New Neuroscience Study Analyzes Head Impact in Youth Football

A new study published in the Journal of Neurosurgical Pediatrics utilized diffusion tensor imaging (DTI) to characterize changes in head impact exposure across multiple football seasons. The study also helped determine whether changes in head impact exposure (HIE) correlated with changes in imaging metrics in young football players. The researchers examined 47 adolescent football players between the ages of ten and twelve during a total of 22 team-seasons between 2012 and 2017. A control group of 16 non-contact sport athletes were also enrolled in the project. Study participants completed a pre and post-season neuroimaging protocol using diffuser tensor imaging.

The study concluded, “among individual athletes, the number of abnormal DTI voxels can increase or decrease between football seasons, and that neuroimaging changes across consecutive seasons are related to changes in some of the HIE metrics examined. The results from this study demonstrate that changes in HIE between seasons vary considerably among individual athletes.” The researchers believe the results present a positive correlation between changes in HIE metrics and changes in a number of abnormal voxels between consecutive seasons of youth football. They also believe that by reducing the number and frequency of head impacts, especially during practice sessions, the number of abnormal imaging findings may decrease from one season to the next in the youth football season.