Journal of Physics: Conference Series *Open Access* Volume 1529, Issue 217 June 2020 Article number 022010 2nd Joint International Conference on Emerging Computing Technology and Sports, JICETS 2019 Bandung 25 November 2019through 27 November 2019 Code 161273

Evaluation of MRI images' pixels intensity in three different MRI sequences

Absract

Numerous types of Magnetic Resonance Imaging (MRI) sequence have been utilized for in vivo tibiofemoral contact area study has led inconsistency and disproportionate results. Thus, this study aim is to assess intensity differences of MRI images in three different MRI sequences. Ten healthy subjects with average age of 25.5 4.76 consisted three males and seven females have no history of knee injuries participated in this study. Subjects were scanned through an Achieva 3.0T TX coupled with a SENSE spine coil 15. The selected MRI sequences were Turbo Spin Echo (TSE), Fast Field Echo (FFE) and Steady State Free Precision (SSFP). The results showed that the SSFP sequence consistently uncovered extra contact areas than the FFE and TSE sequences. Overall intensity value indicated that the TSE sequence intersected the highest intensity differences at important knee tissue components: trabecular-cortical and cartilage-synovial. The study demonstrated that the TSE sequence yields an accurate contact length detection which promoted a consistent tibiofemoral contact area for quantification. Also, this study suggested that the TSE sequence is a proper MRI sequence selection for in vivo tibofemoral contact area study.