

Official Title: Linking Biomechanical and Imaging Outcomes to Better Understand the Effects of Running on Knee Joint Health

NCT Number: to be assigned

Document Date: 30-11-2019

Statistical Analysis Plan

All data will be analyzed by our statistician, who will remain independent of all data collection and analyses. Means and standard deviations will be calculated for all outcomes. One factor ANCOVAs will be used to assess between-group differences in running biomechanics outcomes at each biomechanics testing session. At each individual MRI testing session, two factor (group x scan time) repeated measures analyses of covariance (ANCOVAs) will be conducted to examine differences between groups, changes across the MRI scan times (pre-run, immediate-post, 45-minute-post), and any interactions present. Finally, two-factor (group x time) ANCOVAs will be conducted to assess the longer-term effects of the running intervention on biomechanical and MRI outcomes. Treadmill running speed will be a covariate in all statistical analyses, while running mileage during the course of the intervention (defined as % change from baseline) and peak vertical loading rate during the associated biomechanical testing will be additional covariates for MRI outcome changes. To account for the exploratory nature of this research, a significance level of $p = 0.05$ will be used, and no corrections for multiple comparisons will be used. Finally, an exploratory sex-based, sub-group analysis will be conducted to help inform future studies in this area.