Structural and mechanical properties of the glenohumeral joint posterior capsule

References:


Abstract: The purpose of this study was to quantify regional variations in material properties of the glenohumeral joint posterior capsule and to compare these data with the anterior band of the inferior glenohumeral ligament (AB-IGHL). Mechanical properties were determined for individual bands of the AB-IGHL, superior posterior capsule (SUP-PC), middle posterior capsule (MID-PC), and inferior posterior capsule (INF-PC). Significant differences in tissue thickness were found among the 3 posterior capsular regions and the AB-IGHL. The AB-IGHL was thicker than the MID-PC (P=.03) and INF-PC (P=.01), and the SUP-PC was thicker than the INF-PC (P=.02). Except for significant differences in failure strains, material properties were not significantly different among the 4 tissue regions. There were no significant differences between tissue bands in modulus (P=.2), maximum stress (P=.46), or strain energy density (P=.62). Specimens failed primarily near the glenoid insertion (75%), with 4 specimens failing at the humeral insertion and