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Investigating the Factors That Lead to Sports Related Injuries in Children

Kinjal Shah
Rowan University

Shawna Rotoli
Rowan University

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Investigating the Factors That Lead to Sports Related Injuries in Children

Kinjal Shah OMS II¹ and Shawna Rotoli, PhD²
 Rowan-Virtua SOM¹ and Molecular Biology²

Background

- About one out of three childhood injuries happen when playing a sport²
- Approximately three million youth are seen in hospital emergency rooms for sports-related injuries¹
- Another five million youth are seen by their primary care physician or a sports medicine clinic for injuries¹
- Youth athletes have a greater prevalence of sports injuries, mainly musculoskeletal injuries, since they are still developing³

Significance

- It is important to identify which factors correlate with increased injury rate to develop the most effective prevention and treatment methods

Methods

- A 22-question survey using Qualtrics was distributed over multiple platforms with 103 responses recorded
- The criteria of the survey included being 18 years and older, and having experienced a sports-related injury when they were younger
- The survey addressed demographics, amount of strain being put on the youth athlete's body, location of the injury, length of recovery, recovery methods, and if re-injury occurred
- Data was analyzed using a 95% Confidence Interval

Contact Sport- Physical contact between competitors is integral to the sport (ex: soccer, basketball, football)

Non-Contact Sport – Physical contact between competitors is rare or unexpected (ex: tennis, swimming, volleyball)

Results

All the data presented will initially be separated by gender and then analyzed by if the injury occurred during a contact or non-contact sport. Blue bar represents males who played contact sports, orange bar represents males who played non-contact sports, green bar represents females who played contact sports and the yellow bar represents females who played non-contact sports.

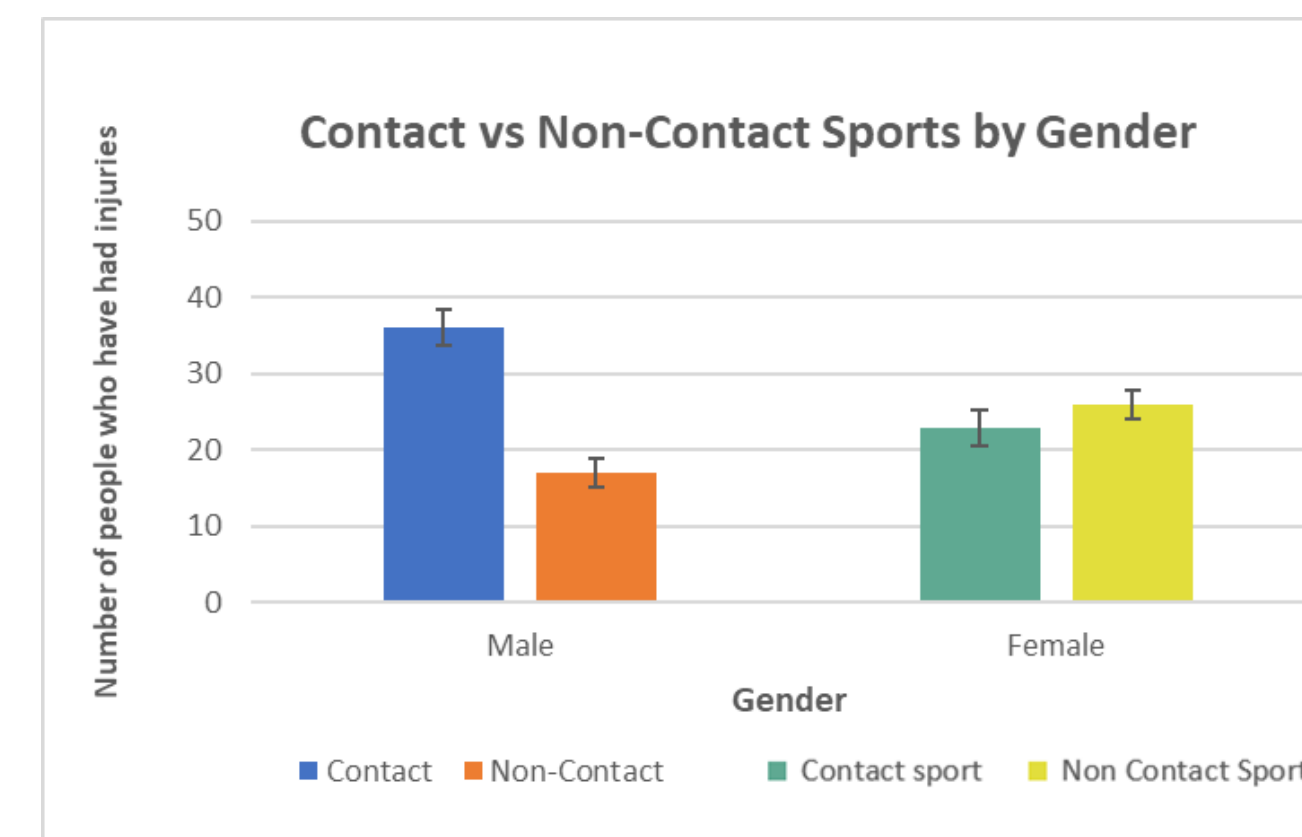


Figure 1: 53 responses were recorded from males with 36 experiencing injuries from contact sports and 17 from non-contact; compared to 49 responses from women with 23 experiencing injuries from contact and 26 from non-contact. Contact sports in both genders were expected to have a higher number of injuries due to direct physical contact between athletes.

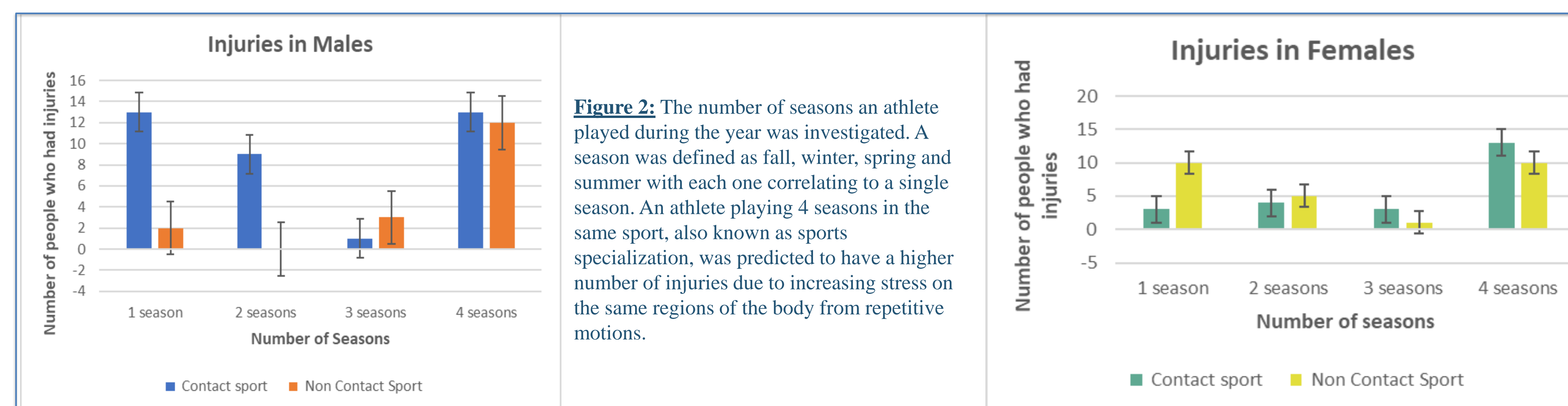


Figure 2: The number of seasons an athlete played during the year was investigated. A season was defined as fall, winter, spring and summer with each one correlating to a single season. An athlete playing 4 seasons in the same sport, also known as sports specialization, was predicted to have a higher number of injuries due to increasing stress on the same regions of the body from repetitive motions.

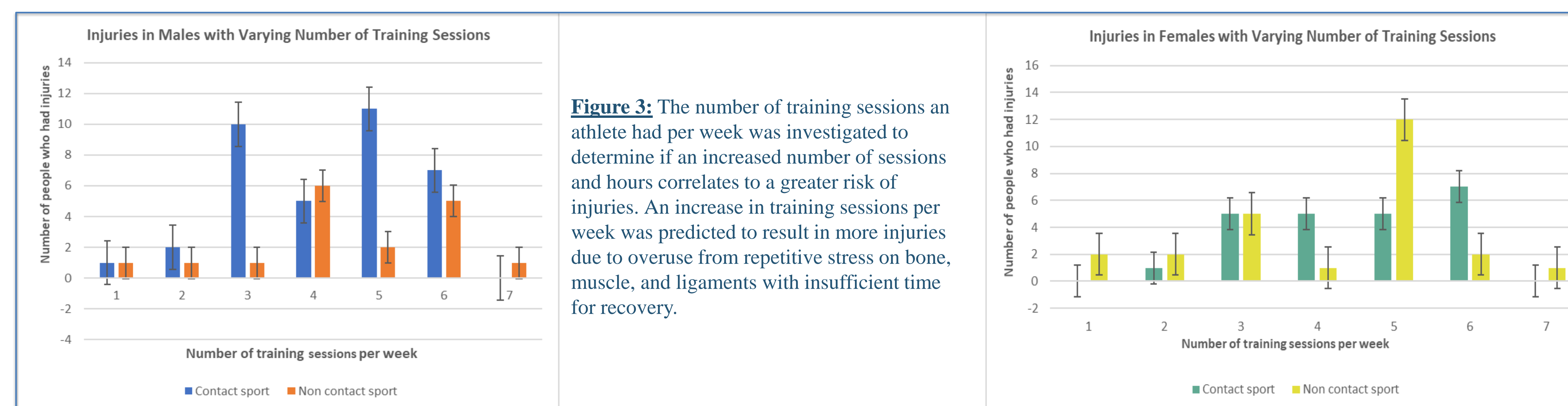


Figure 3: The number of training sessions an athlete had per week was investigated to determine if an increased number of sessions and hours correlates to a greater risk of injuries. An increase in training sessions per week was predicted to result in more injuries due to overuse from repetitive stress on bone, muscle, and ligaments with insufficient time for recovery.

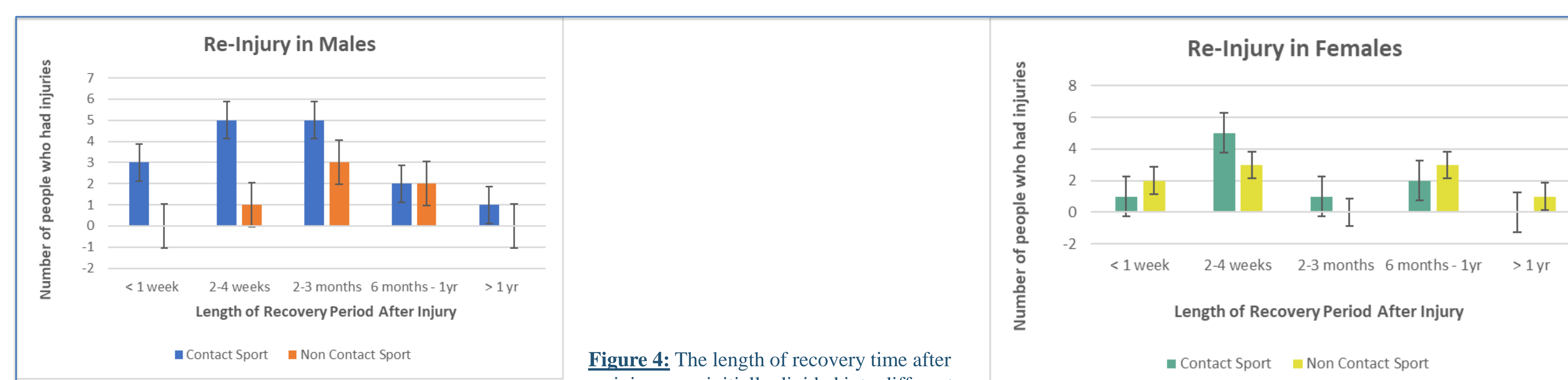


Figure 4: The length of recovery time after an injury was initially divided into different durations of time. After the recovery was complete, whether re-injury occurred was recorded. Youth athletes have a greater prevalence of musculoskeletal injuries than adults since they are still developing; it was predicted that re-injury rates would increase in athletes with shorter recovery periods.



Conclusion

Figure 1

- Males have a significant increase in injuries in contact sports in comparison to females in contact sports
- Females have a significant increase in injuries in non-contact sports in comparison to males in non-contact sports

Figure 2

- Males playing contact and non-contact sports for 4 seasons have a significant increase in injuries compared to 2 and 3 seasons
- Females playing contact sports for 4 seasons have a significant increase in injuries compared to 1,2, and 3 season athletes
- Females playing non-contact sports for 4 seasons have a significant increase in injuries compared to 2 and 3 seasons

Figure 3

- Males playing contact sports for ≥ 3 sessions a week have a significant increase in injuries compared to ≤ 2 sessions
- Males playing non-contact sports for 4 and 6 sessions have a significant increase in injuries compared to ≤ 3 sessions
- Females playing non-contact sports for 5 sessions a week have a significant increase in injuries compared to ≤ 4 sessions
- No significance was observed in females playing contact sports regarding training sessions per week

Figure 4

- Re-injury in males playing contact sports is significantly increased when length of recovery periods was between 2 weeks to 3 months
- Re-injury in females playing contact sports is significantly increased when length of recovery period is between 2-4 weeks

Future Directions

- Create guidelines for training youth athletes to prevent injuries by raising awareness of which factors lead to a significant increase in injuries
- Conduct a study to see if these guidelines lowered the rate of injuries in youth athletes

References

