

Modular Casting

Status: Filled

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Sponsor(s): Neil Squire Society

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Project Description

Splinting is used to treat musculoskeletal system abnormalities. The main indications for static splinting are to temporarily immobilize a limb for pain and spasm, to decrease swelling, and to minimize further potential soft tissue or neurovascular injuries associated with contusions, sprains, lacerations, fractures, dislocations, or painful joints due to inflammatory disorders. For example, when a post-stroke patient has a resulting flaccid upper extremity, meaning they cannot control

Additionally, the components should be accessible (open-sourced), easy to obtain and make, and possibly reusable.

Main Deliverables:

1. Document stakeholder consultations with product creators and end users to identify priorities for development.
2. Create a working prototype showcasing a new splinting technique that is:
 - a. Easily-adaptable
 - b. Easily-assemble
 - c. Faster to assemble compared to traditional plaster and fiberglass splinting methods
 - d. Intuitive to use
 - e. Cost-effective
3. Field test the device with occupational therapists and document feedback, outlining next steps and/or future improvements.

Special Considerations

Skills that will be developed in this project:

- Material science
- Academic Research
- Sourcing equipment
- User driven design based on unique needs requirements
- Physical modeling and retrofitting
- Machining processes

Neil Squire Society's Research and Development Manager and the Makers Making Change team will guide the Capstone students as they implement suggestions on improvements into the project. The team will play a direct role in the pilot and rollout of this solution. The work will be open-sourced so that people can recreate and adapt for other geographical communities across Canada and the US. Our work is funded by Google.org, the Vancouver Foundation, and the Government of Canada.

Industry Sponsor

The Neil Squire Society uses technology to empower people with physical disabilities. A national non-profit organization based in Burnaby, their work began with Neil Squire, a 20 year-old University of Victoria student who broke his neck in a car crash in 1980. Students created a system where Neil could sip and puff on a tube, which was captured and translated by a morse