

SPORTS INJURIES AND TURF — IS THERE A CORRELATION?

by Cindy Code

As athletes — professional and amateur — continue to receive substantial media exposure, so do the fields they play on.

Gone are the days when sports injuries were shrugged off as mishaps. Instead, the spotlight now focuses on sports turf and field maintenance as a leading factor in injury.

Professional athletes generally have the opportunity to play on properly maintained fields, but high school and college athletes remain more susceptible to injury as play continues on fields which are poorly maintained. Oftentimes the situation can be improved, but many educational institutions think they cannot afford, nor need, to spend money on athletic fields.

At the collegiate level, comparisons between natural turf and artificial turf in connection with football injuries have been drawn, but differences in the quality of the turf on natural grass fields has received only minor attention, according to John Harper, professor of agronomy at The Pennsylvania State University.

As a result, Harper and three Penn State associates — Chauncey Morehouse, professor of physical education; Donald Waddington, professor of soil sciences; and William Buckley, instructor in health education — set out to investigate how turf quality affects injuries.

Their study, conducted several years ago, consisted of 12 schools active in the Pennsylvania Athletic Trainers Association. The participants came from various locations across the state and provided 24 fields — 12 game fields and 12 practice fields — for evaluation. Because two schools didn't provide a complete record of injuries, the results and correlations involving injuries are based on data from 10 schools, Harper said.

All injuries to football players in the sample schools were reported through the National Athletic Injury/Illness Reporting System (NAIRS), established by Penn State in 1974. NAIRS receives weekly reports from team trainers or physicians of injuries and illnesses sustained by members of an athletic team during practice or competition.

In this study, injuries and illnesses were classified by NAIRS into four categories:

1. *Minor* — any reportable injury/illness (other than dental or head injuries) that didn't prevent an athlete from returning to practice

or competition for longer than seven days following the injury or illness.

2. *Significant* — all head and dental injuries regardless of time lost from play or practice, and any injury/illness that kept an athlete from returning to play or practice for longer than seven days.

— 3. *Major* — any significant injury/illness that prevented a player's return to practice or competition for 21 days or longer.

4. *Severe* — any permanently disabling injury, such as paraplegia.

Game and practice fields were evaluated both before and after the football season. Information ranging from the kinds and amounts of turfgrasses to the total weed coverage were evaluated.

Information collected on the maintenance of game and practice fields showed considerable variation between fields at an individual school as well as among fields of different schools. Although practice fields were more intensively used than game fields, they received less care — a fact which disturbed Harper.

"If they spend money at all they do it on the game fields rather than the practice fields," he said. "It's unfortunate because the practice fields are where the kids spend probably 95 percent of their time, yet they're (practice fields) the ones they do absolutely nothing to."

According to the study, mowing heights were similar on game and practice fields, but game fields received more nitrogen fertilization and more aeration than practice fields. Herbicides were used for weed control on 25 percent of the game fields, however, none of the schools reported use of weed control on practice fields. The fields which did receive some weed control were treated with a pre-emergence crabgrass herbicide and a combination herbicide for broadleaf weed control.

About 83 percent of the 24 fields involved in the study were overseeded — with $\frac{2}{3}$ being overseeded in the spring. In addition, 83 percent of the fields were fertilized at least once a season.

Only 75 percent of the 12 playing fields and 25 percent of the 12 practice fields were aerated.

About 75 percent aerated game fields once a season and 33 percent aerated more

than once, but only 16 percent aerated with more than three passes.

Harper said he normally recommends at least three aerations per year, per field. In early spring, he suggests a fairly heavy aeration with six or seven passes. A second, lighter aeration is recommended in late August, just before the game season begins. Another heavy aeration should be done at the end of the season.

After field maintenance evaluations were complete, the focus of the study turned toward injuries. Approximately 210 injuries were reported by the 10 schools. A further breakdown shows that 96 of these injuries occurred in regular season games, four in practice games and 110 during scheduled practices. About 152 of the injuries were classified as minor and 58 were significant. No severe injuries were reported.

Of the 210 injuries reported, 5.7 percent were definitely field-related, 15.2 percent were considered possibly field-related and 76.7 percent were definitely not field-related. The types of injuries varied among body parts, but showed up most often in the knees, ankles and feet.

Harper combined the definitely field-related and possible field-related together to conclude that 21 percent of the injuries may have been caused by poor field conditions — injuries which might have been prevented.

"I can't say if (the number of injuries) it's high or low because there's nothing to compare it with. Nobody has really done much along these lines," Harper said. "A lot of people felt it wasn't significant, but if you stop and think how many injuries there are across the country . . . if you can reduce that by a fifth, it's going to make a big difference."

Following the second field evaluation, suggestions for maintenance and renovation programs were sent to each school.

"Probably half of them followed our recommendations. The rest said they didn't have the people or the interest," he said. "They're more conscious of the importance of the situation in professional sports, but the interest is really starting to increase (at all levels) with the liability suits that are occurring."

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