

Supplementary Materials for

Elastomeric passive transmission for autonomous force-velocity adaptation applied to 3D-printed prosthetics

Kevin W. O'Brien, Patricia A. Xu, David J. Levine, Cameron A. Aubin, Ho-Jung Yang, Michael F. Xiao, Lennard W. Wiesner, Robert F. Shepherd*

*Corresponding author. Email: rfs247@cornell.edu

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The PDF file includes:

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- Fig. S4. Alternative EPT design.
- Fig. S5. ETA (tactile) force tracking.
- Fig. S6. ETA (proximity) force tracking.

Other Supplementary Material for this manuscript includes the following:

(available at robotics.sciencemag.org/cgi/content/full/3/23/eaau5543/DC1)

- Movie S1 (.mp4 format). EPT printing.
- Movie S2 (.mp4 format). Finger sensor–ball drop test.
- Movie S3 (.mp4 format). ADEPT hand demos.

SUPPLEMENTARY MATERIALS

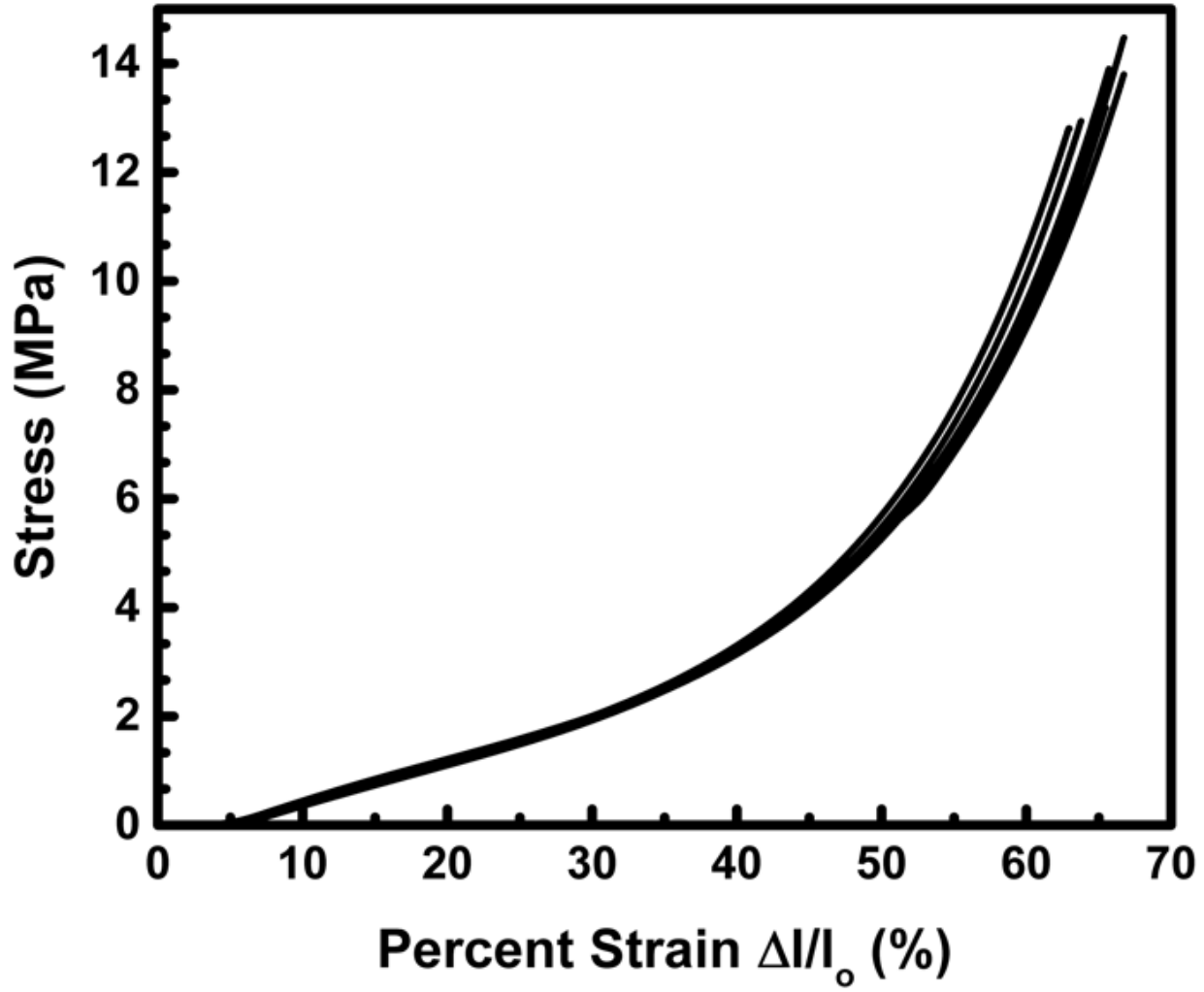
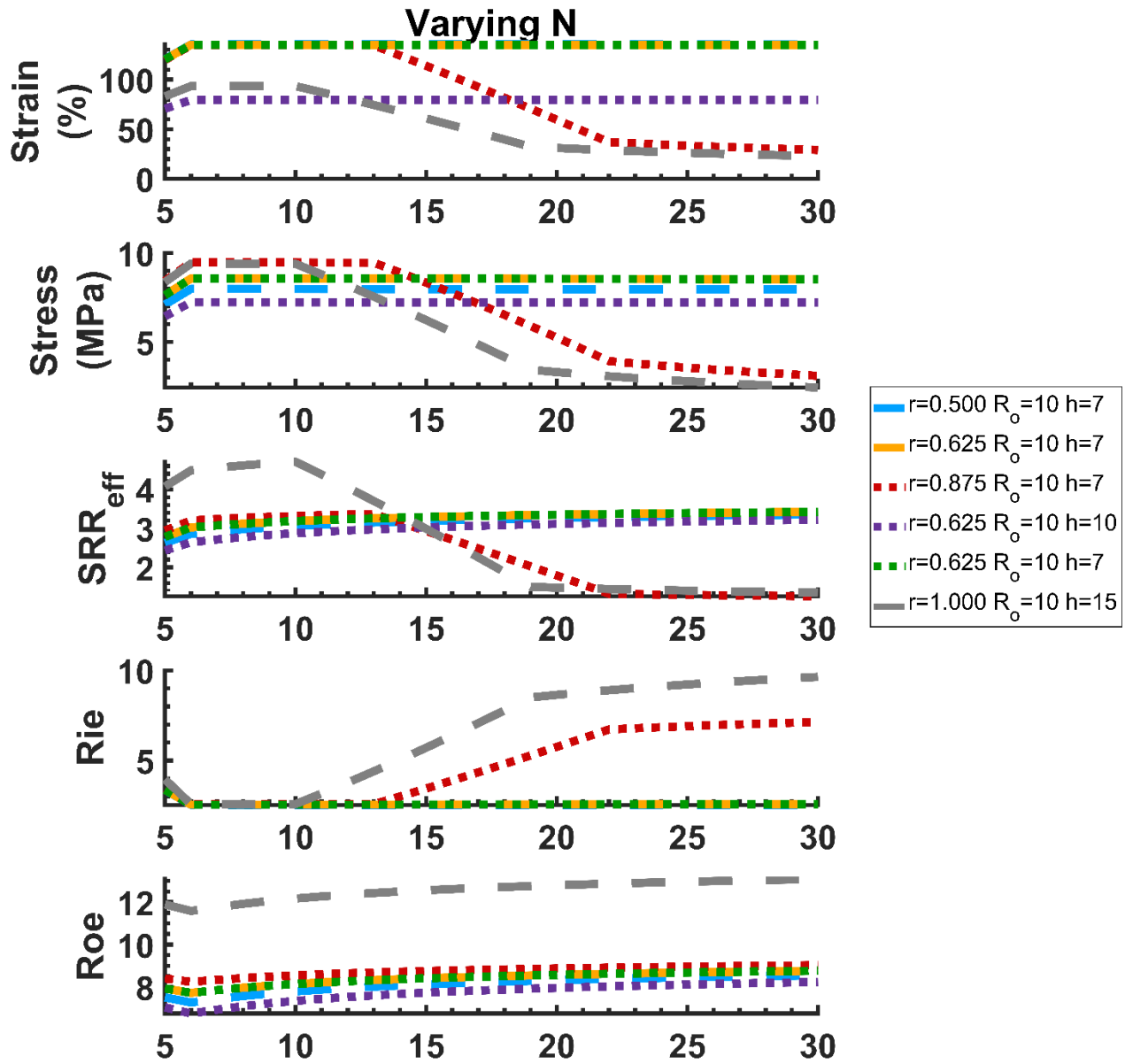
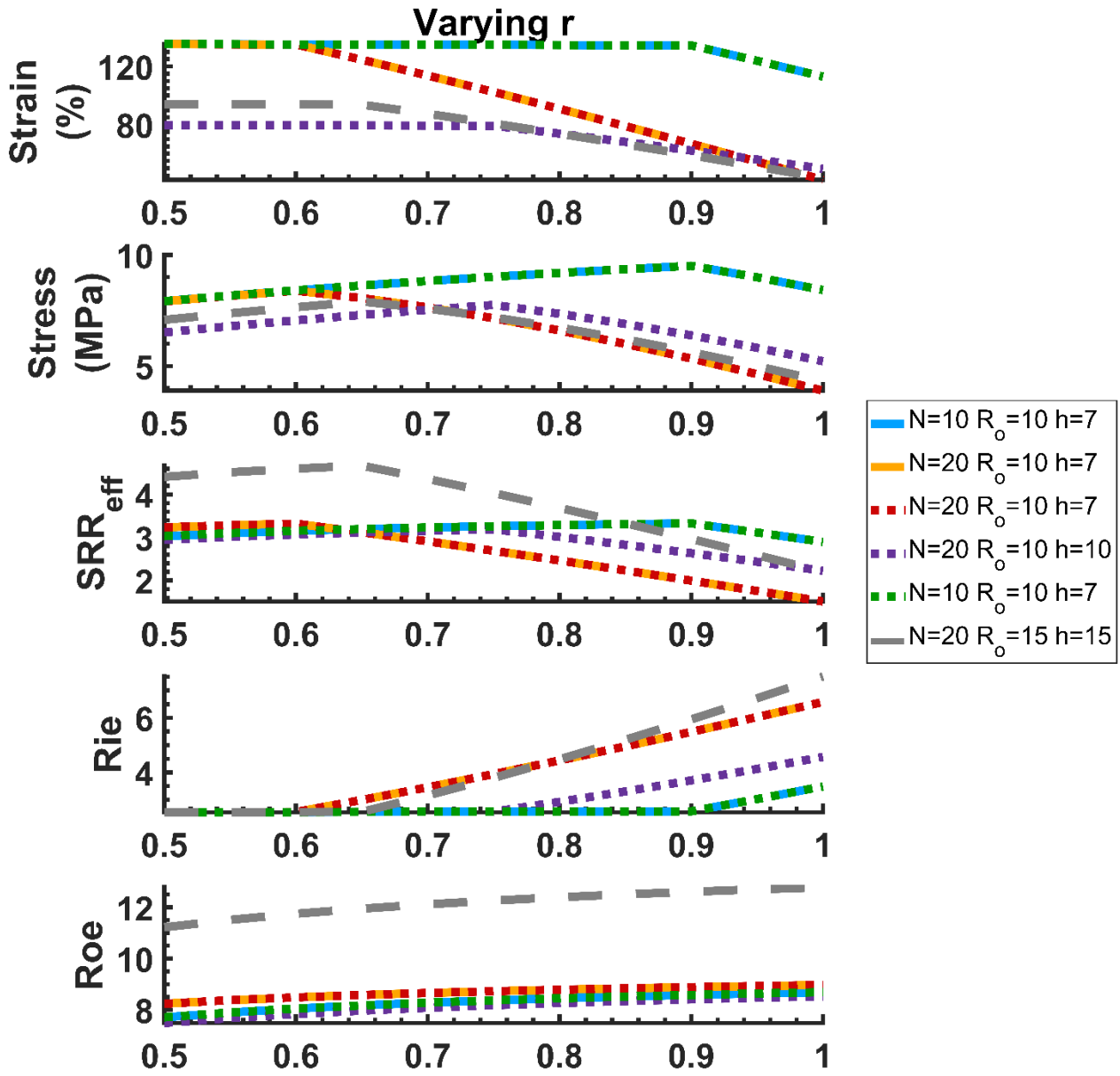
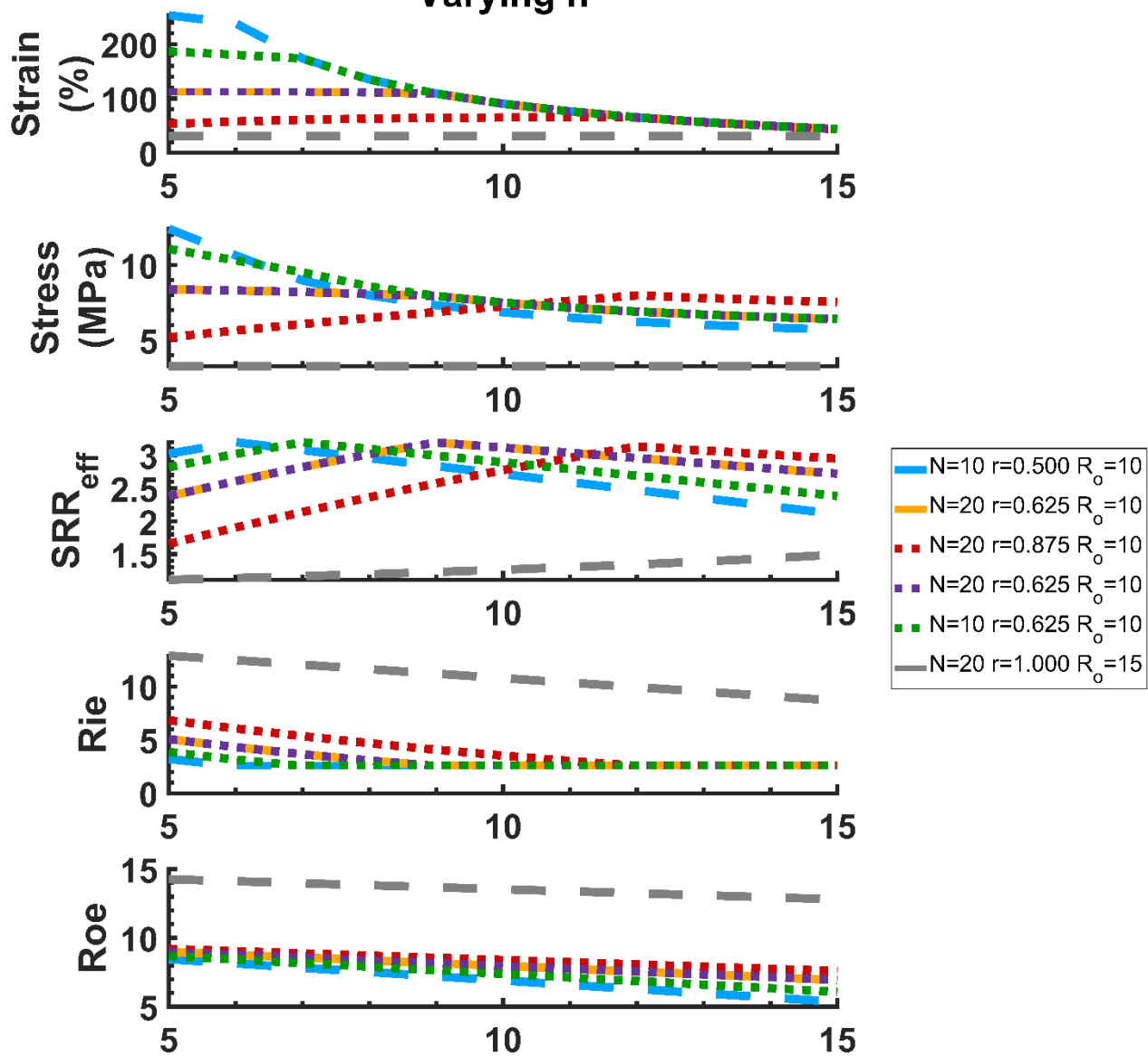


Fig. S1. Uniaxial compressive performance of LPU.

A

B

C**Varying h**

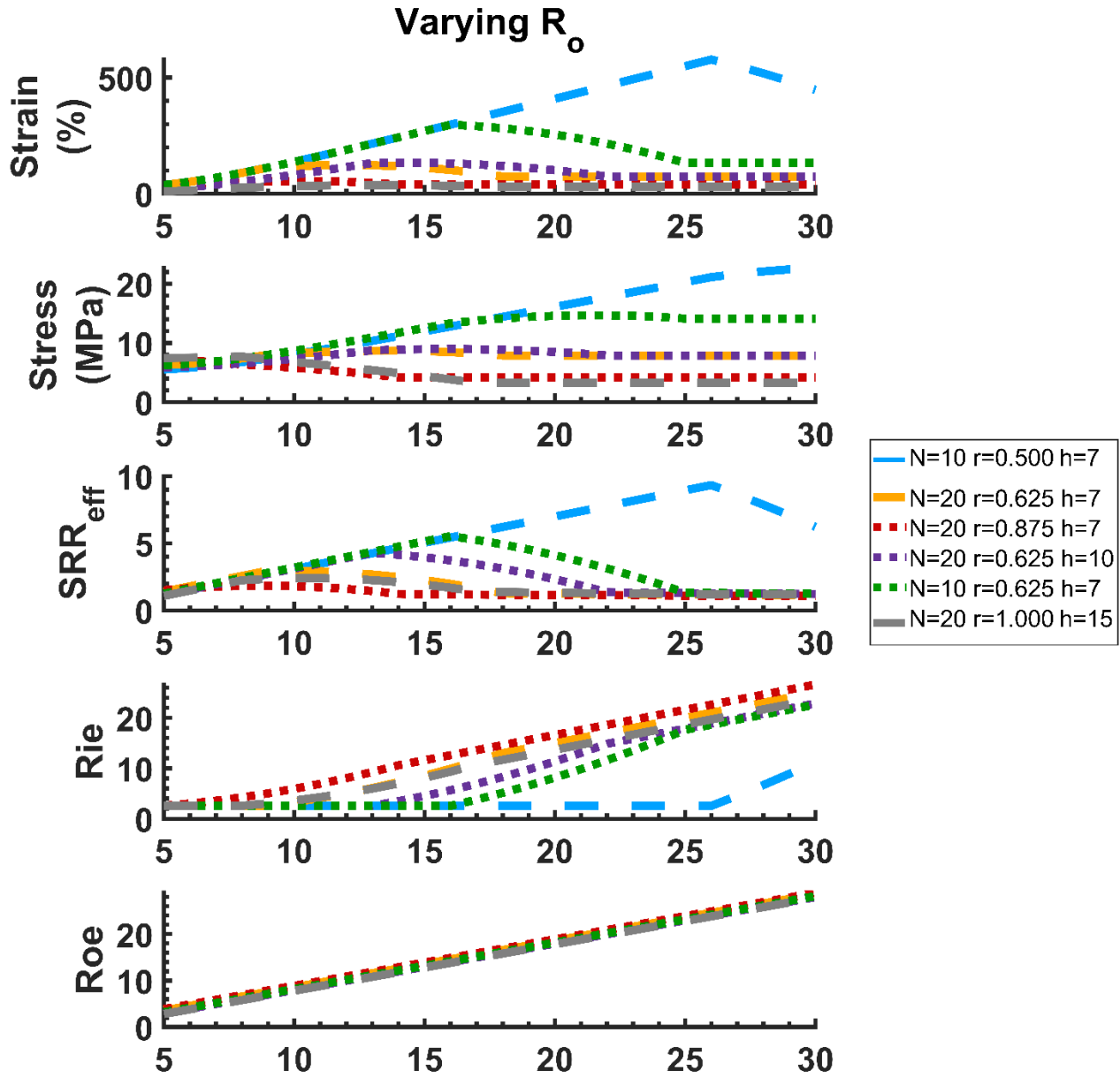
D

Fig. S2. Two-dimensional parametric model graphs. Strain, stress, SRR_{eff} , R_{ie} , and R_{oe} when varying (A) the number of struts from 10-30, (B) the strut radius from .5 to 1 mm, (C) the height from 5-15 mm, and (D) outer radius from 5-30 mm. The dotted lines are the model with constant parameters specified in the model and the symbols being experimental data of the 6 EPT geometries.

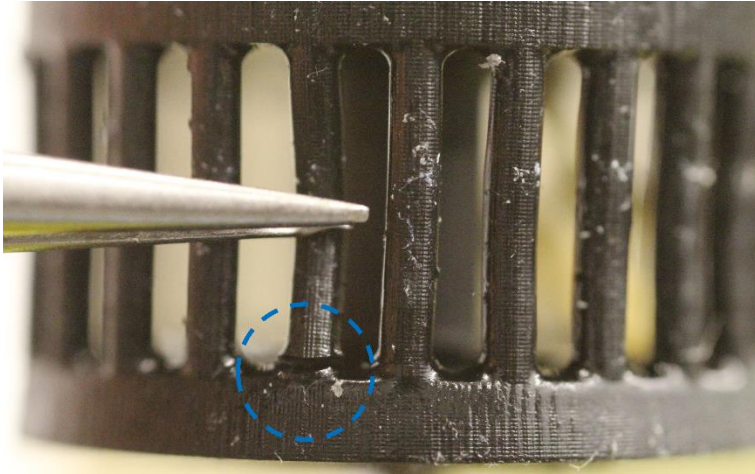


Fig. S3. Strut failure due to cyclic bending in the EPT.

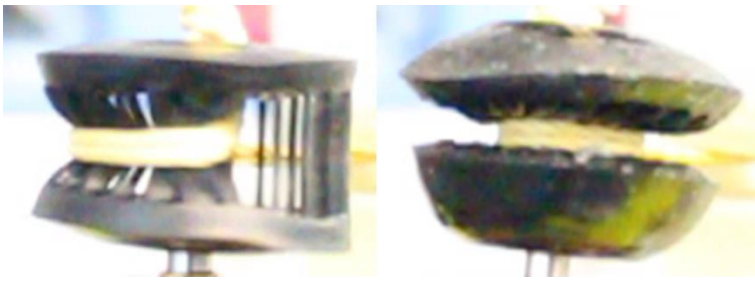


Fig. S4. Alternative EPT design. EPT with Soft Caps in High-Speed Mode (left) and High-Force Mode (right).

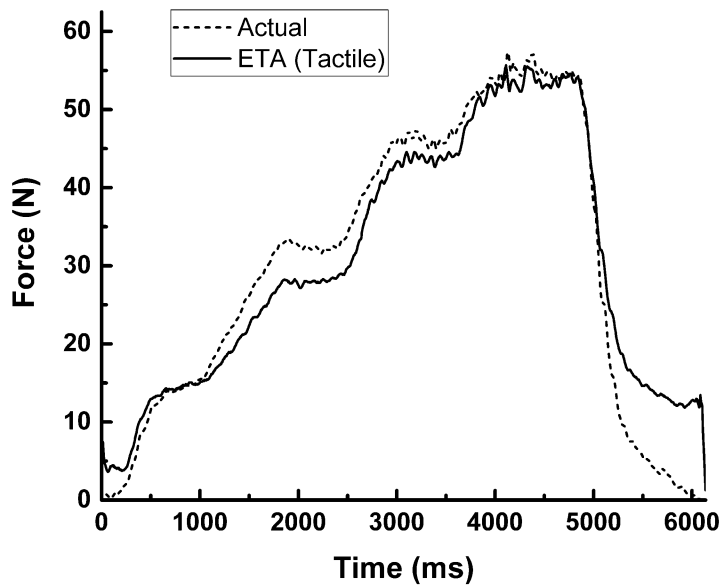


Fig. S5. ETA (tactile) force tracking.

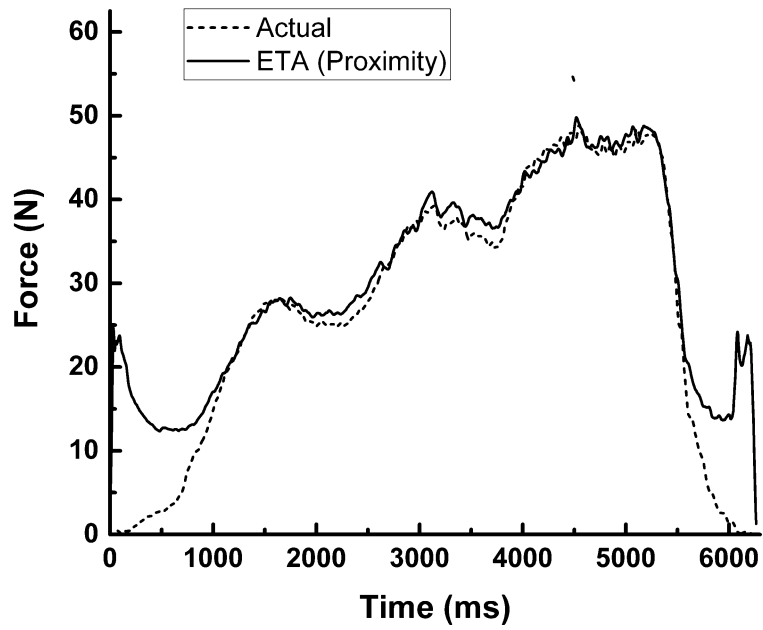


Fig. S6. ETA (proximity) force tracking.