

Injury Insight

Trampoline-related emergency room visits

Trampolines were first introduced into the North American market in 1945 as a training tool for acrobats and gymnasts. Taken up as a recreational activity for adolescents and youth, the addition of the trampoline as a competitive sport in the 2010 Olympics has sparked increased popularity.

Inherent risks are present in trampolining, ranging from minor bruises to serious spinal injuries. Challenges to regulate consumer safety standards and to promote safe trampoline practices have been in constant development.

Existing research shows that most trampoline injuries:

- occur in the home setting ^{1,2,3}
- have a seasonal trend: April to September ^{2,3,4,5}
- occur mainly among children aged 7-11 ^{1,2,3,4,5}
- occur among girls just as much as boys ⁴
- result in fractures as the most common injury type ^{1,3,4}

Purpose of this insight

To explore the extent of trampoline-related injuries among children ages 0-17 years old, presenting at the emergency department at the BC Children's Hospital (BCCH), for the period January 1, 2012 to December 31, 2013.

Main findings

- Trampoline-related injuries were higher among males than females in all age groups, except for ages 5-9, where injuries for females were significantly higher than males in the same age group ($p < 0.05$) (Figure 1).
- Yearly seasonal trends are seen, with a peak of 42 trampoline-related ER visits in April to 39 trampoline-related ER visits in August during the years 2012-2013 (Figure 2).
- The ankle, elbow, and head were the leading injured body regions treated. Of all repeated ER visits for trampoline-related injuries, 11% were related to the ankle region.
- The leading trampoline-related injury types were fractures (124 cases), followed by bruises and abrasions (50 cases), and sprain or strain (46 cases).

There were a total of **271** trampoline-related injuries during 2012-2013, accounting for a rate of 14.1 per 1,000 cases treated at BC Children's Hospital emergency department (CHIRRP ⁶ cases)

Figure 1

Number of Trampoline-related ER Visits by Age Group and Sex, BCCH, 2012-2013

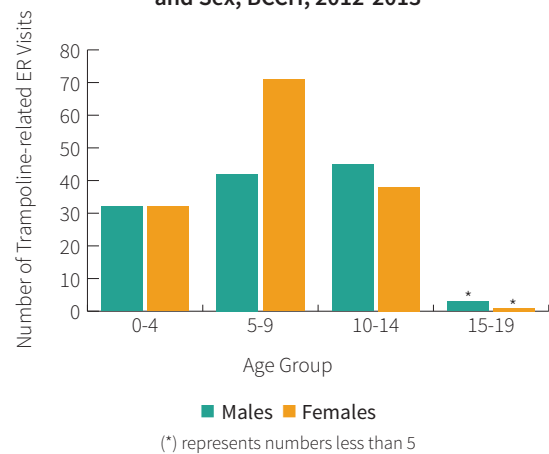
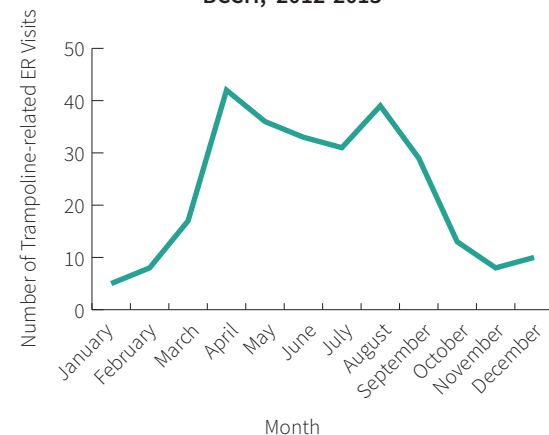
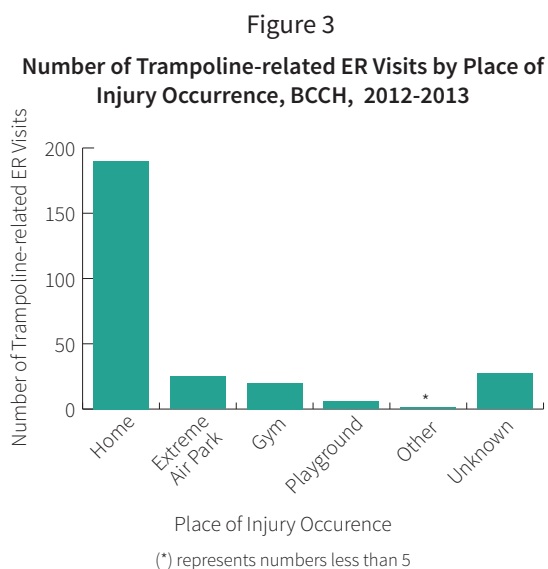


Figure 2

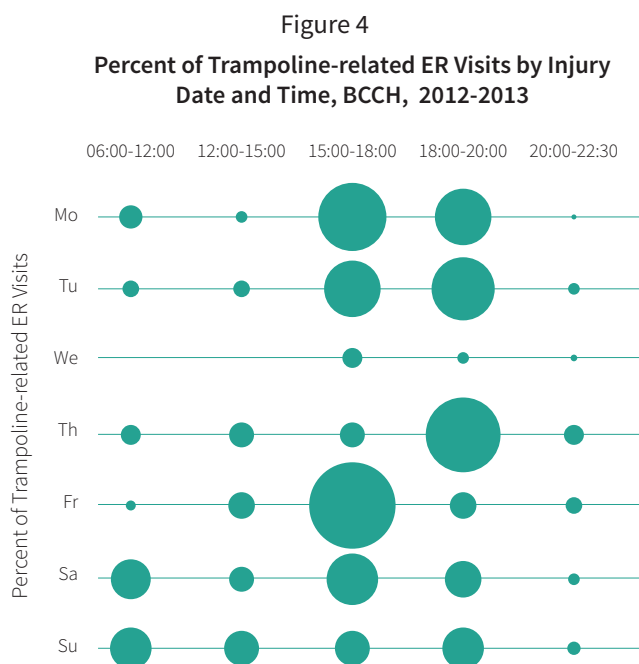
Number of Trampoline-related ER Visits by Month, BCCH, 2012-2013



- Most trampoline-related injuries occur in the home (190 cases), while other cases occur in Extreme Air Park locations (25 cases), in gyms (20 cases) and in playgrounds (6 cases) (Figure 3).



- The day of the week and time of day at which injuries occurred most frequently was on Saturdays and Sundays. A majority of injuries occurred from 15:00-18:00 on all days of the week, except for Thursday, where most injuries occurred from 18:00-20:00 (Figure 4).



Future research

Given the recent popularity of Extreme Air Parks, additional research on all age groups would provide further information on the patterns of injury, which may offer insight to increased prevention.

Evidence-based best practices

Limiting trampoline use to only one child at a time ^{7,8}

- Up to 83% of injuries happened when there was more than one child on the trampoline at a time.⁹

Don't jump onto or off a trampoline ⁷

- Falling on the trampoline mat was a common experience, leading to injuries (55-66%).⁹
- Trampolines should have adequate padding and it should be replaced often due to material deterioration over time.⁸

No flips or somersaults ⁷

- Cervical spine injuries can occur during falls, but more often happen when somersaults fail or flips cause an over extension of the cervical spine. ⁸

Awareness of trampoline safety

- A third to half of all injury cases occur despite reported adult supervision. This may present an opportunity to increase adult knowledge and intervention for risk behavior for trampoline use. ⁸

Conclusion

There is ongoing discussion on the safety of trampolines. There have also been recent innovative improvements to trampoline engineering, which has improved safety.¹⁰ However, the Canadian government and safety organizations continue to discourage trampoline use, particularly backyard use due to high risk of injury. Trampolining as a form of exercise can be beneficial to children and youth when performed with adherence to safety guidelines and best practices, including adequate supervision. Careful health promotion efforts are needed to bring awareness to safe trampoline practices for mitigating these often minor, but potentially serious injuries while promoting activity as part of a healthy lifestyle.

It is important to note that the injuries described do not represent all trampoline-related injuries in British Columbia, but only those children treated at the BC Children's Hospital emergency department, captured by the CHIRPP database.

References:

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