

Preliminary Study in Characterizing Tissue Growth through Residual Strain

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This research was a preliminary study done to get an idea for the basic trend of residual strain seen in pulmonary trunks. Porcine Pulmonary Trunks were used and experiments were done on both the sinotubular junction and the region near the bifurcation. Through comparisons of opening angle and circumferential stretch ratios, it was found that residual strain is significantly greater in the ring samples taken from the sinotubular junction than the ring samples from the bifurcation region. From flexural tests, it was also observed that the sinotubular sample had greater strain values than the bifurcation sample. These results will help to outline a method of study for characterizing tissue growth using residual strain and stress at various timestamps. This future study hopes to more thoroughly study native tissue behavior with creating better engineered tissue in mind.