Injuries are a major concern in all sports. Over 3.5 million children are injured annually competing in athletics, with these injuries costing the public billions of dollars in medical and legal expenses. Considering that studies have shown that 25 to 35% of the injuries suffered by athletes could be associated with the condition of the playing surface, the University of Tennessee has taken a leadership role in research pertaining to the injury potential of natural and synthetic turf surfaces used on sports fields. In 2011, the University opened its $3.5 million dollar Center for Athletic Field Safety at the East Tennessee Research and Education Center-Plant Sciences Unit. The goal of this Center is to compare the performance and safety of various warm- and cool-season turfgrasses to synthetic turf over a 10-year period.

The first step in research pertaining to injury prevention is to have a clear understanding of how injuries occur. We are lucky to have outstanding scientists in biomechanics at UT who study how forces placed on an athlete’s body during motion can lead to injury. However, the instrumentation used in biomechanics research is often only suited for use in laboratory settings which limits its application in studies pertaining to turfgrass management.

We have begun working with our colleagues in the Department of Kinesiology, Recreation, and Sport Studies to bridge that gap. We are working on a new research device called TAFT, the Tennessee Athletic Field Tester (Picture 1). Our goal is to produce a portable field instrument that will simulate the forces generated when an athlete’s foot strikes the ground during various athletic maneuvers (i.e., running, cutting, etc.). No such instrument has been used in turfgrass research to date. The development of TAFT would allow UT to be a pioneer in the arena of sports turf research in that it would represent the first biomechanically validated piece of research equipment used to evaluate natural and synthetic turfgrass surfaces.