

Achilles Tendon Repair Bio-Tape Applicator

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NEED

- Wyss Institute's adhesive bio-tape will be used for Achilles tendon rupture surgeries
- **Limitation:** No applicator device → variability in bio-tape application + effectiveness

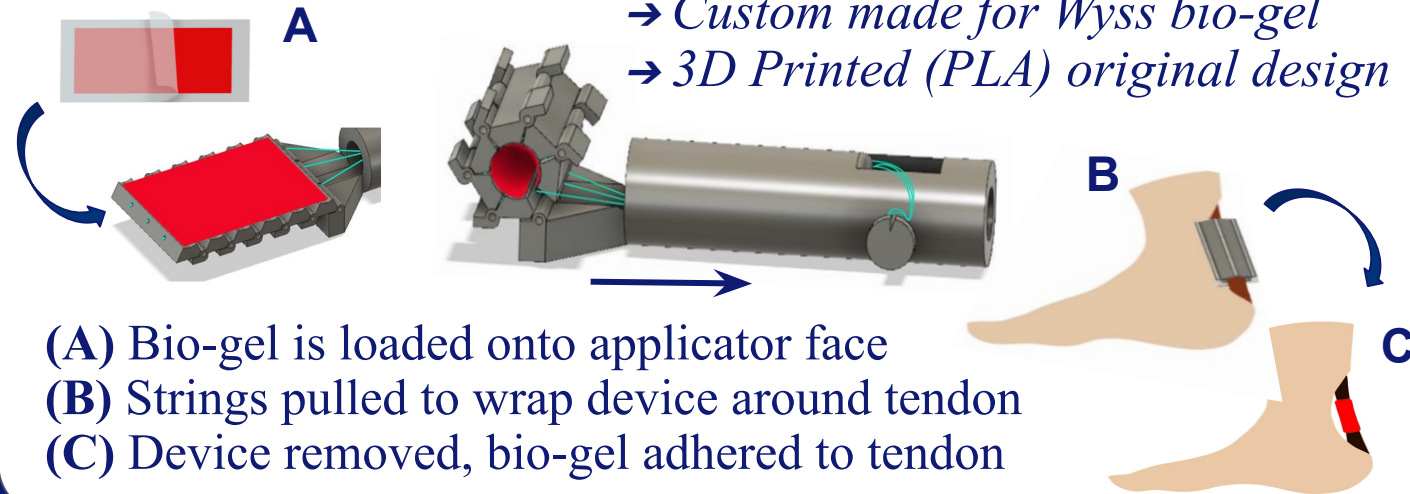
Objective: Design a device for surgeons to wrap the bio-tape around an achilles tendon

Requirements: With a single operator, wrap gel uniformly around a cylinder with 5 kPa force

SOLUTION & DESIGN

Innovation

- Custom made for Wyss bio-gel
- 3D Printed (PLA) original design



TESTING & RESULTS

Dimensions Test: ✓

Device must fit biotape dimensions and the handle must be ergonomically sized

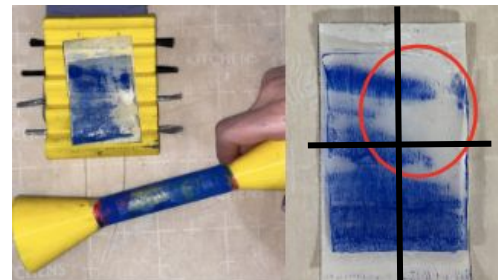
Surface Coverage Test: ✗

< 75% paint transfer per quadrant on 4/5 gels

Force Test: ✗

Device must deploy at least 5kPa - test inconclusive for prototype #1

Testing performed on prototype #1



CONCLUSION

Revisions

- Prototype #2 has 6 panels → smoother wrap/ surface coverage around tendon
- Handle provides easy activation of device

Impact and Future

Our device will standardize application and increase effectiveness of the biotape for surgical tendon repairs