Post traumatic Osteoarthritis in ACL Reconstructed Knees
C. Benjamin Ma, MD
University of California, San Francisco

There is an increasing recognition that anterior cruciate ligament (ACL) injury can lead to post-traumatic osteoarthritis (PTOA). Our current ACL reconstructions have allowed patients to return to sports but not to prevent long-term joint degeneration. The mechanism of PTOA development remains elusive, and reliable markers that provide early diagnosis and prognosis of PTOA are still lacking. In this presentation, we will highlight some of the advanced imaging modalities that can allow us to monitor and detect early post-traumatic arthritis.

In this presentation, we will discuss some of the early cartilage changes seen on T1rho imaging following ACL injuries and reconstructions. We have observed significantly elevated cartilage T1ρ and T2 after injury, and within 6-month to 2-year after ACL reconstruction. We will also discuss the correlation between cartilage T1ρ and T2 values and abnormal biomechanics in ACL-reconstructed knees, suggesting our ACL reconstructions are not restoring the normal biomechanics and loading alternations may accelerate the joint degeneration. We will also introduce one of the new concepts of the significance of bone shape on the development of PTOA in the ACL-injured knees. We will also highlight some of the current methods and potential interventions that can decrease the incidence of post traumatic osteoarthritis after ACL injuries. The attendees will be presented the latest research on the detection and risk factors of the development of post-traumatic osteoarthritis following ACL injuries and reconstructions.

In this session, we will highlight:

- *Current knowledge on the development of post traumatic osteoarthritis following ACL tears and reconstructions*
- *Current research and latest technology that allows us to detect early arthritic changes and outcomes*
- *Potential risk factors that identify subjects that are more likely to develop post traumatic arthritis*

References
1. [MR T1ρ and T2 of meniscus after acute anterior cruciate ligament injuries](#).
2. [Cartilage morphology and T1ρ and T2 quantification in ACL-reconstructed knees: a 2-year follow-up](#).
3. [Three-dimensional MRI-based statistical shape model and application to a cohort of knees with acute ACL injury](#).
4. [A comprehensive in vivo kinematic, quantitative MRI and functional evaluation following ACL reconstruction--A comparison between mini-two incision and anteromedial portal femoral tunnel drilling](#).
5. [Abnormal tibial position is correlated to early degenerative changes one year following ACL reconstruction](#).