

IMAGING HEAD INJURIES IN SPORTS

X-Ray

- Least used modality when imaging head injuries
- Most often used to access cranial fractures
- Advantages
 - quick and accessible
 - Low radiation exposure
- Disadvantages
 - Difficult to distinguish fractures between sutures
 - Diagnostic quality is not the highest compared to other modalities



MRI

- Imaging for subtle neuronal damage
 - Cerebral pathologies in TBI patients
 - Superior choice of imaging traumatic brain injuries after onset of 24 hours

PET

- Previous studies have shown a relationship between PET scans and athletes who have sustained CTE
 - Chronic Traumatic Encephalopathy
 - Disease affecting athletes who sustain numerous, minor head injuries
 - Study scanned 3 sets of people
 - Suspected CT athletes
 - Cognitive people
 - Diagnosed patients with Alzheimer's disease
- Conclusion of study
 - Scans showed:
 - Differences in suspected CTE athletes and cognitive patients
 - Similarities between scans and physiological effects of concussions
 - Similar but opposite scans of suspected CTE athletes and Alzheimer's patients
 - Scans to the left show the appearance of each category of study

CT

- Golden standard for imaging TBI
- Study showed the advancement of CT compared to diagnostic X-ray
 - Research performed by Dr. Hatish Chawla and medical group
 - Group compared autopsies of patients with TBI
 - Patients only examined who had previous x-ray and CT before death
 - Findings from autopsies:
 - 19.1% of fractures were missed with x-ray
 - 7% of fractures were missed with CT

