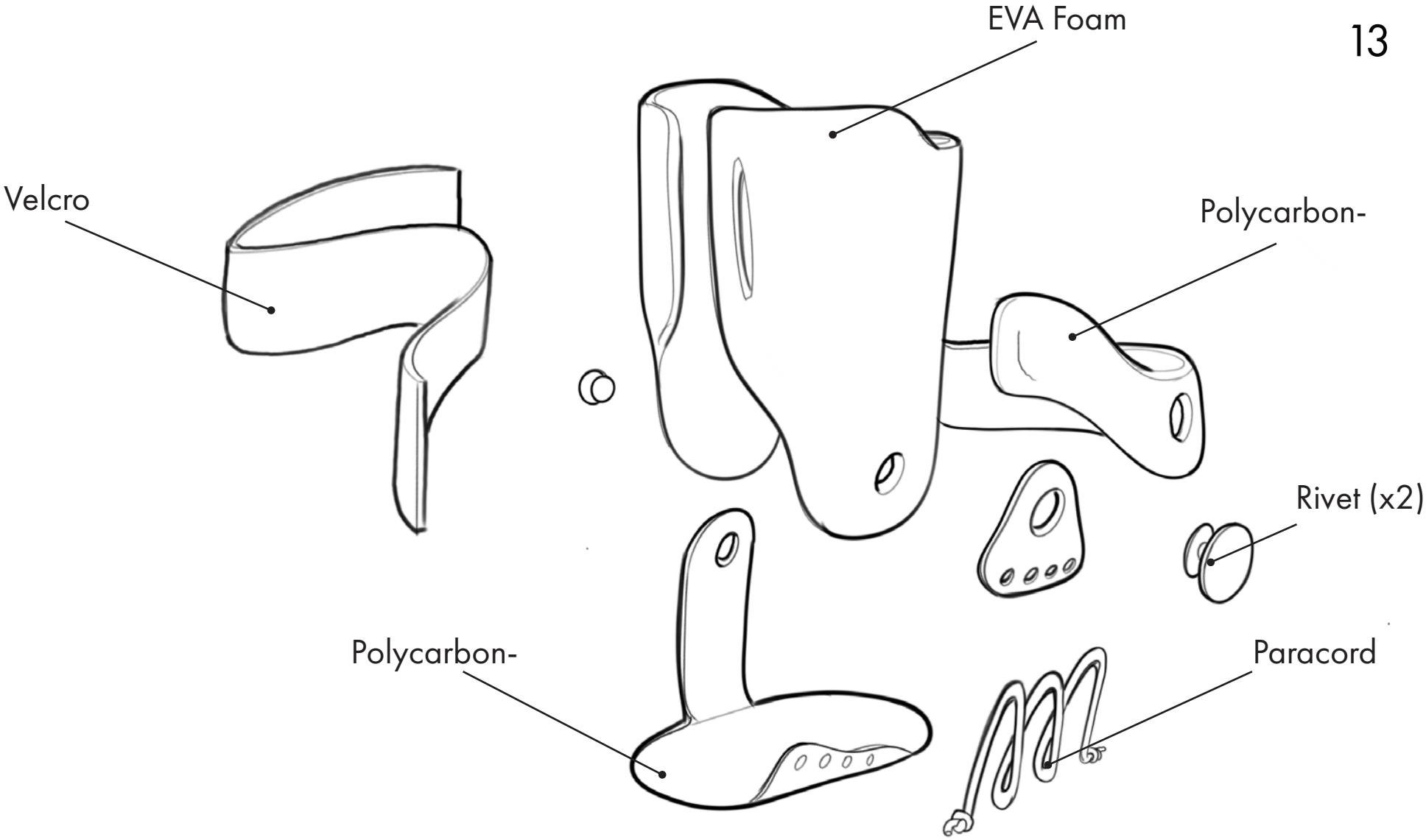
After making a brace that fulfilled my requirements, I took it to a local skate park where I tested 5 skaters asking them to first use the standard ankle brace and then the redesigned version.

Results

After having each skater perform a number of tricks I found that when using the redesigned brace they performed the maneuver with significantly less interference than with the original brace.



Orthos



Final Materials

Final Design

In Use

Thank you