

UC Davis
Orthopaedic Surgery

Title

Surgical restabilization following ACL rupture in mice slows the progression of post-traumatic osteoarthritis

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Data Availability

The data associated with this publication are not available for this reason: N/A

Background

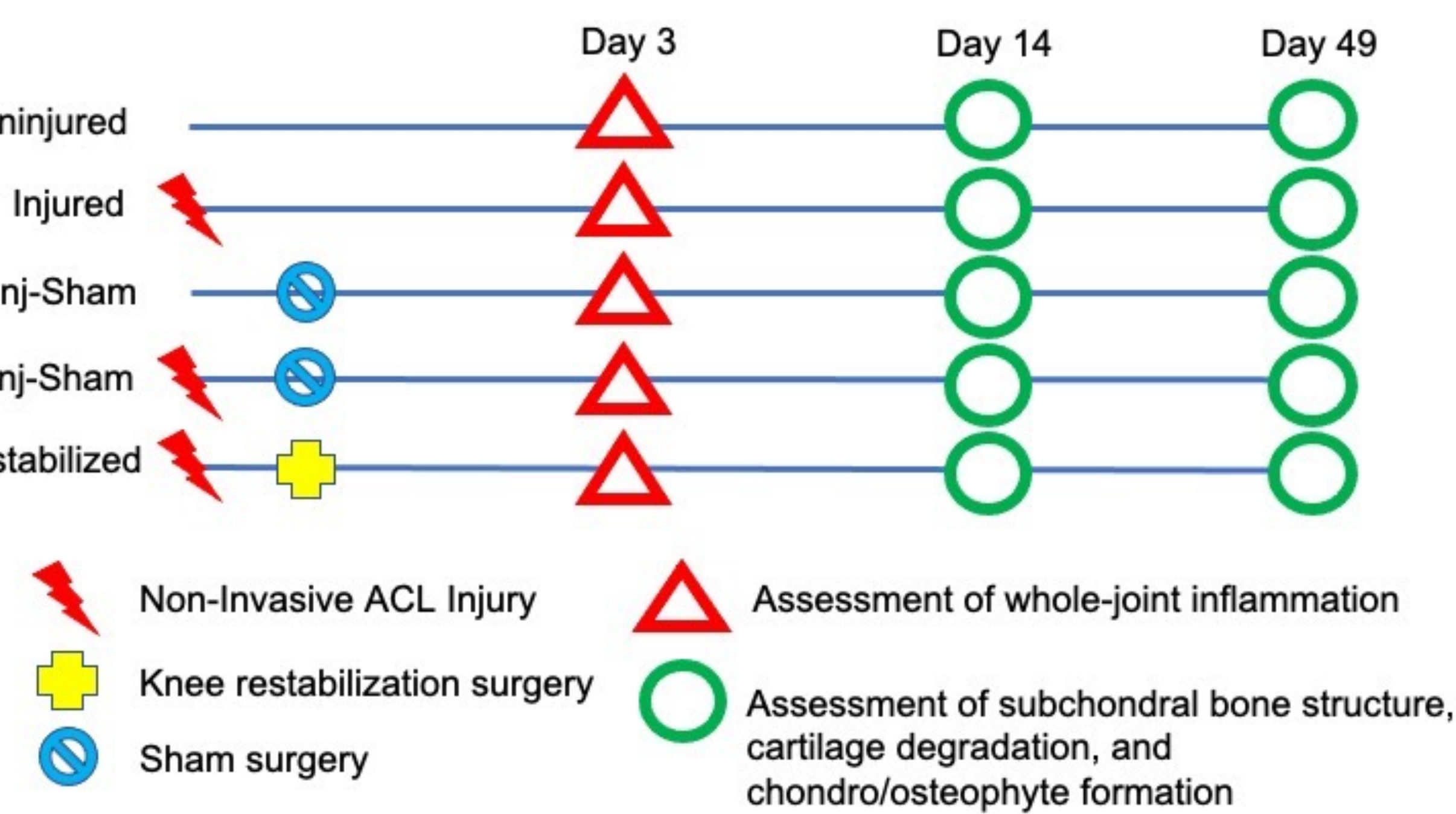
Post-traumatic osteoarthritis (PTOA) occurs following an injury such as Anterior Cruciate Ligament (ACL) rupture. Clinically, ACL reconstruction surgery is performed following injury. However, it is unclear how effective knee restabilization is in slowing PTOA progression.

Hypothesis

We hypothesized that knee restabilization would slow the progression of PTOA, but the procedure itself would have some mild PTOA-like joint degeneration.

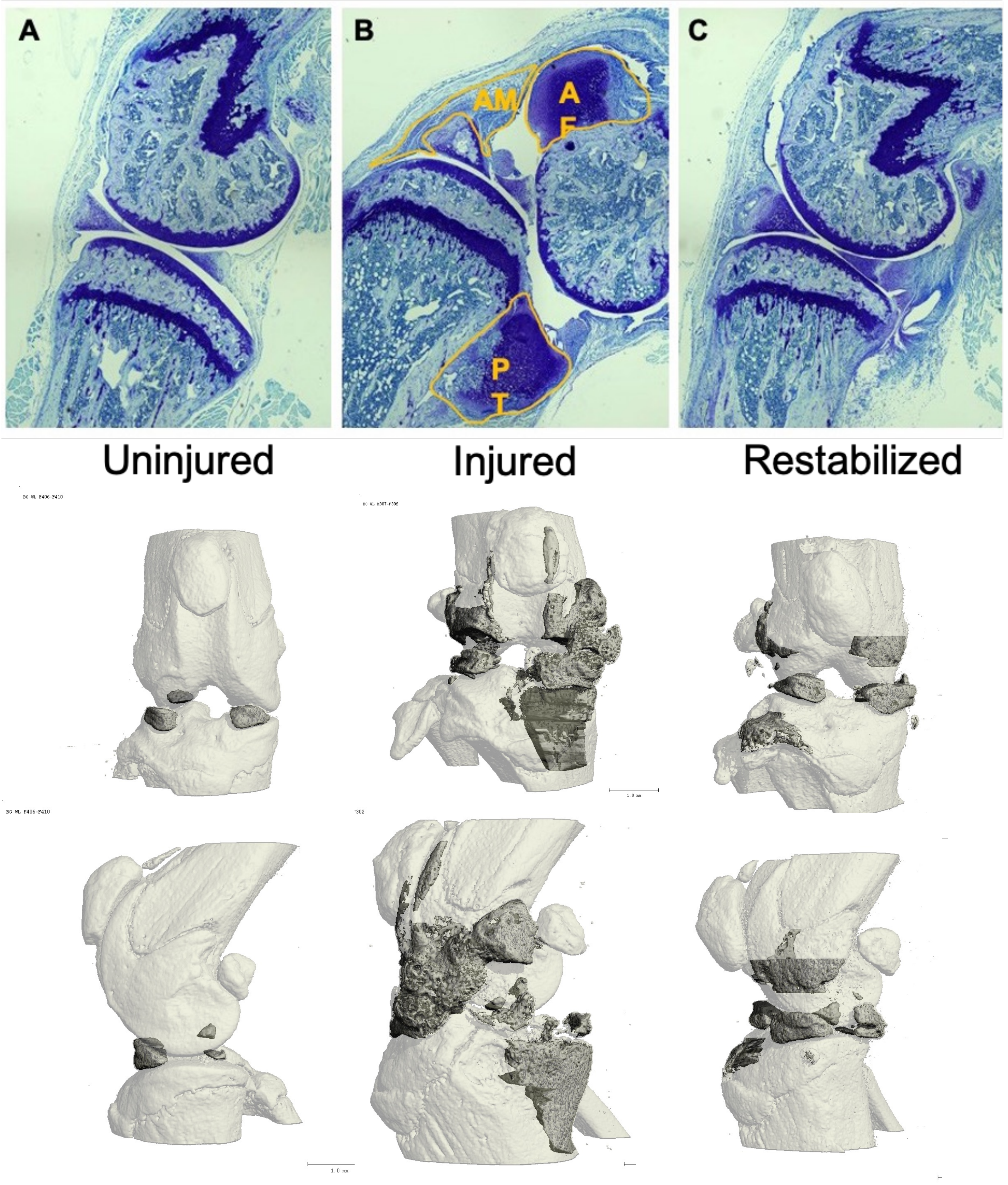
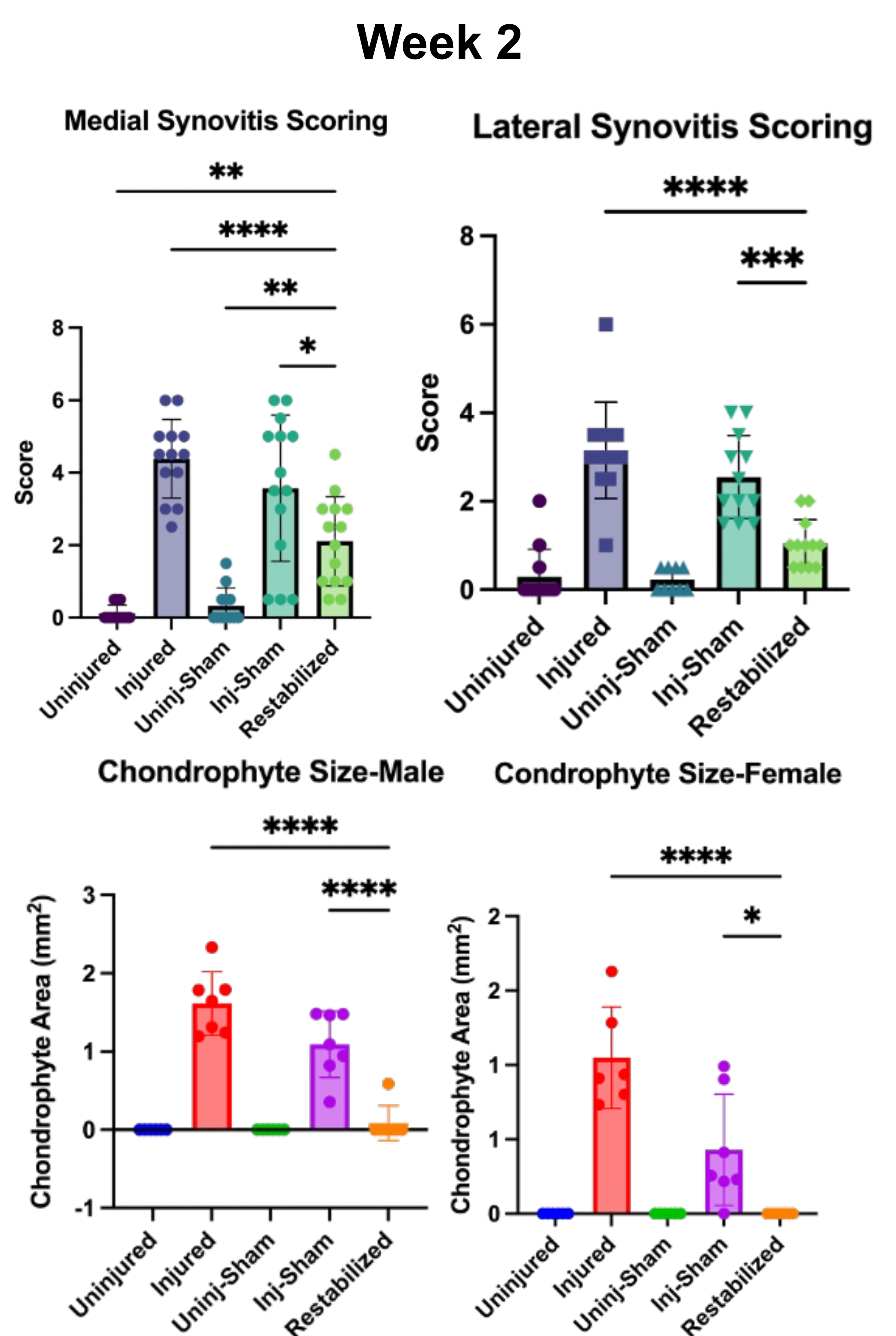
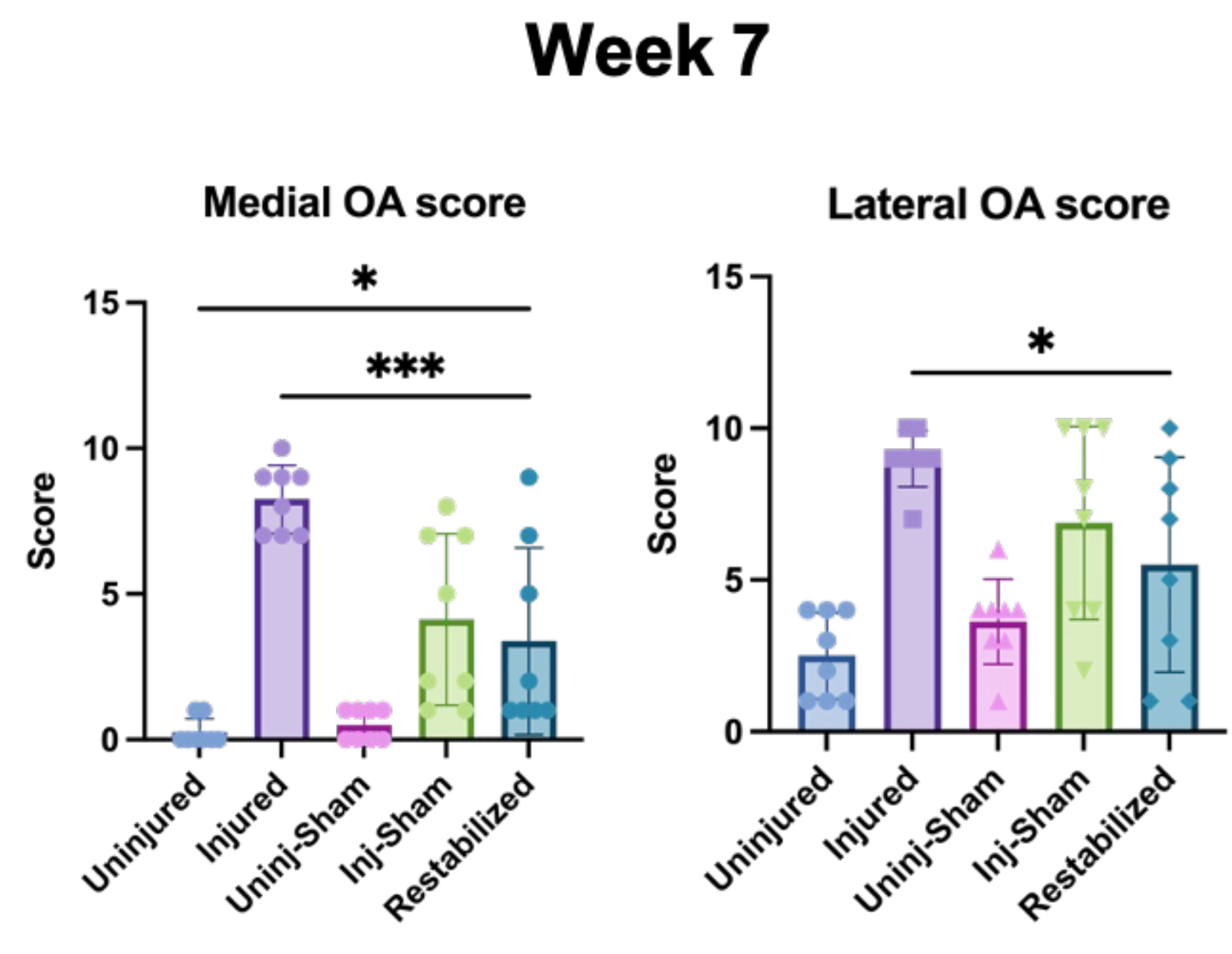
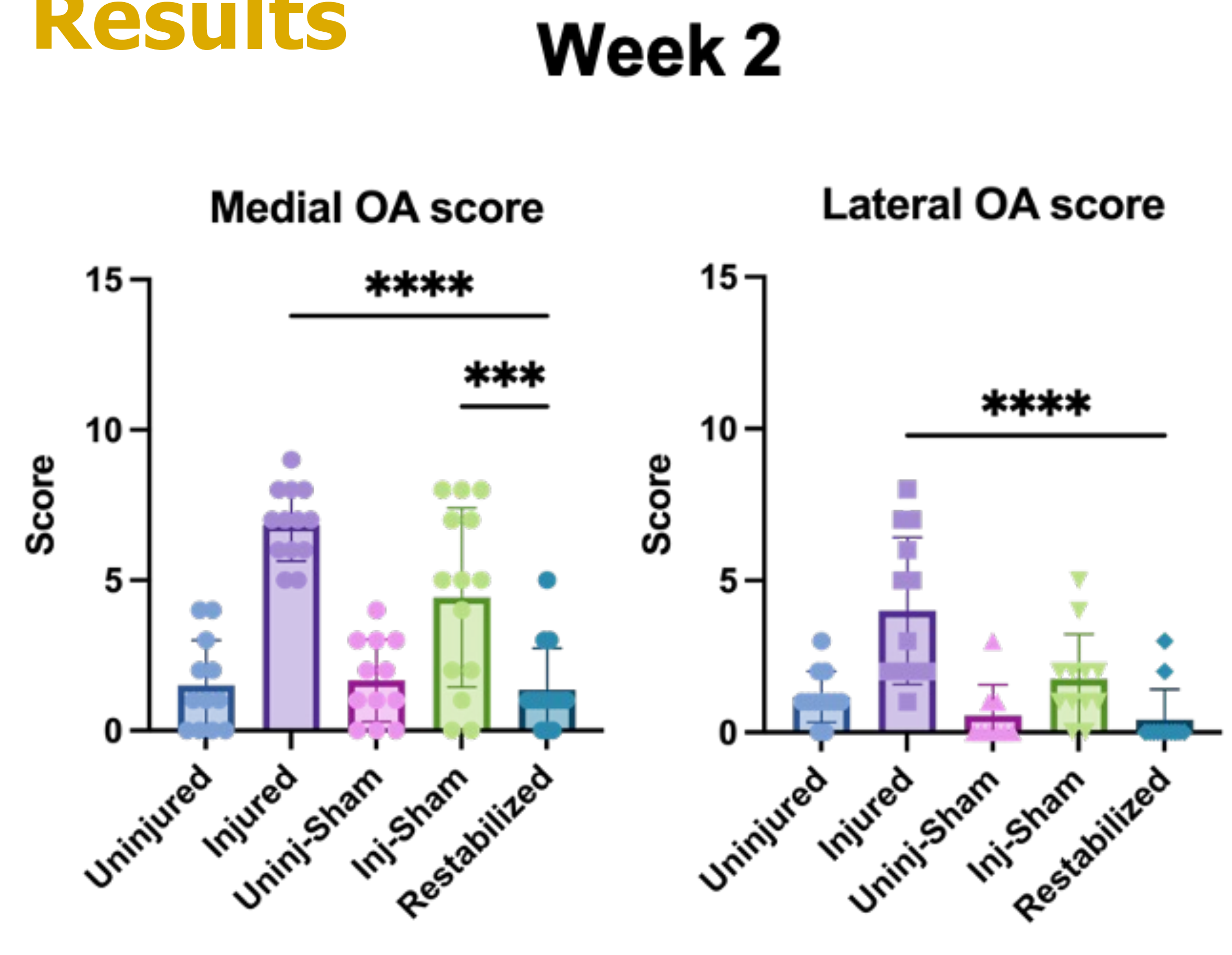
Methods

- **ACL Injury** was induced by non-invasive tibial compression overload at ~135 mm/s
- **Surgical restabilization** was performed using an extra-articular procedure where a suture is bored through a transverse tunnel in the tibia and around the posterior aspect of the femoral condyle and tightened in a flexed position to induce stability
- **Sham surgery** sutures were not tightly tensioned (i.e. sutures remained loose in vivo)

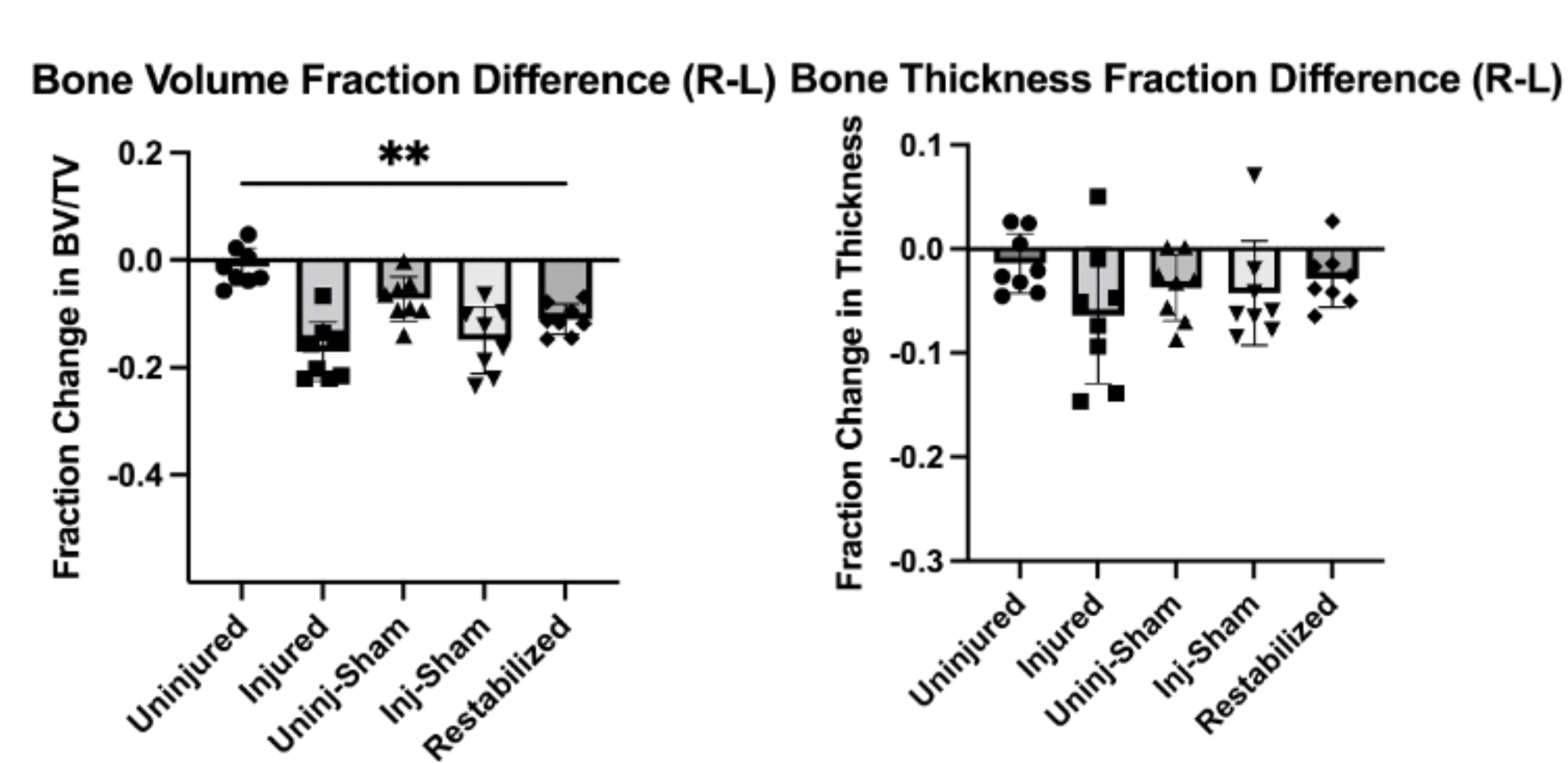
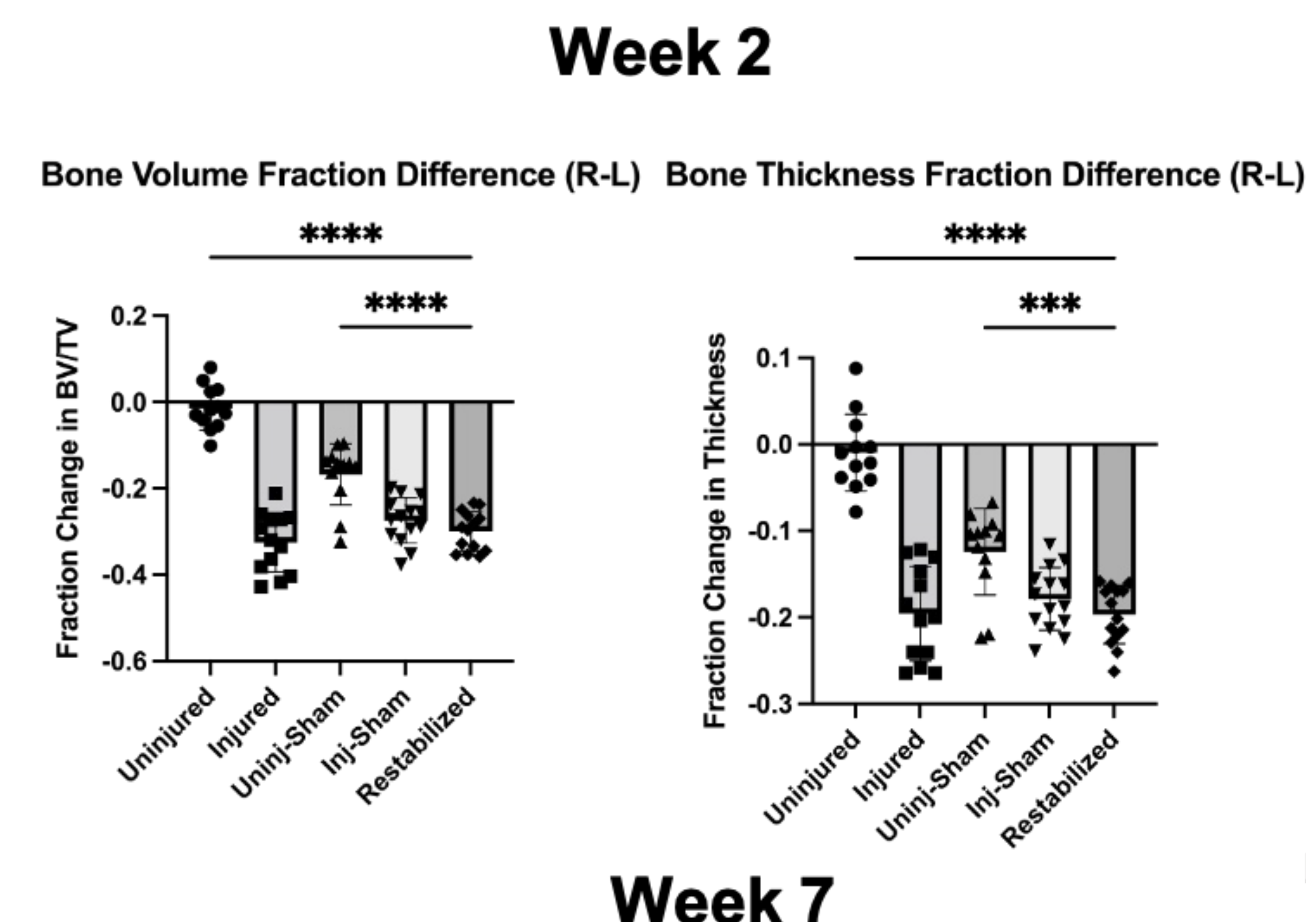


N = 53 Males and 53 Females; 12 weeks old at time of injury

Results



Additional Results



Conclusions

Knee restabilization demonstrated a slowing of PTOA progression and chondrophyte formation following ACL rupture. Results of this study suggest ACL reconstruction and biomechanical restoration of the joint in humans is chondroprotective.

Acknowledgements

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