Supporting Novice Makers in Fabricating a Vesicovaginal Fistula Repair Task Trainer

Enabling novice makers to independently fabricate the clinical task trainer

This graduation project addresses the need for clear, complete, and supportive instructional materials for fabricating the clinical task trainer for vesicovaginal fistula repair in low-resource settings.

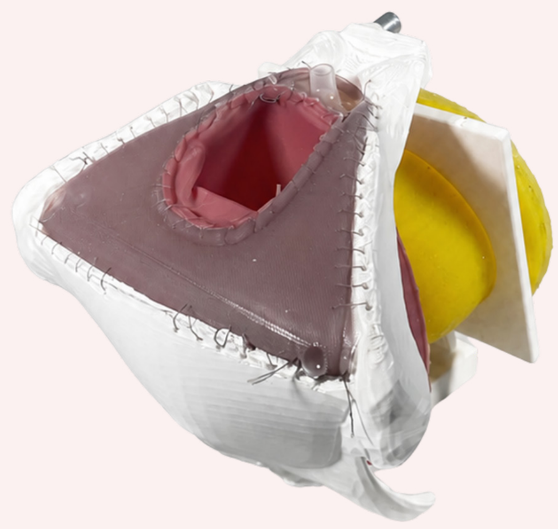
The fabrication process of the clinical task trainer consists of multiple sub-stages, including 3D printing, silicone casting, and assembly, making it both time-intensive and potentially complex for novice makers. Existing instructional materials were found to be insufficient and unclear for makers without prior fabrication experience, resulting in uncertainty and difficulties throughout the process. This project further investigated the current challenges experienced during fabrication and identified key themes that formed the basis for the final design solution. The goal of the project is to support makers in independently and successfully fabricating the clinical task trainer while feeling guided and confident throughout the process.

What is a vesicovaginal fistula?

A vesicovaginal fistula (VVF) is an abnormal opening between the bladder and vagina, causing continuous urinary incontinence. VVF often occurs in low-resource settings where access to obstetric care and medical infrastructure is limited. The condition can develop during prolonged childbirth, when continuous pressure from the baby's head reduces blood flow to surrounding tissue, causing tissue damage.

What is the clinical task trainer?

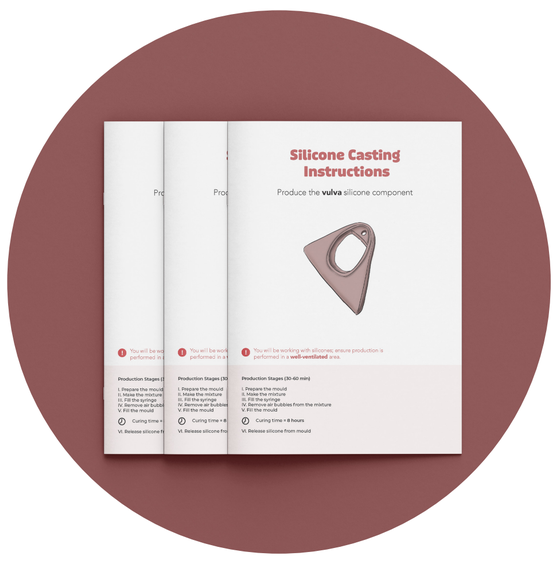
The clinical task trainer is a simulation-based model used to practice surgical repair procedures for vesicovaginal fistula. The fabrication process consists of 3D printing moulds and components, producing silicone parts, and assembling the complete trainer. The final task trainer allows medical trainees to practice surgical techniques.



Final Design

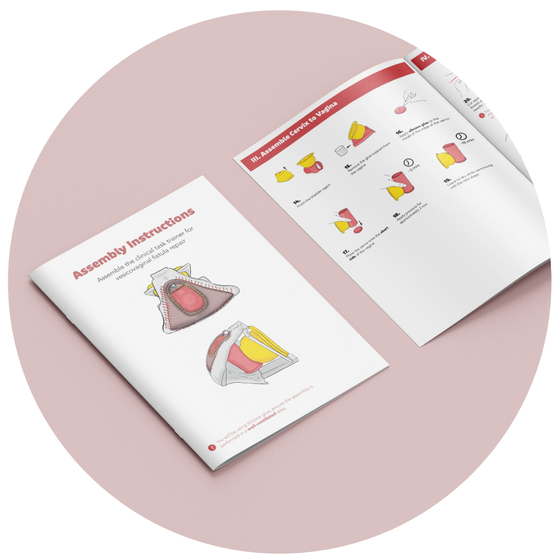
Final instructional materials consist of a website and printable instructions for silicone casting and assembly.

Silicone Casting Instructions



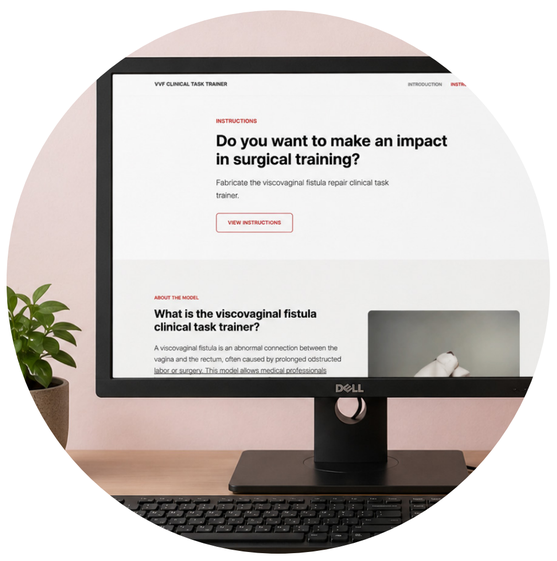
- Printable instructions for each silicone component
- Step-by-step silicone guidance
- Quick-reference sheets

Assembly Instructions



- Step-by-step assembly guidance
- Printable hands-on instructions

Website



- Central information platform
- Material sourcing guidance
- Optional starter kit
- Downloadable instructions

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Designing the Instructional Materials of Fabricating the Vesicovaginal Fistula Repair Clinical Task Trainer
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Design for Interaction

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