Supplementary Figures

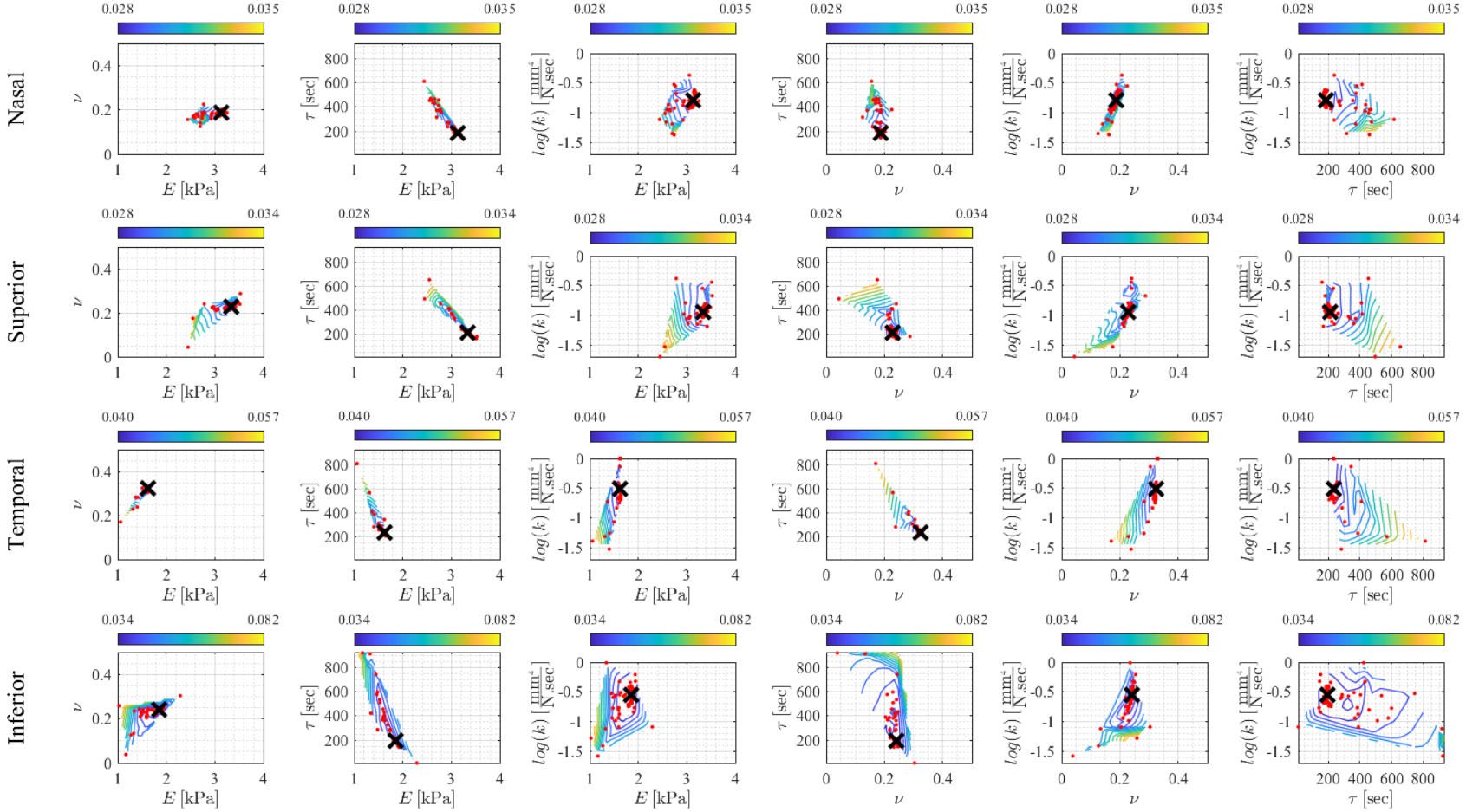

Figure S1: Contour plots of residual cost function values (f) as a function of the fitted model parameter values. The individual fits are denoted by filled red circles, and the median value is shown with a black "×" symbol. For each anatomical region, i.e. for each row, the contours span the minimum and maximum values of f.

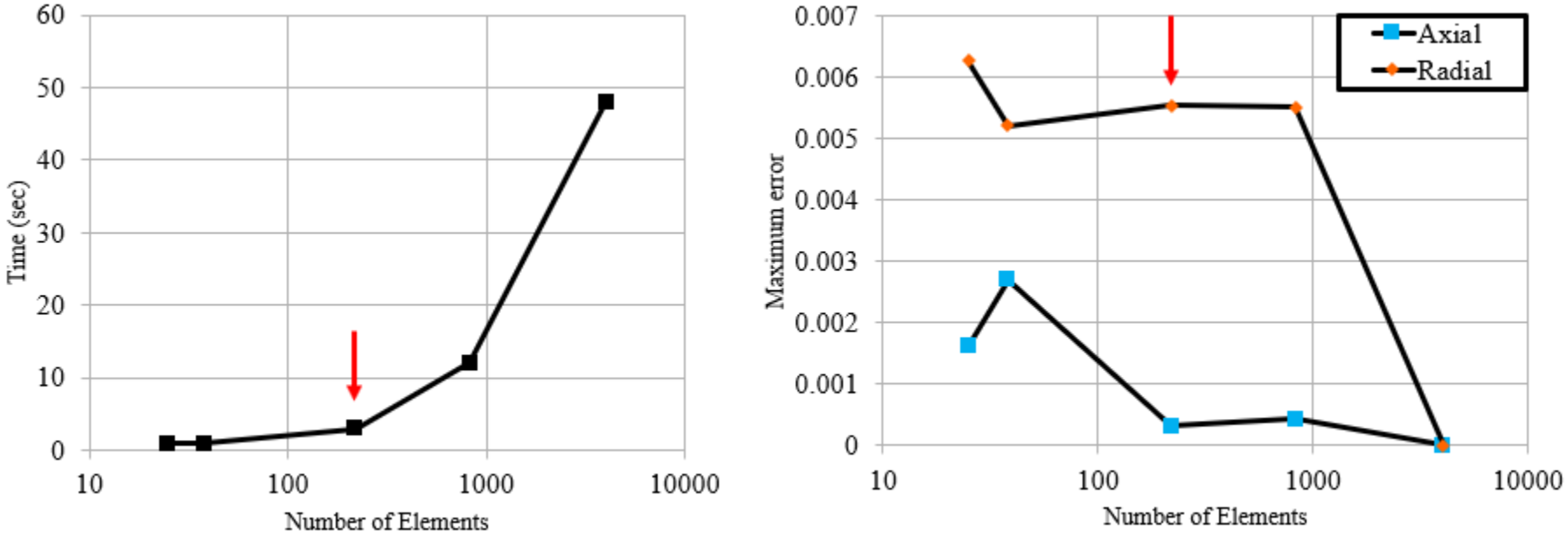

Figure S2: Mesh sensitivity analyses. (Left) the time to complete simulation of one evaluation of the model versus the number of elements (log scale); (right) the maximum error in strain between the model response relative to the model with the finest mesh. The red arrows indicate the final (optimal) mesh used in the study.

Table S1: Median parameter values from the Original and Repeat data fittings. Median [min, max]				
	E [kPa]	ν	τ [sec]	k [$mm^4/(N.sec)$]
Original Results	2.576 [1.025, 3.526]	0.230 [0.038, 0.329]	218 [10, 999]	$2.012x10^{-1}$ [$2.000x10^{-2}$, $9.979\ x10^{-1}$]
Repeat Results	1.933 [1.158, 3.622]	0.232 [0.077, 0.336]	216 [11, 876]	$1.995x10^{-1}$ [$2.393x10^{-2}$, $9.979\ x10^{-1}$]
Difference (Original – Repeat)	24.96%	-0.87%	0.92%	0.84%

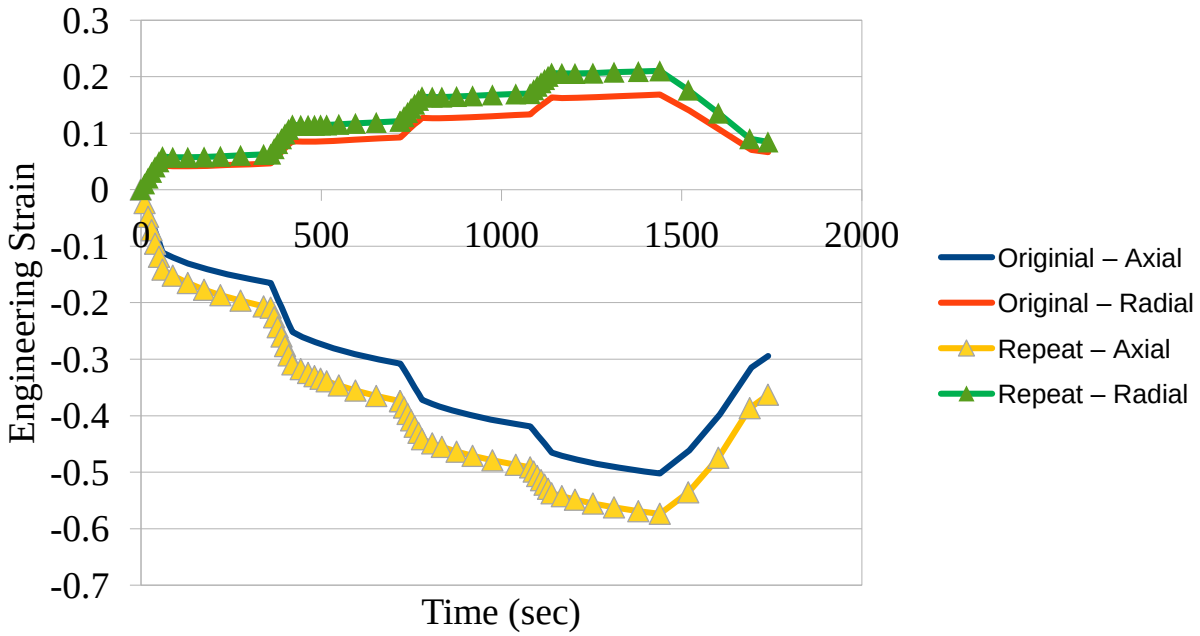

Figure S3: A comparison of axial and radial strains computed using median parameter values from the Original and Repeat data fittings. It can be observed that there is good agreement, indicating robustness of the data fitting process.

Original results

Repeat results

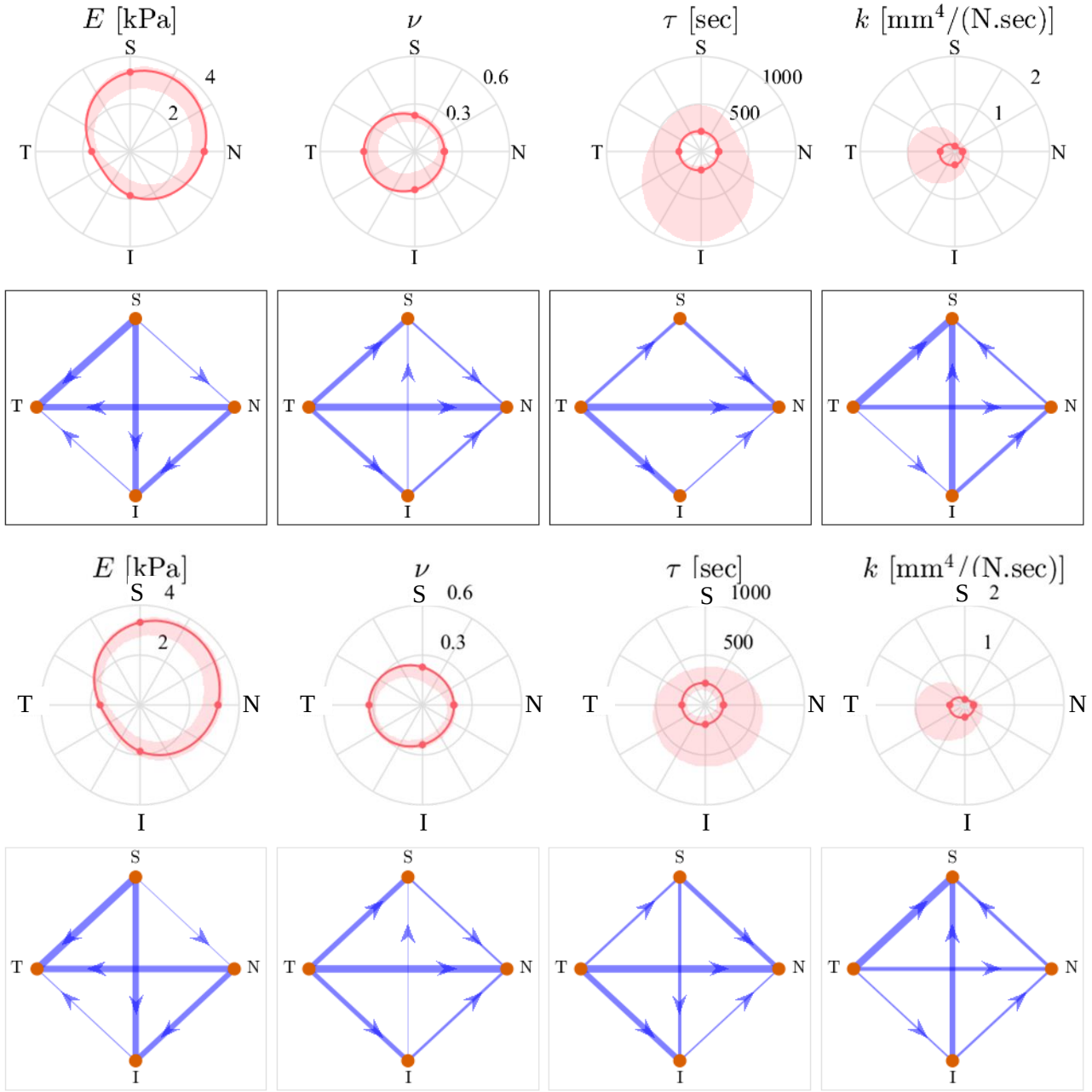

Figure S4: Anatomical region comparisons based on Original and Repeat data fitting, demonstrating the repeatability of the curve-data fitting process. The small differences between S-I regions in τ are of negligible biomechanical significance. The widths of the connecting lines represent the magnitude of the difference, where the largest difference has the thickest line. The absence of a line implies that the difference was not statistically significant.