

# Development of a Post-Traumatic Osteoarthritis Model: Studies on the Mechanical and Biochemical Effects of Injury on Cartilage Tissue Analogs

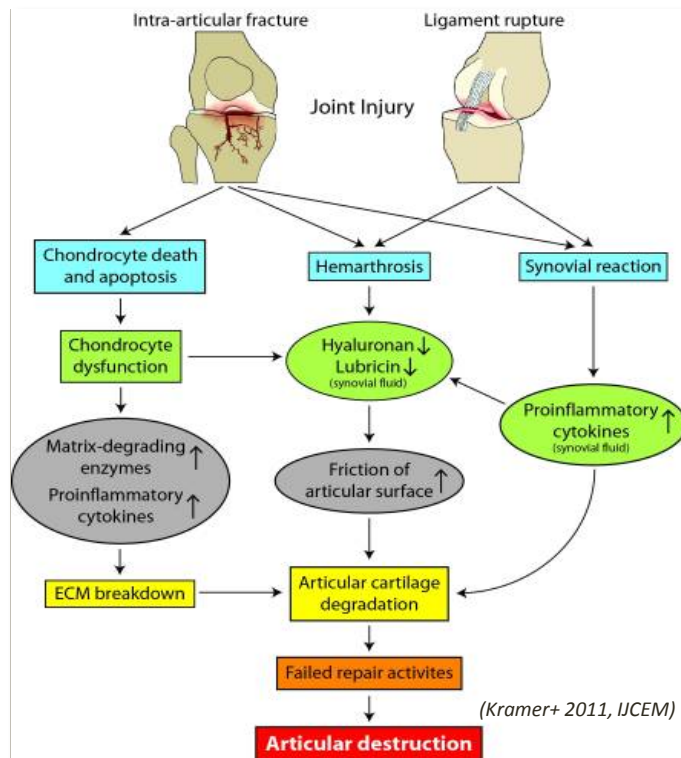
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# Problem: Post-Traumatic Osteoarthritis

- Initiated by traumatic injury (risk jumps from 20% to 50%) (Kramer+ 2011)
- Has debilitating effects on patient: pain, loss of motion
- Affects ~ 6 million Americans

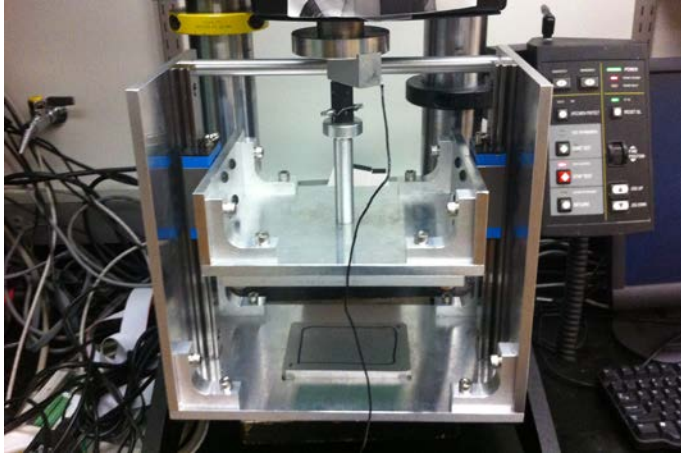


*Progression of PTOA is rarely linear*

*Every case and every patient is different*

*Despite all the research, there is still a need for more information*

# Solution: An *in vitro* model of PTOA



High throughput mechanical screening (HTMS) device developed by the Mauck lab for cartilage impact studies.

Cartilage Tissue Analogs (CTAs), cartilage surrogates, were used in our three studies.

Pressure loading bioreactor designed by Dodge *et. al.* to model cartilage loading patterns in physiological situations.

