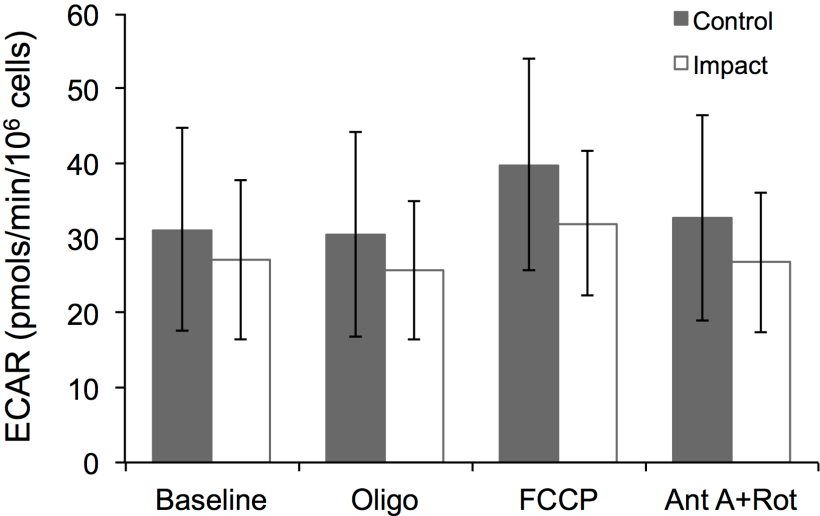
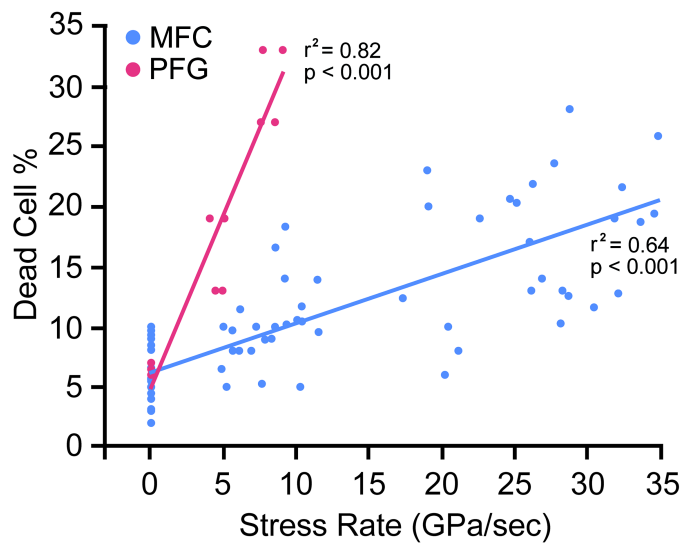


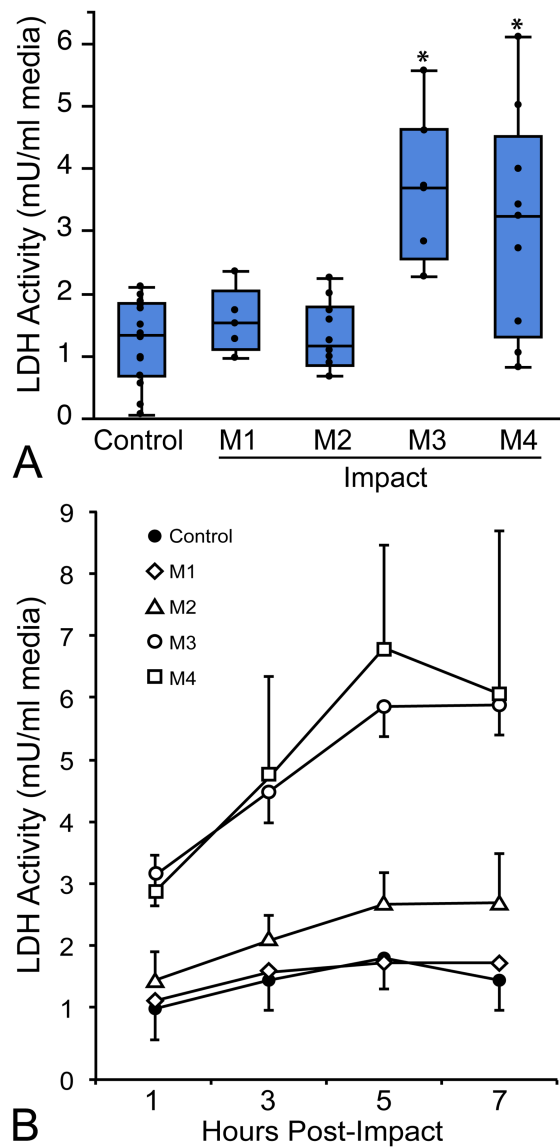
**SUPPLEMENTARY FIGURES**



**Figure S1. Extracellular acidification rate in injured cartilage.** ECAR does not differ significantly between control and injured cartilage or after addition of MT inhibitors. Error bars = ±s.d.



**Figure S2. Chondrocyte death is positively correlated with peak impact stress** for both the MFC and PFG (PFG  $r^2 = 0.82$ ,  $p < 0.001$ ; MFC  $r^2 = 0.64$ ,  $p < 0.001$ ). Data presented is for all impacts performed throughout this study.



**Figure S3. Cartilage impact results in cell membrane damage.** Cell membrane damage was quantified in cartilage explants from the medial femoral condyle by performing lactate dehydrogenase (LDH) activity assay on cartilage-conditioned media following respirometry assay. A) Cell damage was increased in explants impacted at higher magnitudes (M3 and M4) compared to un-impacted controls; Asterisks denote significant increase compared to controls at  $p < 0.05$ . B) LDH activity in cartilage conditioned media peaks at approximately 5-7 hours after impact. Error bars =  $\pm$ s.d.