

# Safety Of Turf—Natural Or Synthetic

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The startling fact that consumer products each year injure 20 million Americans, permanently disable 110,000, and kill 30,000 more led to the hearings before the subcommittee on Commerce and Finance concerned with bills to protect consumers against unreasonable risk of injury from hazardous products.

The safety of synthetic turf was questioned during these hearings. The hearings have been completed and it seems a good time to summarize the subcommittee findings and discuss synthetic and natural turf.

The first artificial turf sports surface was installed in 1964 on a field-house floor at Moses Brown Prep School in Providence, Rhode Island.

The first synthetic outdoor football surfaces were installed in 1967 on stadium fields at Indiana State University and Seattle Memorial High School. The popularity of the artificial surfaces increased rapidly to the point where 42% of all National Football League games were played on synthetic turf in 1971.

There are now more than 100 football fields in the United States constructed of synthetic turf.

Many cities and schools are considering the installation of synthetic turf.

There is disagreement over the usefulness and safety of synthetic turf.

The subcommittee attempted to shed some light on the question of the safety of synthetic turf.

Mr. Edward R. Garvey, executive director of the National Football League Players Association related the complaints of NFL players to the members of the subcommittee. He noted player complaints of sore knees and ankle joints, increased burns, excessive heat build-up, secondary injury from the bouncing effect, and increased danger of helmets grabbing on synthetic surfaces.

Dr. James G. Garrick, orthopedic surgeon and assistant professor at the University of Washington presented data from locally conducted research that involved 228 games played by 26 high school football teams and 1350 players. This data indicated that in the 1970 football season there were 0.76 injuries per game on synthetic turf and .52 injuries per game on grass.

Dry synthetic turf produced .93 injuries per game compared to .61 injuries per game on wet synthetic turf. Games played on dry grass turf produced .53 injuries per game compared to .50 injuries per game on wet grass.

College level studies by Dr. Garrick further support the contention that dry conditions on either synthetic or natural turf lead to increased injuries

as a result of better traction and harder player-to-player contact.

Dr. Garrick never contended that his research had settled the question, but did indicate that further studies were needed.

A witness testifying in behalf of the synthetic turf industry later criticized the research work of Dr. Garrick, indicating his study method was superficial and his results inconclusive. Considerable data was presented by the synthetic turf industry in defense of the safety of their product. Their survey data generally contradicted the findings of Dr. Garrick.

It was generally agreed that a more extensive study was needed to determine whether synthetic turf is more or less hazardous than natural turf.

There are some important advantages to synthetic turf that must be honestly admitted. The increased wearability does mean that greater use can be made of intensive use areas. Maintenance costs after installation are less with synthetic turf.

Uniform cleaning bills are substantially reduced.

The advantages of natural turf include the fact that they are the most economical play surface available for all types of playing fields. An athletic field installation costs less than 10% of the cost of artificial turf.

Artificial turf cost estimates for a football field

range from \$350,000 to \$400,000.

Natural grass is relatively easy and inexpensive to repair and provides the coolest playing surface available. On a 90° F day it is generally conceded that synthetic turf will be at least 20° F hotter than natural grass.

It appears the survival of synthetic turf for use on athletic fields hinges around four unanswered questions:

1. Is synthetic turf more or less hazardous than natural turf?
2. Does the safety of synthetic turf decrease with age?...
3. How long will synthetic turf last before it must be replaced?
4. Can the installation cost of synthetic turf be reduced?

The investigations brought about by the Consumer Product Safety Act indicate that the answer to the first question will likely not be conclusively determined for 2 to 5 years. The answers to the second and third question must await time and further testing. The current cost of synthetic turf is beyond the reach of the average school athletic budget. Until the above questions are conclusively answered, the future of synthetic turf remains in limbo.

## References

1. Part 1, Consumer Product Safety Act, serial no. 92-59 U.S. Government Printing Office, Washington, D.C. 1972. p298.