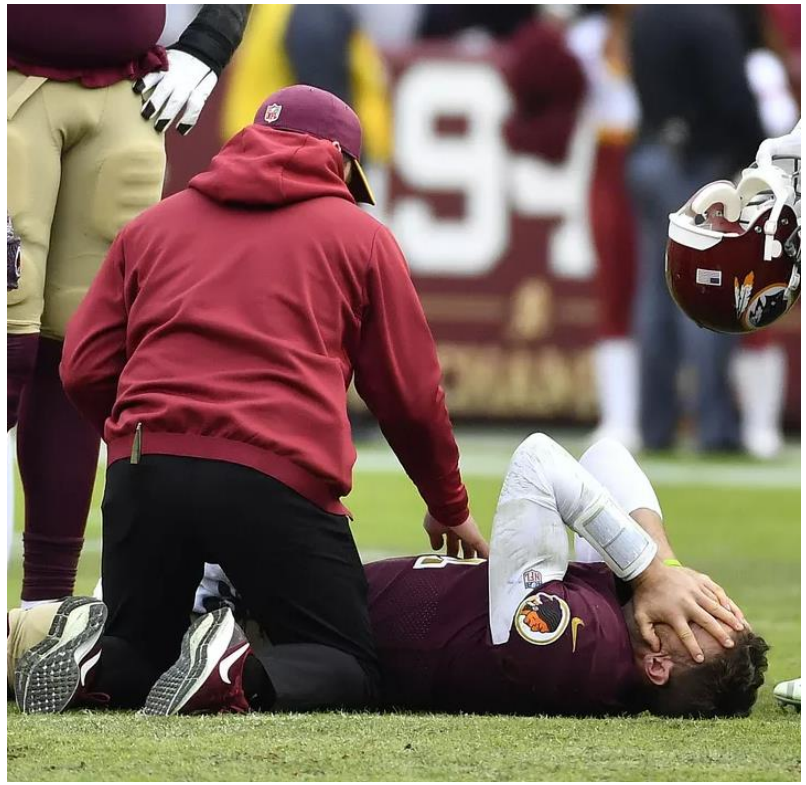
NFL 1st and Future Analytics

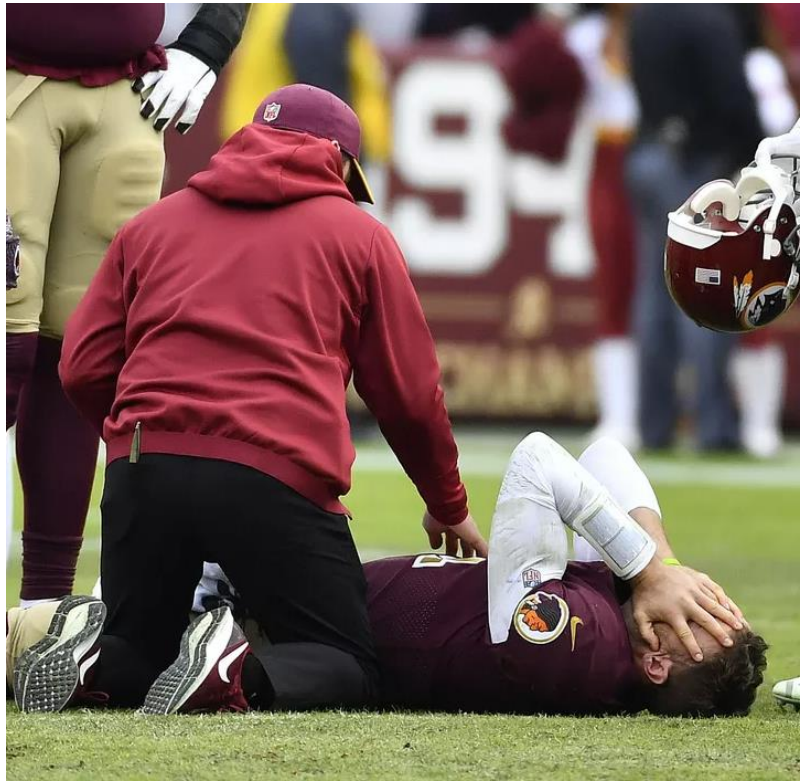
Investigating the relationship between playing surface, Lower Limb injury and performance



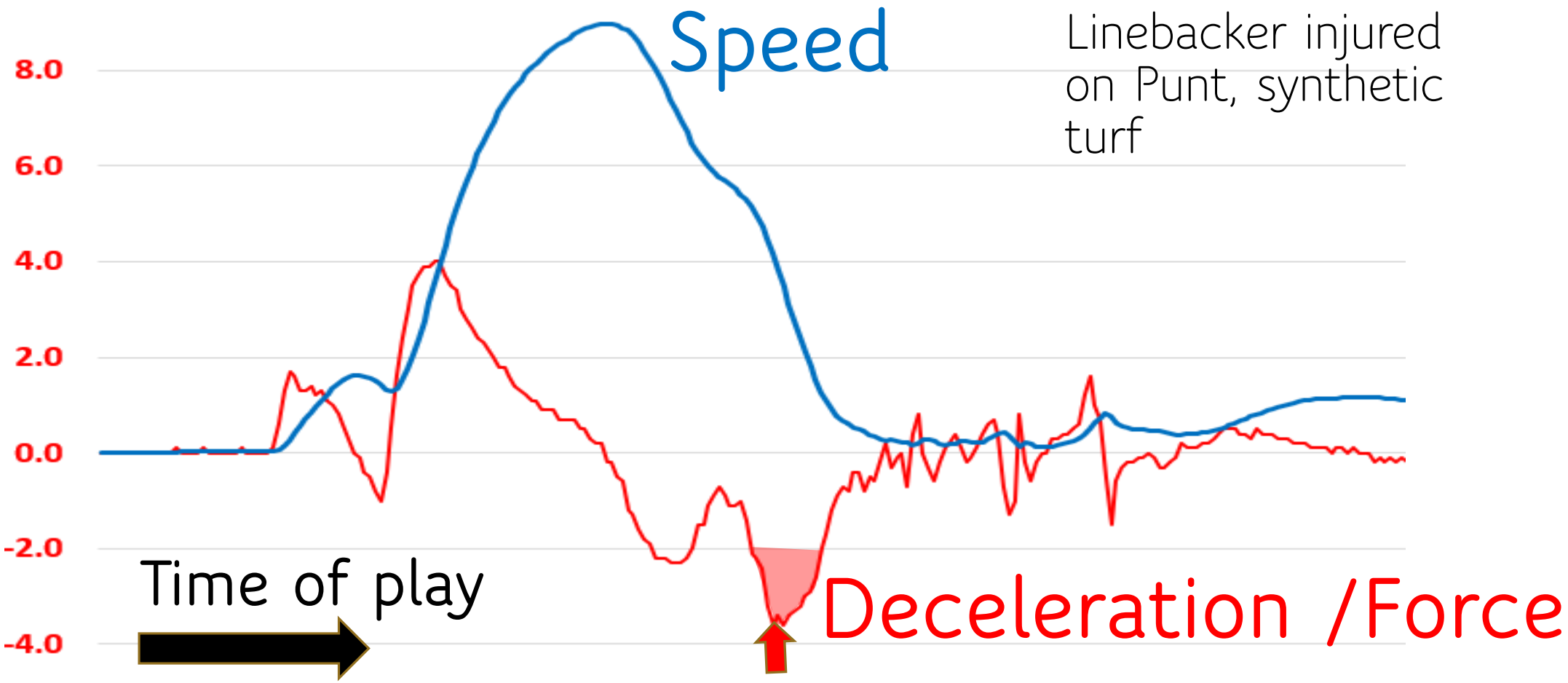
Ben Jenkins
Steve Jenkins

Key Findings

- Surfaces: Synthetic
- Plays: Punts
- Positions: Guards, RB and LB
- Location on Field, temperature, and number of plays
- Deceleration and twisting Forces



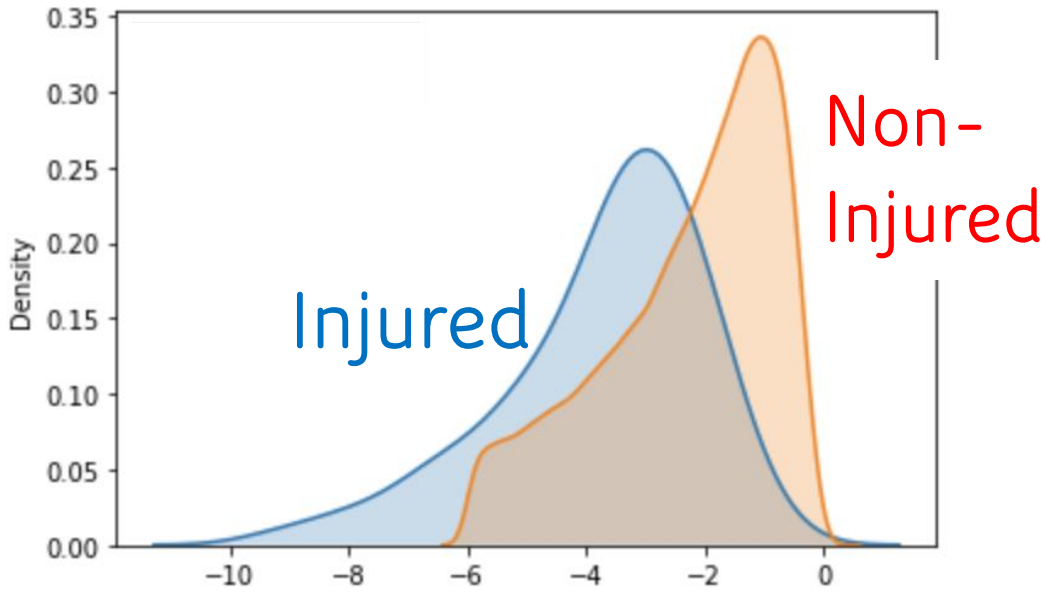
Speed and Deceleration

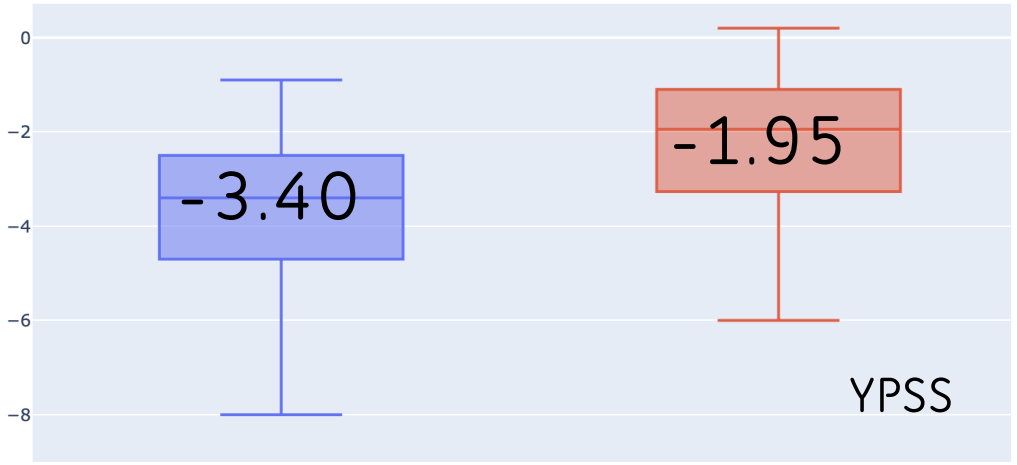


Deceleration Injured / Non-Injured

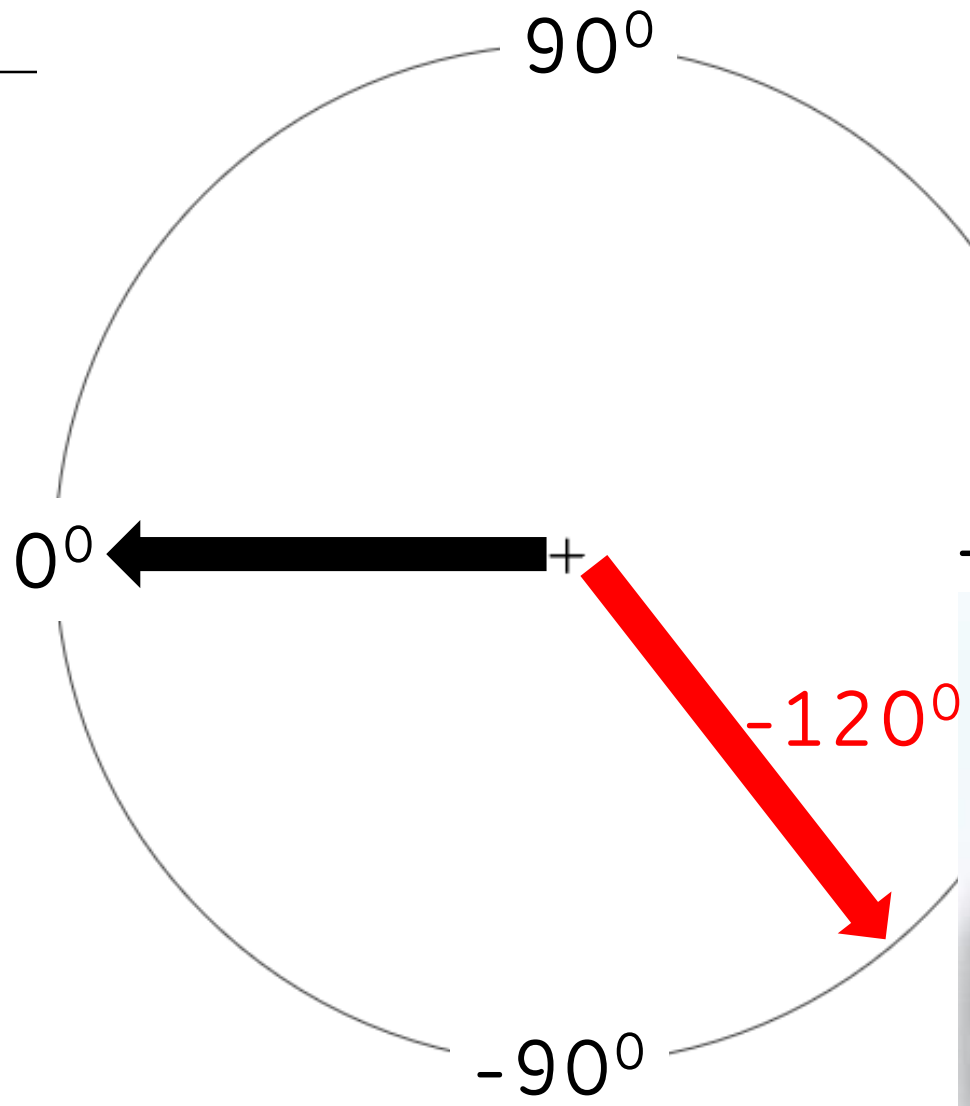
- Maximum deceleration higher for injured players

- Likely contributes to lower limb injury



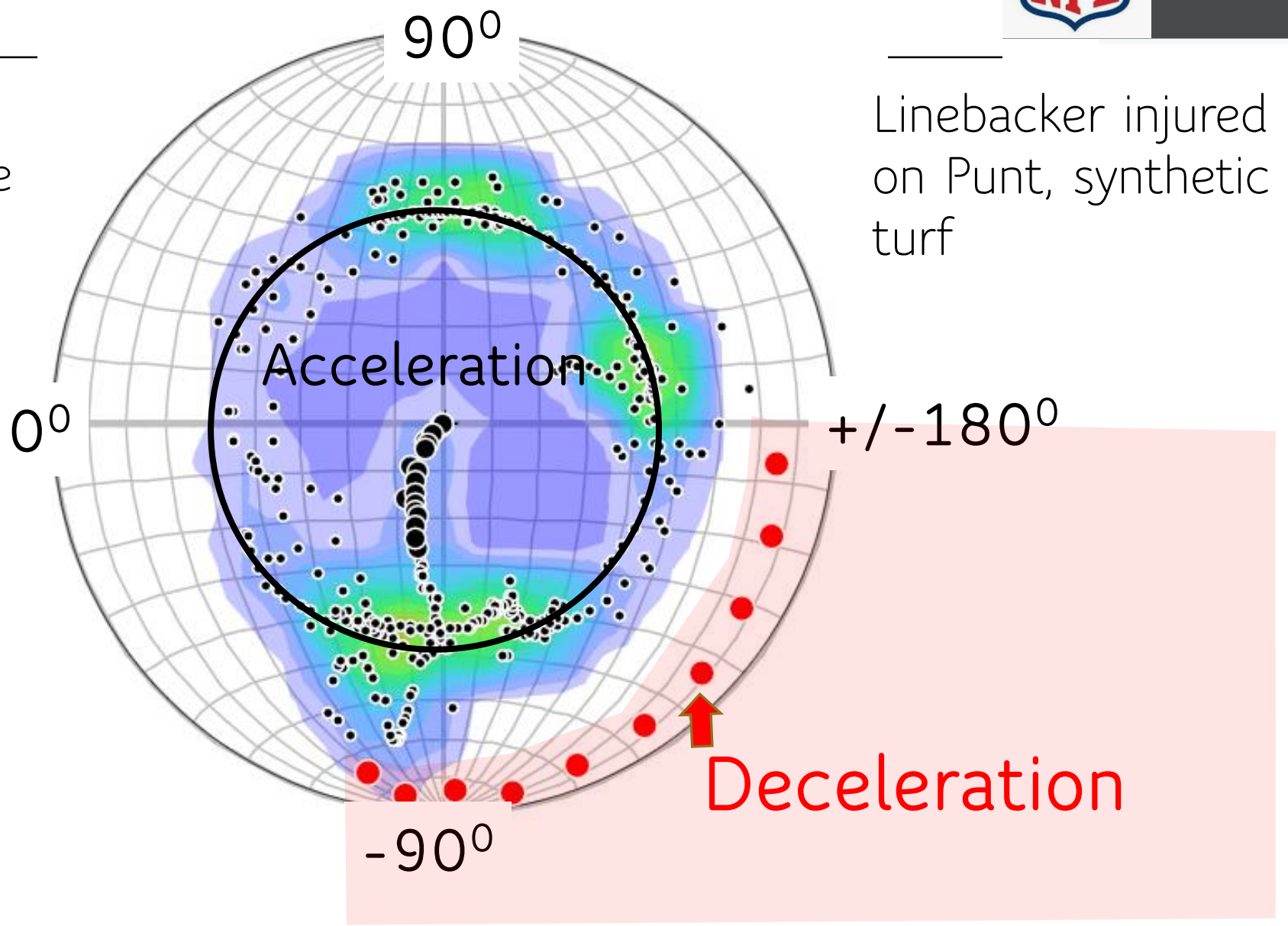


Angle Difference (Dir-O)



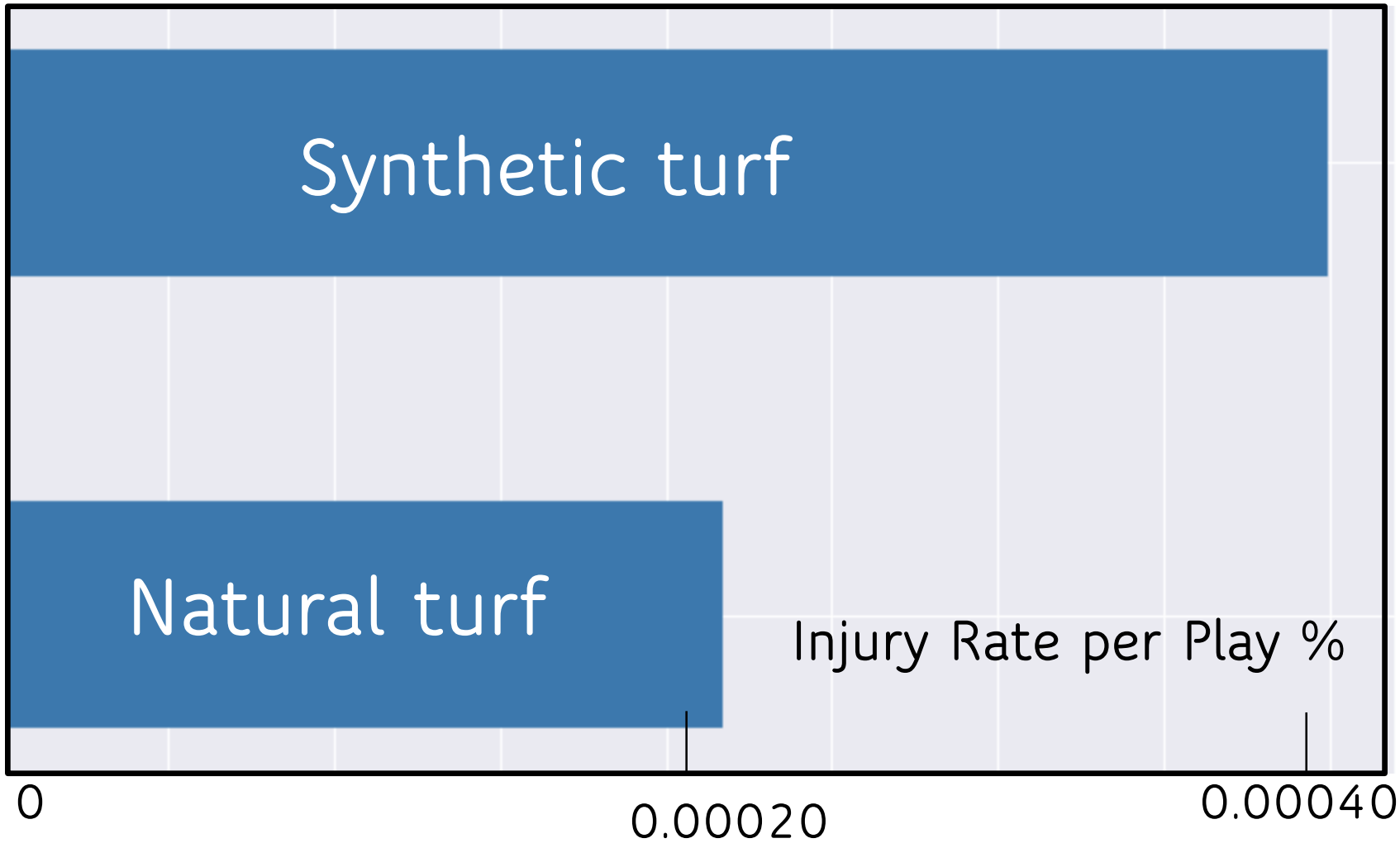
Combine Deceleration / Angle Diff

New: Stereo-plot of Acceleration and angle difference

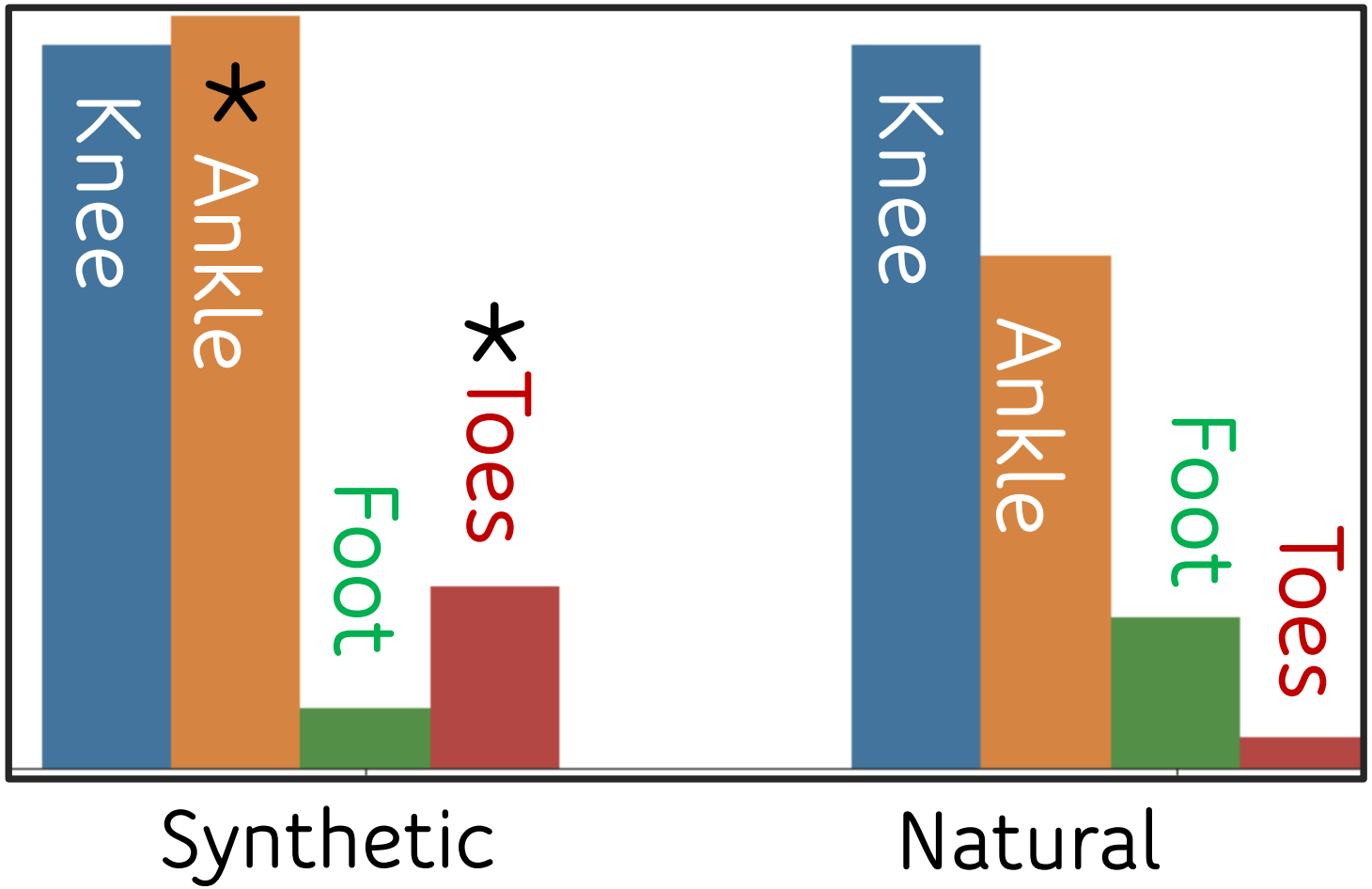


Linebacker injured on Punt, synthetic turf

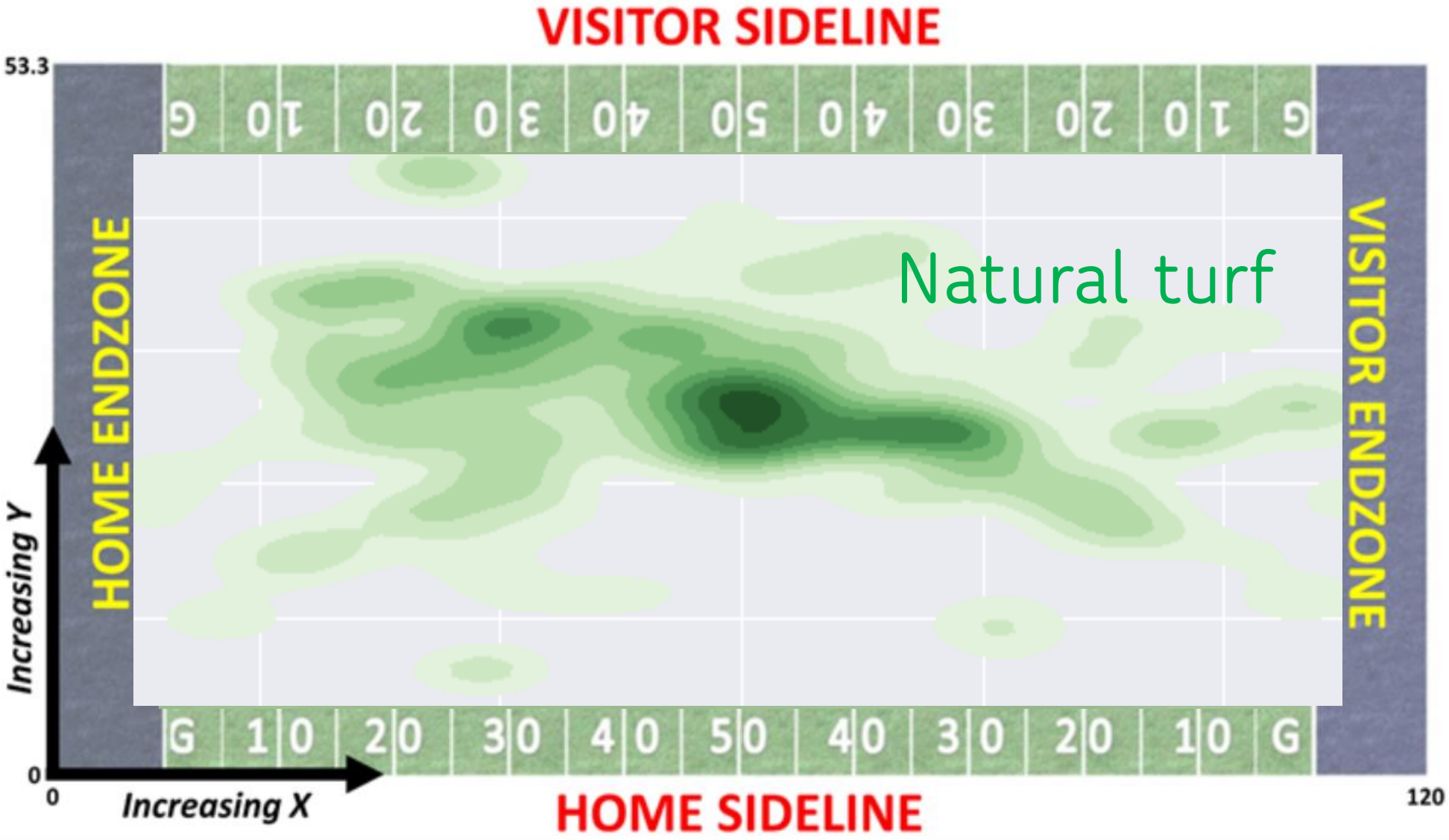
More Injuries on Synthetic Turf



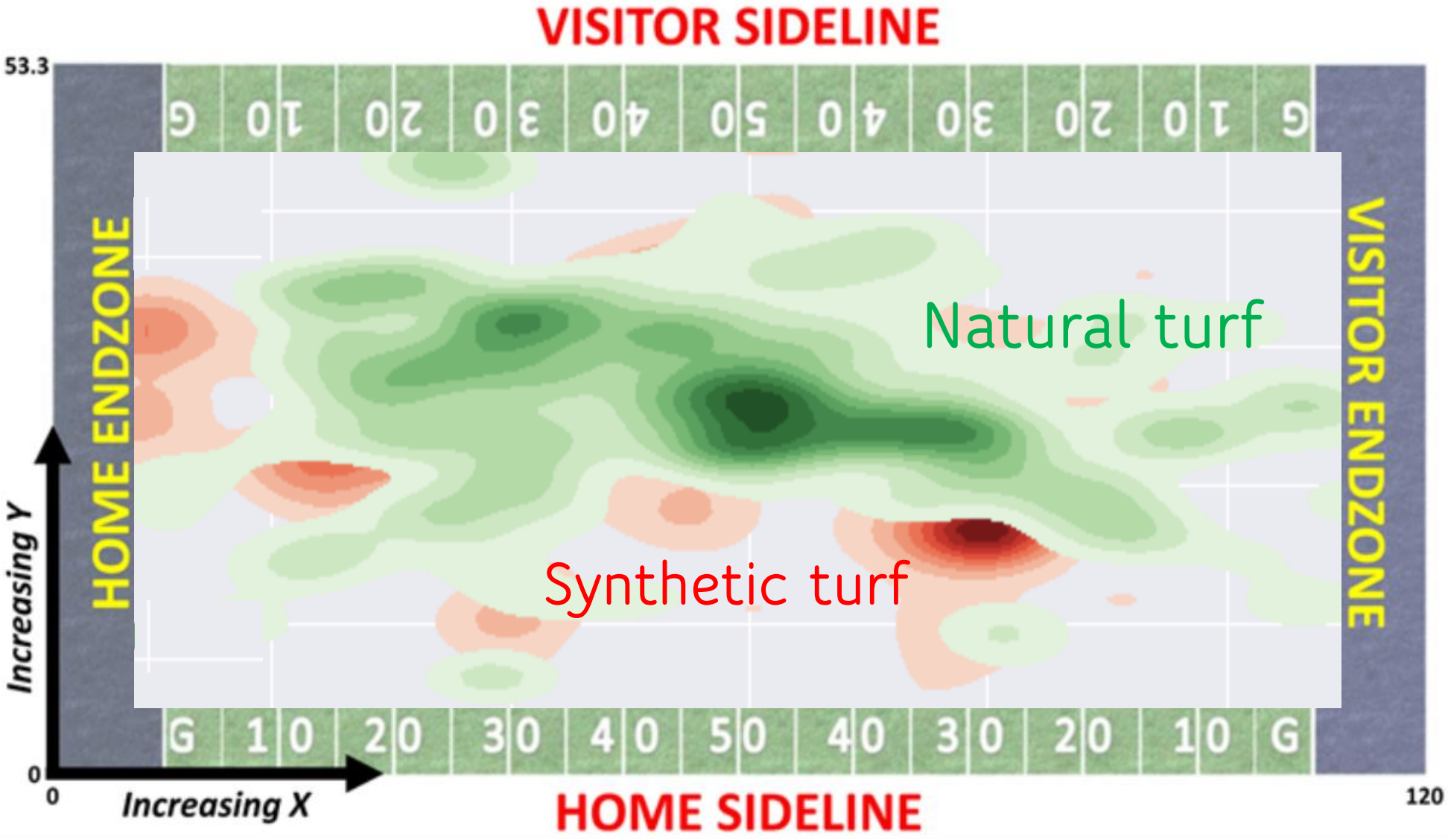
Injuries on Synthetic and Natural



Map of Injuries: Natural Turf

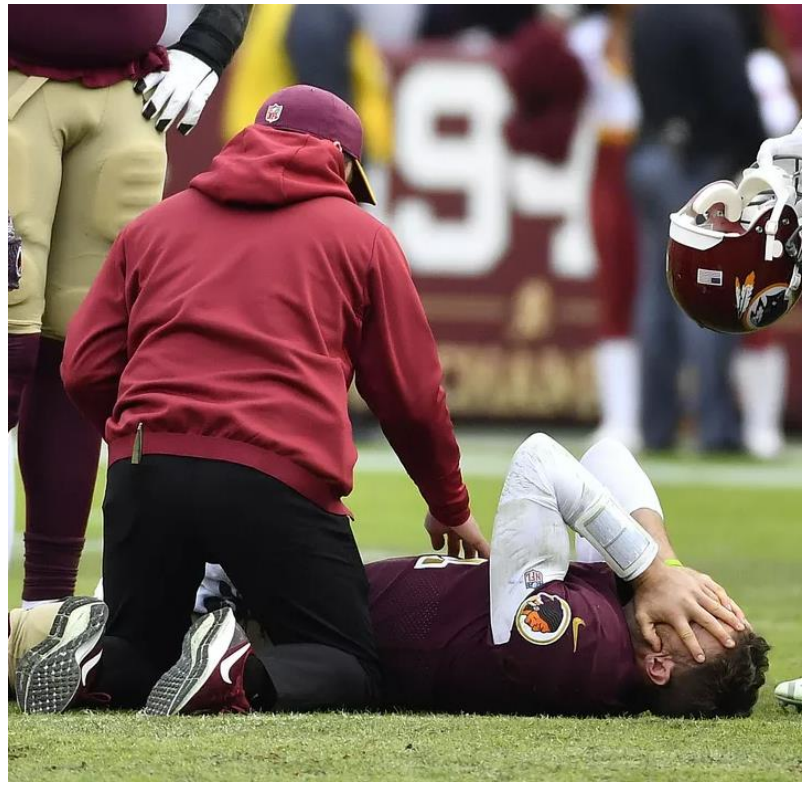


Map of Injuries: Synthetic & Natural



Recommendations for NFL

- Use Natural turf
- Review mechanical properties of synthetic turf
- Consider upgrading PPE for players and plays
- Reduce plays with high deceleration and twisting
- Acquire additional and higher resolution data



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