Reversible Stemless Shoulder Implant T102

Kiersten Cady | Angelina Lanh | Santiago Lazarte
John Sorenson | Taylor Vanderlinden | William Wartman

FAMU-FSU Engineering

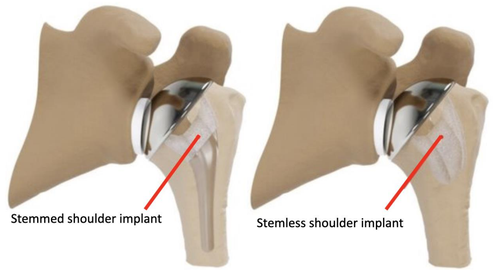
exactech

Objective

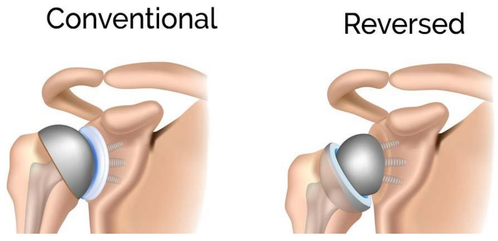
The objective of this project is to improve upon Exactech's current reversible stemless shoulder implant the Equinox.

Background

- Shoulder joint complications are becoming more prevalent, especially with the aging population, diseases, and accidents
- The glenohumeral (shoulder) joint is the most mobile joint in the body
- The current implant models (stemmed) require extensive bone loss

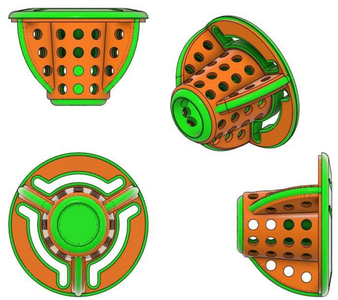


- Anatomic implants typically impede upon range of motion
- Reversible implants increase range of motion and decrease scapular notching

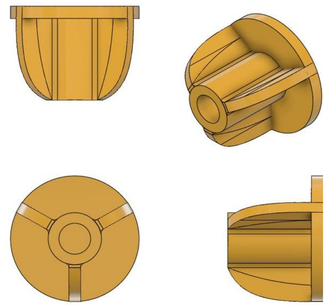


Models

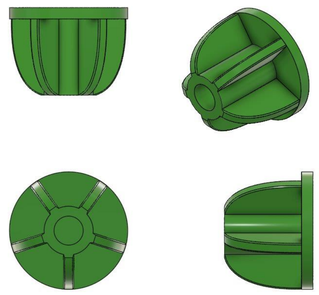
Equinox



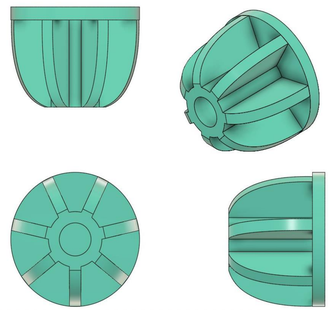
3 Fin Design



5 Fin Design



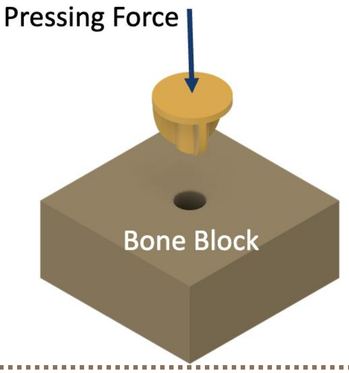
7 Fin Design



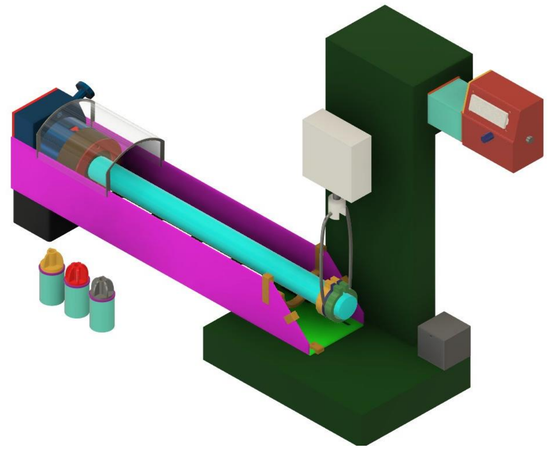
Key Goals

- Understand methods of implant failure
- Develop robust and repeatable testing method
- Address the methods of implant failure in redesign
- Lengthen overall part lifespan
- Ease of manufacturing

Implantation



Test Stand



Future Work

- Finalize Test Stand
- Test for Absolute Failure
- Test for Fatigue Cycle
- Analyze Results
- Review Possible Errors and Improvements
- Finite Element Analysis Validation

Acknowledgements

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