

Remora Autonomy for Quadruple Amputees in the Shower

CENTER FOR LEADERSHIP EDUCATION

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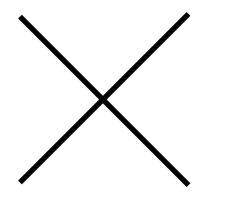
Dave, a quadruple amputee, currently takes

1 hour to perform his shower routine

with the help of his caregiver

Background

Design Criteria



There are currently no shower prosthetics available on the market

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







Water-resistant

215

Increased Mobility

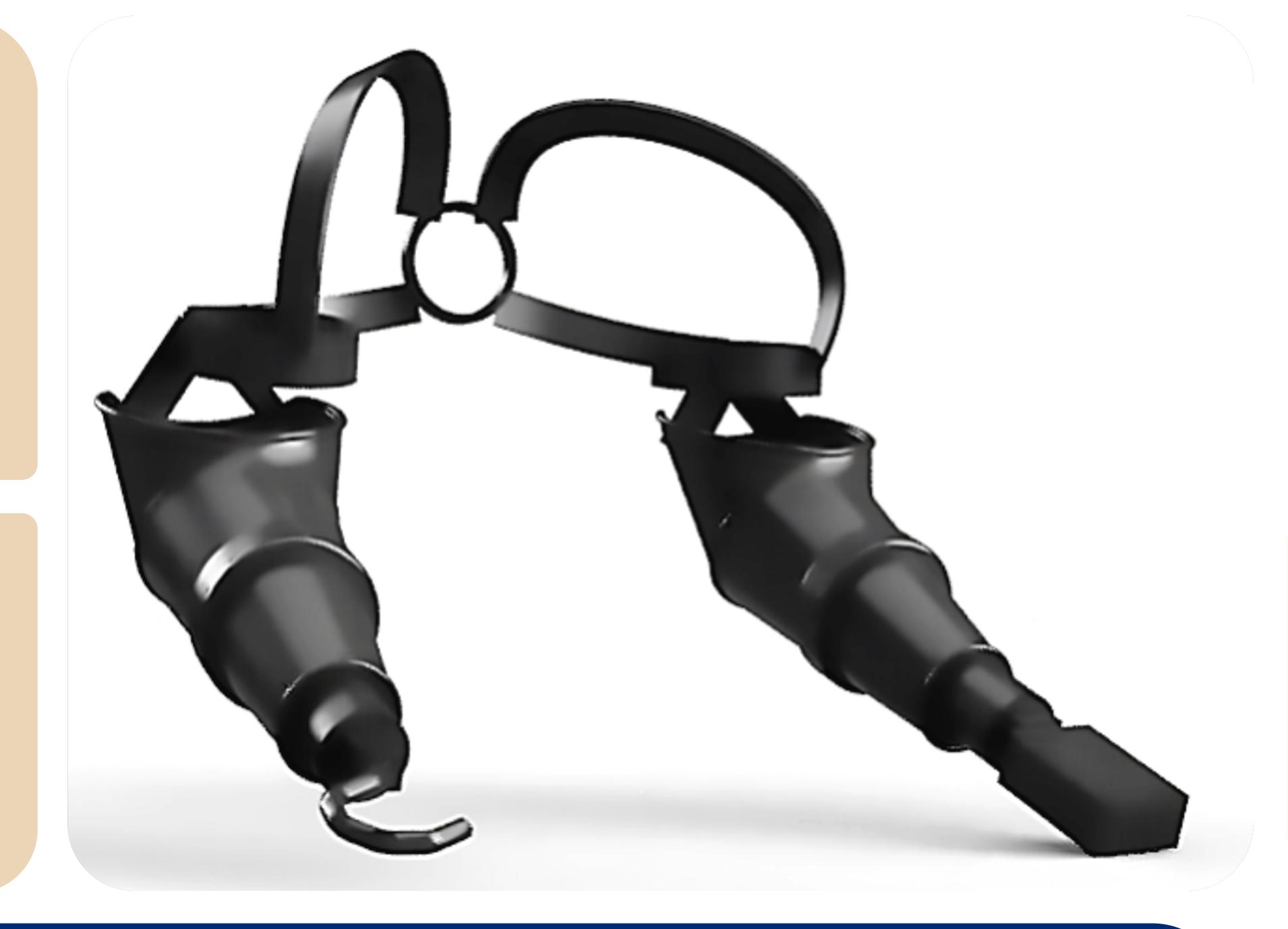
Solution: Shower-Safe Prosthetics for Greater Independence



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



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 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

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Scan to see our video

