



Introduction

Knee injuries are one of the most common injuries occurring to athletes. Within the past two decades, great strides have been made in cause and prevention measures for severe knee injuries. Today, with the help of modern technology and advancements in sport science, athletes can participate in competitive sports with lower risks of severe knee injury.

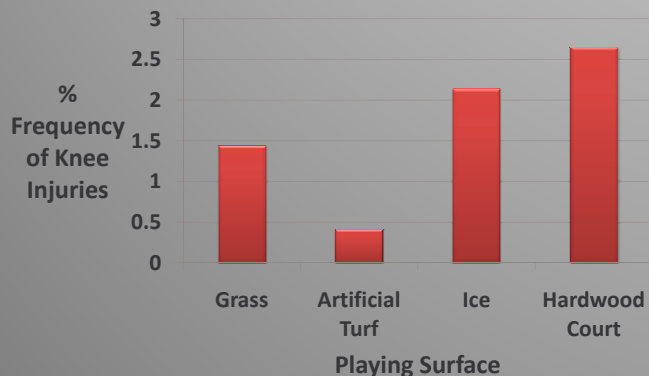
Typical causes of knee injuries can be attributed to a variety of factors which include: equipment (shoes, cleats, etc...), playing surfaces, biomechanical and gait issues, overtraining, lack of musculature (not enough sport specific training), and blunt trauma (contact during activity). University of Wisconsin River Falls (UWRF) athletes, and athletes in general, participating in sports that involve cutting/change of direction movements and physical contact are at the highest risk of severe injuries to the knee.

Purpose

The purpose of this study was to explore the effect of playing surfaces on the amount of severe knee injuries in UWRF athletes. In addition, we compared gender and sport differences in reference to severe knee injuries. This research will ultimately provide valuable information to parents and athletes about the potential risks and likelihood of serious knee injuries involved with playing surfaces, gender, and sport.

(Fig. 1)

Playing Surface VS. % Frequency of Knee Injury



Playing Surfaces and Knee Injuries

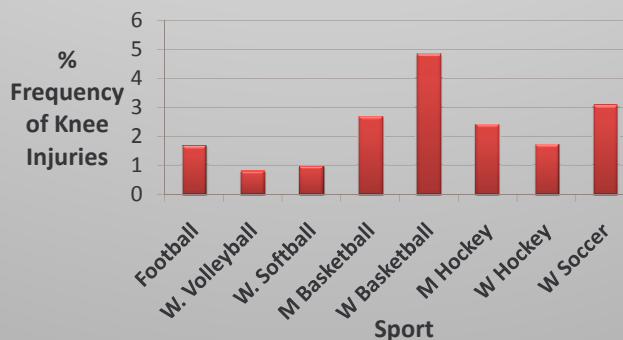
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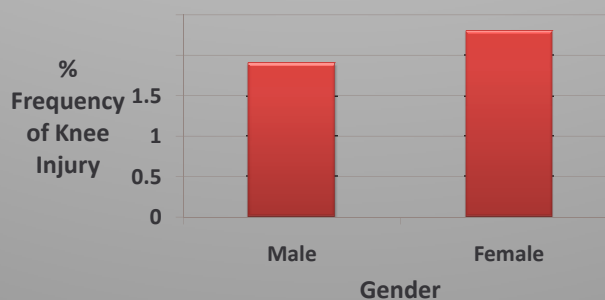
Methods

To gather our data for the number of severe knee injuries at UWRF, we contacted UWRF Head Athletic Trainers Crystal Lanning and Gary Eloranta. With the use of the NCAA Injury Surveillance System and Datalys Injury Surveillance Tool, the trainers were able to record each injury that occurred over the last five years (2004-Winter 2010). We were able to use this secondary data to look specifically at each knee injury that occurred; what surface the athlete was playing on, and which sport they were participating in. Secondary data allowed us to keep all the athletes anonymous. We looked at both male and female collegiate athletes at UWRF participating in football, women's soccer, men's hockey, women's hockey, men's basketball, women's basketball, and women's softball.

(Fig. 2) Sport VS. % Frequency of Knee Injuries



(Fig. 3) Gender VS. % Frequency of Knee Injury



Results

In the comparison of playing surfaces to the percent frequency of severe knee injuries (Fig. 1), from 2004-2010, hardwood courts accounted for the highest frequency of knee injuries at about 2.7%. This was followed by ice with a frequency of 2.1%, grass with a frequency of 1.4%, and artificial turf with a frequency of 0.4%.

In the comparison of sport to percent frequency of severe knee injuries (Fig. 2), from 2004-2010, women's basketball had the highest frequency of knee injuries at about 4.9%. Following women's basketball, women's soccer had a frequency of 3.1%, men's basketball had a frequency of 2.7%, men's hockey had a frequency of 2.4%, football and women's hockey both had frequencies of about 1.7%, women's softball had a frequency of about 1%, and women's volleyball was last with a frequency of about 0.8%

In the comparison of gender to the percent frequency of severe knee injuries (Fig. 3), females represented the highest at a frequency of 2.3%, and males had a frequency of 1.9%. While female athletes had the highest frequency, male athletes accounted for 60% of the total athlete's in the sports compared above.

Conclusion

These results show that hardwood courts, women's basketball, and female athletes in general accounted for the majority of severe knee injuries at UWRF. While collecting the secondary data, we were able to account for many variables; we were not able to account for specific causes of injury. When looking at the comparison of playing surfaces to the percent frequency of severe knee injuries, it is important to recognize that other variables which include: equipment, biomechanical/gait issues, overtraining, lack of musculature (sport specific training), and blunt trauma (direct contact to the knee) could have accounted for some injuries. With that being said, current and prospective UWRF parents and athletes can use the results above to consider the possible risks and likelihood of serious knee injuries occurring when it comes to playing surfaces, gender, and sport.