Pediatric Neck Injuries Associated with Trampoline Use

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Introduction

- Trampolines are popular amongst children; however, trampoline injuries constitute a large portion of emergency department (ED) visits.
- A significant portion of trampoline injuries are neck-related making it an area of serious interest for public health measure - particularly due to their traumatic effects
- Common cervical complications have resulted in sprain/strains, fractures, contusions, and concussions
- The purpose of this study was to determine how often there are neck injuries among kids with trampoline related injuries and to identify the mechanism of injury

Methods

- The National Electronic Injury Surveillance System (NEISS) was queried for trampoline-related cervical injuries from 2012 - 2021
- National estimates from the NEISS database were also included
- Patients 0-19 years old were included
- Demographic information included: age, race, and sex of the patient
- Kruskal-Wallis, Fisher's exact, and Chi-squared tests were used when indicated

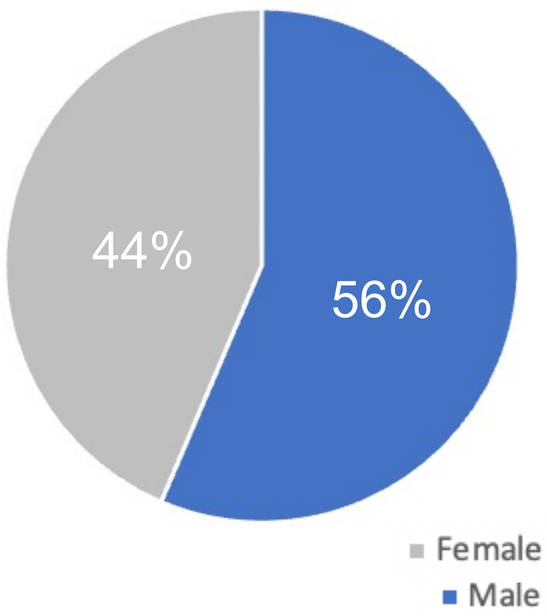
Methods

- Injury types, subsite, and disposition of the patient following emergency department (ED) treatment were recorded

Results

- A total of 33,929 trampoline injuries were queried of which 1,436 (4.2%) were neck-related injuries
- Mean age of children with neck injuries is higher (9.2 ± 3.6 years) compared to children with other injuries (8.0 ± 4.1 years, P<.001)
- Males had a higher proportion of neck injuries compared to all injuries N = 810 (56%) versus females N = 626 (44%) (Figure 1)

Figure 1. Proportion of trampoline-related neck injuries by sex



Results

- Cervical sprain/strain was associated with higher weight in children 30.3 kg ± 32.2 kg (p<.02)
- Children with neck injuries were more likely to be discharged prior to admission compared to other trampoline-related injuries (96% versus 93%, P<.001)

Table 1. Reported cervical diagnoses
***Includes unspecified diagnoses**

Diagnosis	N (%)
Strain/Sprain	971 (68)
Other*	361 (25)
Contusion	39 (2.7)
Internal Injury	25 (1.7)
Fracture	23 (1.6)
Nerve Damage	9 (0.6)
Laceration	4 (0.3)
Concussion	4 (0.3)
	N = 1436

Discussion

- The expansion of recreational trampoline facilities along with the increase in popularity with in-home trampolines has coincided with rising trampoline-related injuries disproportionately affecting children.[1,2]
- Implementation of appropriate policies and safety standards amongst recreational trampolines may help prevent common trampoline-related injuries.[3]
- Closely studying the mechanism of trampoline-related neck injuries can aid providers in the trauma management and risk stratification for each case.

Conclusion

- Neck strains/sprains are the most common type of pediatric trampoline-related neck injuries.
- Older children and males are more likely to have neck injuries while using the trampoline.
- Public health measures should be taken so parents and caretakers are aware of this health hazard.

References

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