

MANAGING TURF TO DECREASE THE SEVERITY OF INJURIES

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Athletic trainers are always trying to find ways to prevent injuries- some of the common ways are by taping ankles, applying knee braces, and by developing special protective equipment. Playing surface is another area we can look at to help prevent injuries.

The areas we deal with are the more obvious- foreign objects on the turf, ruts or holes, uncovered sprinkler heads, or fields that are not well maintained.

In addition to preventing injuries, athletic trainers cover practice and try to observe the injury as it happens. From our observation and the athletes account of the injury we learn the mechanism of injury. Common mechanisms are getting hit by another player, stepping on another players foot, planting and twisting-the foot staying locked in the turf, contact with the playing surface or stepping in a hole.

Since many of these mechanisms relate to the surface the player is playing on, we try to look at ways we may make changes to prevent or decrease the severity of injuries occurring on these surfaces.

The NCAA kept track of injuries, through their NCAA Injury Surveillance System(ISS), to examine prevalence of acute surface- related injuries. The established mechanism of injury categories defined were:player contact, surface contact, apparatus contact and no contact. The surface contact and no contact injuries were classified as directly or indirectly surface related. These surface contact injuries and no contact injuries to the ankle and knee were classified as surface related. The results of the study indicate that between 11 and 35 percent of the injuries sustained were the result of the playing surface. It was felt most of the injuries due to surface contact were minor that they may be able to be prevented by considering the surface hardness. The surface related noncontact injuries may be prevented by evaluating the shoe-surface interface since they were usually due to pivoting around a planted foot.

When looking at surface related injuries, the question arises as to the difference between artificial and natural turf. There have been many research studies done on this area, with the results conflicting. One of the more recent(1992) studies was done by John Powell and Mario Schootman(1). They focused on professional football players who sustained knee sprains, medial collateral(MCL) or Anterior Cruciate Ligament(ACL), during a game over a ten year period. They examined the players position, type of play and whether the injuries occurred on natural grass or artificial turf. When controlled for severity(three or more games missed) Astroturf had a significantly higher rate of injury for linemen on passing plays. This rate though is only six or less knee sprains per season for the whole league. Also ACL sprains were significant for players on Astroturf during special teams play.

A body part that was affected by the change from grass to turf was the great toe. "Turf toe" is a sprain to the first metatarsal phalangeal(MP) joint. It became a more common problem with the advent of artificial turf. Turf toe also occurs on natural grass though not as frequently as on artificial turf. A study by Rodeo, et.al.(2), found that forty five percent of two National Football League(NFL) teams had incurred turf toe during their careers. Eighty three percent reported being injured on artificial turf. Results of a study done by Coker et. al.(3) in the 1970's found that they (the University of Arkansas) had an average of six cases per year over a three year period. The athletes missed ninety two practices and seven games from these injuries. This is significant since during this same time frame, athletes sustained seventy four ankle sprains, but only missed six games. Since this injury was so debilitating, turf manufacturers and shoe companies worked on their respective areas to improve their product to help prevent and/or decrease the severity of these injuries. An unpublished study by Michigan State University found that rate of turf toe injuries was similar to Coker's study, even

though done fifteen years later. The difference was seen in the time loss for the injuries. This was significantly decreased. Thus, turf toe infrequently causes an athlete to miss a game and rarely causes an end to a career because of the changes made in the surface and shoes.

We are fortunate at Michigan State University to have first rate facilities and top notch personnel to take care of our playing surfaces. We continue to evaluate the effect of the playing surface on our injury rates through various research projects. Overall, we cannot make many major changes since we are already using the many techniques on our surfaces to help us decrease the severity of athletic injuries.

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