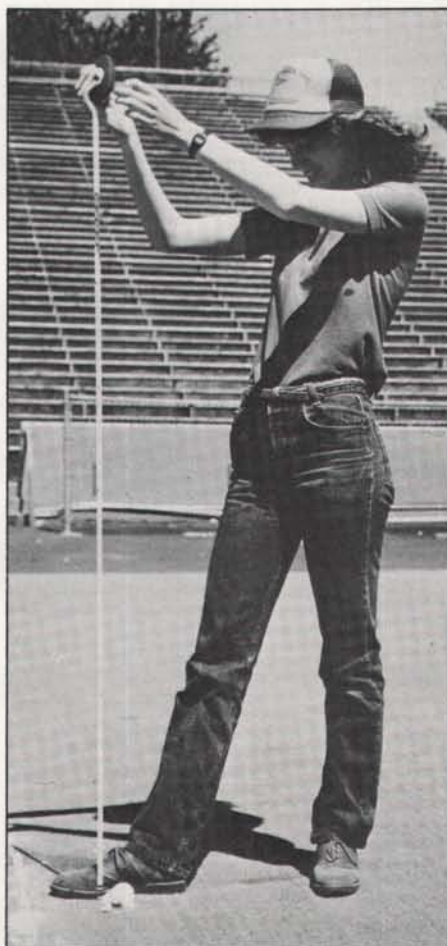


SETTING PRIORITIES FOR PUBLIC ATHLETIC FIELDS

By Elliot C. Roberts

Specialized school game areas for tennis and outside basketball have well-prescribed surface requirements.



A simple egg-drop test proves the difference in cushion between dense, healthy turf and other surfaces.

- matching competition with maturation of youth
- holding meetings with concerned parents
- keeping records related to injuries and circumstance involved

Where concern for the health and well-being of our youth is lacking, legal actions

are increasingly considered as a last resort. This step should not be necessary. Negligence must not be tolerated when and where playground and sports safety is the issue.

Over and over again we hear the question, "Why are playgrounds and sports fields so poorly turfed?" The answer is probably twofold.

First, with limited school budgets, buildings usually receive first priority over grounds. School grounds should be viewed as part of the overall physical plant. They are outdoor classrooms and there can be little doubt that performance in these locations has great effect on individuals and groups through a wide range of ages. Habits developed on playgrounds and sports fields have life-long implications.

Unfortunately, when young people are hurt on school grounds, it is often assumed that they were misbehaving and using the field for other than sanctioned purposes, often unsupervised. Injuries may not be reported or related to the condition of the playing surface. This lack of feedback leads school administrators and boards to assume that current field conditions are adequate and that further expenditures for field care would be a luxury. As squeaking wheels are more likely to receive grease, playgrounds are seldom improved where concern for safe play is lacking.

Second, confusion exists over how to go about school grounds improvement. Administrators who face a barrage of questions about fields may pass them down to a member of the physical plant staff who may be reluctant to admit he doesn't have the answers and needs outside help.

Schools need to turn to specialists who have the answers to questions such as "Is the field large enough for its intended use?" "Is drainage adequate?" "Is irrigation adequate?" "Must the field be reconstructed?" "Could the field be renovated?" "How can soil compaction be relieved?" "What grasses are best for this field?" "How much lime and fertilizer are needed?" "What pesticides are required?" "How high should the grass be cut at different times of the year?" "Should the field be overseeded during the playing season?" and "What should a good maintenance program cost?" A person with a nice home lawn is not the expert needed for school fields.

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It's time to stop tripping up public school students with sports fields whose treacherous surfaces make them stumble and fall. Our kids deserve better than they're getting, so give them a break—not a broken leg.

Good footing is one of the most important requisites of a good sports field. A field large enough and sufficiently well-drained to grow turf under existing use provides the best footing. We know that specialized school game areas for tennis and outside basketball have well-prescribed surface requirements: They are smooth and provide good footing. If funds are available for these non-turf locations, why aren't they available for turf areas?

The well-turfed, multipurpose sports field or playground that begins the season often turns to weeds and mud by mid-season. It is the slippery nature of these fields that causes youngsters to unexpectedly lose footing and become prone to injury. Young athletes are not usually well-conditioned and, as a result, injuries can be particularly serious.

Playing fields of gravel or asphalt may be a necessity because of the large number of youngsters using small-sized fields. Regardless of the type of surface, responsible individuals should evaluate playing surfaces regularly to determine if they are safe and report it to the necessary financial decision makers. We check ice to see if it is safe for skating because death can result; we check gymnasium floors to see that they are safe for basketball and other indoor sporting events. Why then is it not equally important to check playgrounds to see if they are safe?

Laurence S. Graham, attorney from Greenville, N.C., lists seven items that reduce the risks of injury resulting from physical limitations of participants and unsafe conditions. These were described in *Sports Medicine-Facts for the '80s*, a publication of National Athletic Health Institute, Inglewood, Calif. The third item on the list is the need for regular inspection of practice and game areas. Graham states that locations where practices and games are held should be checked thoroughly throughout the season for unsafe conditions.

His other six guidelines are: —medical and parental approval for youth participation —pre-season equipment check —medical "OK" on return from injury



A barren, rough field is nothing for a home team to be proud of and may result in loss of an important player to injuries.

Setting Priorities *continued from page 24*

Turfgrass research at land grant universities across the country, research divisions of turfgrass equipment firms, and chemical and seed firms has produced good information that is readily available to the public. However, this information may not have reached the local landscape architect or contractor. Extension agents in many areas are offering seminars on sports turf management that will not only provide the field manager with the latest information but enable him to compare notes with fellow field managers in the area.

Proper field care is not complicated and good results are easy to obtain. Costs for renovation are much less than may be realized. But, like any new construction, if total reconstruction is needed, the cost is going to be high if the job is to be done right.

Henry Indyk, cooperative extension specialist in turfgrass management at Rutgers University, has had more than 20 years experience with athletic fields in New Jersey. The basic problem, according to Indyk, is poor construction. Under these conditions, improved management programs are cosmetic in nature and benefits will be short-term. This has given so-called improved management practices a negative reputation in some cases.

Pennsylvania secondary schools indicated practice fields are more intensively used than game fields but receive less care.

John C. Harper II, cooperative extension agronomist at Pennsylvania State University, was called recently to help a school district that had several playing fields with higher rates of injury to 4th, 5th, and 6th graders. The school nurse had recorded an average of three injuries per day. The basic problem was that the drainage was so poor that grass could not grow.

Harper drafted a program that included how and where to install drainage lines prior to complete renovation. In the final analysis, money was spent to renovate the field without correcting the poor drainage. There wasn't enough money to do both. Without improved drainage, renovation became a waste of money.



Debris removed from the top 12 inches of soil during reconstruction of a football field.

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Harper and his associates at Penn State have conducted research on relationship between injury to the athlete and condition of the playing field. The National Athletic Illness Reporting Service (NAIRS) located at Penn State collects and analyzes athletic injury data for all National Football League teams, Big Ten teams, PAC Ten teams, many independent teams and Pennsylvania high school teams. Certified trainers at these teams submit injury and illness data for every member of the team on a weekly basis, coded to provide anonymity. Each team receives a monthly computer printout of their injuries in comparison with injuries on other teams.

A comparison of playing conditions on practice and game fields at 12 secondary schools in the state was recently made from this data. Harper noted that practice fields were more intensively used than game fields and receive less care.

One quarter of the practice fields and three quarters of the game fields were core aerified to relieve soil compaction. No practice fields received weed control treatments and only one quarter of the game fields did. Practice fields were fertilized with only 1 4-pound of nitrogen per 1,000 sq. ft. This inadequate amount was compared with two pounds of nitrogen per 1,000 sq. ft. for game fields, which is also low. Better playing surfaces were directly related to good maintenance practices and were a follow-up for

good construction methods.

As a result of the report, Harper recommended three improvements for school play and sports fields; better construction where fields are developed, improved maintenance practices, and better control of use of all play areas.

During a study of sports injuries at ten Pennsylvania high schools conducted by Carol Ann Comly in 1983, specific types of injuries were judged by their cause. Out of 35,000 injuries, the following percentage of injuries were attributed to field conditions:

- 8.0% of head-neck-spine injuries
- 10% of face-scalp injuries
- 10.5% of shoulder-arm injuries
- 11.1% of forearm-hand injuries
- 7.1% of torso injuries
- 16.1% of hip-leg injuries
- 40.6% of knee injuries
- 46.9% of ankle-foot injuries

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Where concern for the health and well-being of our youth is lacking, legal actions are increasingly considered as a last resort.

A comparison of natural turf with artificial turf favored natural grass for greatest safety and fewest injuries.

A relatively simple test of turf resiliency and cushion conducted by Turf Seed Inc., Hubbard, Ore., has shown dramatic results. Not a single egg out of a dozen dropped from 11 ft. onto a two-inch high, dense ryegrass/bluegrass playing field broke. When the same procedure was carried out on a thin stand of turf (50 percent density) two thirds of the eggs broke. All eggs broke when dropped from 18 inches onto an all-weather track.

Another demonstration of the relationship of turf density to injuries was performed by Harry Wilcox for the Upper Merion School District in Pennsylvania. Serious football injuries were reduced from 21 to four after seven schools in the district renovated and improved maintenance on 150 acres of sports turf. Renovation was limited to heavy core aerification and overseeding. Fertilization, irrigation and mowing practices were then adjusted.

Injury differences have been noted for more than a decade without much impact on school districts. In a 1973 issue of *The Physician and Sports Medicine* Dr. Joseph Torg reported there were between 100,000 to 130,000 knee injuries to professional, collegiate, scholastic, and sandlot football players each year. Between 30,000 to 50,000 of these required surgery. Torg noted that the characteristics of the football shoe and

the condition of the playing surface were of critical importance in the reduction of these injuries.

In 1966, Juergen Gramckow posed the question, "Is your athletic field safe?" while conducting studies for Cal-Turf Inc. of Camarillo, Calif. Gramckow concluded that shear strength of the natural grass could be increased to resist excessive tear by shoe cleats and abrasion.

Twenty years later, the evidence in favor of safer sports turf and playground turf improvement is overwhelming. It may be the best kept secret in the history of man. The victims of this secrecy, the students, continue to suffer pain, disappointment, and broken spirit. School administrators are wrong in assuming these students will speak up for themselves to the degree necessary to achieve the needed expenditure for better and safer sports turf.

Responding to a cry for more fitness areas for urban youth, the Ford Foundation conducted a study in the 1950s. The researchers discovered that children from small towns and rural areas were better coordinated, stronger, and had more endurance than kids from cities and urban areas. The only reason they could identify for the difference was urban children played on limited, often fenced, paved areas.

Believing one option to improve urban youth fitness was an artificial carpet-like surface, the Foundation commissioned Monsanto to develop a product to fit the need.

Gramckow concluded that shear strength of natural grass could be increased to resist excessive tear by shoe cleats and abrasion.

The research leader developed what is known today as Astroturf.

Certainly no one would argue that Astroturf, and other products in its category, are a vast improvement over what existed prior to their development. But, researchers can argue that artificial turf is not equal to natural turf when injury statistics are considered.

According to a study by Dr. James Garrick of Washington State University, 26 teams playing 228 football games had injury rates to players that were 50 percent higher on artificial turf than on grass. A second study by Joe Grippo of the Stanford Research Institute revealed a greater number of major and minor injuries were sustained on synthetic surfaces than on natural ones. When all injuries were considered, ten of the 12 most dangerous fields had artificial turf. Of the 11 least dangerous fields

ten had well-maintained grass surfaces.

A 1978 National Football League safety survey involving 1003 players resulted in 83.8 percent preferring natural grass. When 55 trainers from six major college football conferences were polled 75 percent said that player absorption of heat on artificial turf was detrimental.

The proof to overwhelmingly support the expenditure of public and private funds for improving natural turf is well-documented and is available from the National Sports Turf Council, P.O. Box AA, College Park, MD 20740. Clearly there is no reason to continue to let students suffer the pain of our neglect.

At least two chapters of the Golf Course Superintendents Association of America are providing voluntary consultant services for area sports fields. The same can be offered by other chapters of GCSAA. The National Sports Turf Council, the Sports Turf Managers Association and the Professional Grounds Management Society are anxious to help any school take the initial step toward safer and better sports fields. Only action can make things change. ►

Editor's Note: Dr. Eliot Roberts is secretary of the National Sports Turf Council and the director of The Lawn Institute. He has served on the horticulture faculties of The University of Massachusetts, Iowa State University, The University of Florida, and The University of Rhode Island.

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