Assessing Health of Football Players over Time through Data Learning

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Assessing Health of Football Players over time through data learning

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Introduction
• Being a physical sport, football causes a lot of injuries.
• Over time, strides have been made to improve the game in safety and performance (Especially at the pro level).
• Head to head collisions are illegal (can’t lower heads).
• Aiming for legs is a penalty, etc.
• No targeting.
• However, another discussion that has risen with changes such as the type of fields is the debate if turf causes more non-contact injuries.
• Different players have come out and said that it’s easier to get caught on turf while moving, which can lead to twists and hyperextensions in the lower body.

Methods
• Coding scripts from the Python language were created to extract injury data from websites.
• They were used to examine the connections between player positions, season, field type and injury type.
• What's found in the scripts will get cross-examined with other findings at the collegiate level.
• Also cross-examined data accumulated over the span of 10 years with articles regarding the correlation between injuries and field types.

Figures
• The scripts filter out data to ensure the injuries recorded were the ones whose game status was out.
• The counts were recorded and graphed.
• One article cross-examined involved the research of 153 college teams for the 2009 season and the 2014 season.
• Used to determine if rule changes affected frequency of certain injuries (via contact).
• Examined other coding scripts along with articles regarding turf vs grass from the perspective of players, trainers and surgeons.

Results
• There has been a consistent rise in lower body injuries in the last 5 years.
• The charts of the college teams also show a consistent rise in lower body injuries, specifically from contact.
• Between 2018 and 2022 turf has created higher injury rates than grass.
• Research of different surgeons conclude grass is the safer option.

Discussion & Conclusion
• As expected, while the rule changes have decreased the amount of upper body injuries, they have significantly increased the number of lower body injuries. This trend has shown the most in the more agile positions (linebackers, runningbacks, etc.)
• The effort to reduce head trauma has also reduced the amount of points on the body that can be contacted.
• More research needs to be done to help reduce lower extremity injuries given that there is still more data to compare.
• In addition to more data, deeper dives can be made into examining nagging, less severe injuries given that this research primarily involves pain that kept players out of games.

• It can also be concluded that between turf and grass, turf causes more contact injuries.
• According to research, it is easier to get caught on synthetic fields, therefore putting more force into your own body.
• However, more teams are transitioning to turf fields because it is easier to maintain during a full season.
• Therefore, more measures need to be taken into maintaining grass fields to preserve the safety of players.

• Overall, measures for safety have been going in a good direction and will continue to.

References