Achilles Tendon rupture only repaired using suture techniques
Re-rupture/Suture failure rate of 5%
Ruptures often caused by sudden, forceful motions and/or fatigue loading

Problem:
- Achilles Tendon rupture only repaired using suture techniques
- Re-rupture/Suture failure rate of 5%
- Ruptures often caused by sudden, forceful motions and/or fatigue loading

Objective: Design a solution that improves mechanical stability of a sutured Achilles tendon

Requirements:
- Distance between ends of torn tendon:
  - 0.5mm < 1mm
- Mechanical properties:
  - must be greater than just sutured
- Procedure duration:
  - 30min. ≥ 1 hour

Solution:
- Synthetic wrap material to increase mechanical stability

Testing:
- Tensile testing: load to failure
  - Control group: just sutured - no wrap
  - Experimental groups: 2 different mesh orientations (degrees rotation)

Results + Impact:
- Statistical analysis shows enough evidence for further exploration into project
- Results indicate that the design can increase mechanical properties of tissue and is worth pursuing

Future Plans:
- Increase sample size
- Further tests including other characteristics of textiles (pore size, thread thickness, material, etc.)