



Background

✗ There are currently no shower prosthetics available on the market

\$ Custom water-resistant shower prosthetics can be purchased for \$20,000-40,000

🕒 Dave, a quadruple amputee, currently takes 1 hour to perform his shower routine with the help of his caregiver

Design Criteria

 Full independence
 Water-resistant
 Safe
 Increased Mobility
 <30 minute shower

Solution: Shower-Safe Prosthetics for Greater Independence



The arm case is worn on the residual limb and supports various attachments via a locking mechanism at the outward-facing end. It is constructed to fit the user loosely to allow water passage.



The harness is constructed with a combination of nylon and polyester, supporting the prosthetics while offering the user the mobility necessary to complete the tasks involved with showering.



The hook attachment emulates a hand, allowing the user to pull, twist, and push.

The brush attachment is lined with silicone rubber and lined with cilia protrusions to clean the body.



Results: Tested by fully abled user

15
minutes

Total shower time in lab testing was reduced by 75% from 1 hour

100%
autonomy
in testing

Fully abled user simulated showers with the prosthetic without any outside intervention

90%
coverage

Lab user can clean all parts of their body, except their back (which would be cleaned using a wall-suctioned brush pad as an add-on)

Acknowledgements

Project Partners: Disabled American Veterans, Dave Riley, John Kleindienst
Faculty Mentor: Jenna Frye

Scan to see our video

