

# CoreAlign Redesign Project Summary

## Project Challenges

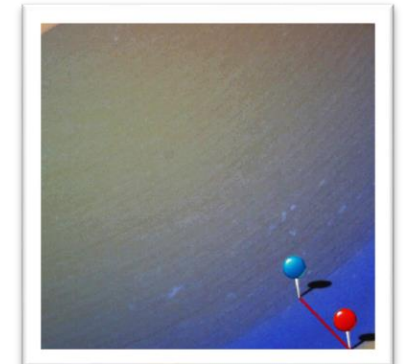
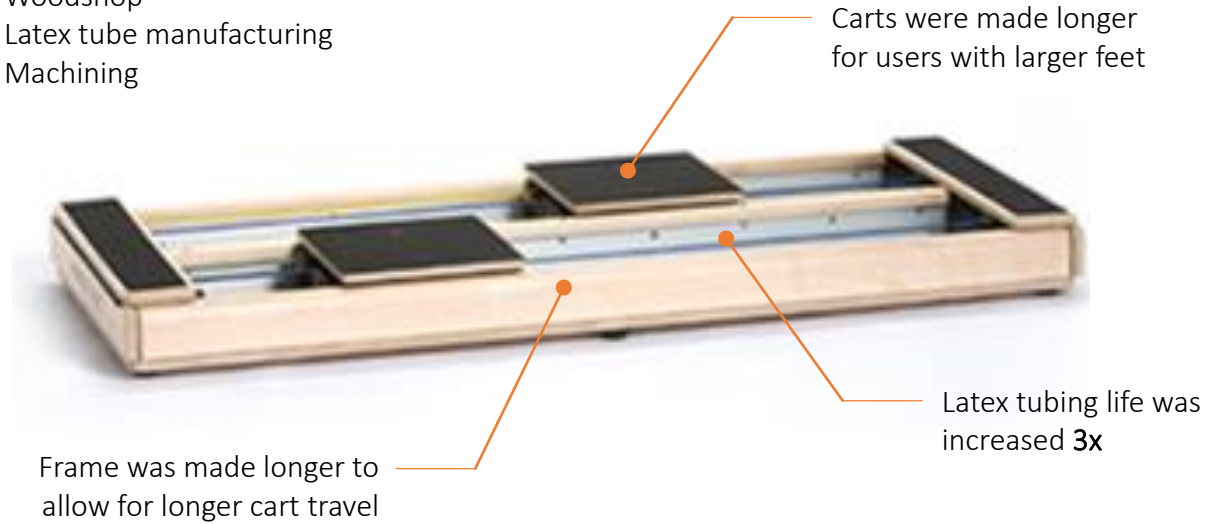
- The primary issue of concern was that the latex tubing, which is central to the equipment's use, was failing earlier than predicted
- Getting useful data to estimate tubing life was difficult. No two users are the same and exercise routines vary wildly
- Latex is a natural product with inherent variability. It also decays fairly rapidly with time, heat, and moisture

## Project Highlights

- A cycle testing machine was designed and built to provide useful data to gauge tube life when changing specific variables
- Multiple vendors, tube sizes, and attachment methods were tested
- After extensive testing and detailed failure analysis, new failure modes were found and the ideal extension ratio for the best tubing was found
- The tubing life was increased, the carts were made longer, cart travel was added, assembly time was decreased, BOM cost was lowered, and the weight was kept the same

## Manufacturing Processes Used

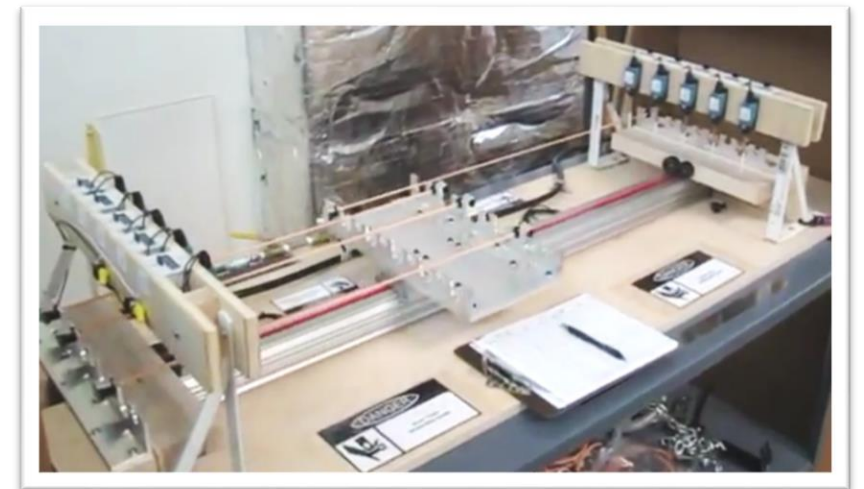
- Bent aluminum
- Bent steel
- Woodshop
- Latex tube manufacturing
- Machining



Inspection of latex tube layers



Inspection of latex tube delamination



Cycle testing machine to test 10 tubes at once

**THOUGHT BOMB DESIGN**

Work shown was completed as Project Engineering Lead while employed at Balanced Body Pilates