

EFFECTIVENESS OF PADS AND ENCLOSURES AS SAFETY INTERVENTIONS ON CONSUMER TRAMPOLINES

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OVERVIEW OF PRESENTATION

- Background
- Some history
- Methodology
- Results
- Conclusions

BACKGROUND

- ❑ This paper presents updated data that was originally published in Injury Prevention 2010;16:185-189
- ❑ It is well known that trampolines continue to be a major source of childhood injury
- ❑ The purpose of this study was to examine available data on trampoline injuries in order to determine the effectiveness of existing padding and enclosures
- ❑ The data was obtained from US National Electronic Injury Surveillance System (NEISS) online database which is managed by the US Consumer Product Safety Commission (CPSC)

SOME HISTORY

- ❑ The prominent interventions recommended by the ASTM Trampoline Standards Committee F08.17 are netting enclosures to prevent falling off and safety padding to cover frames and springs
- ❑ ASTM F2225-99 safety provision for trampoline enclosures published in 1999
- ❑ ASTM F381-99 safety provision for padding improvements in 1999

SOME HISTORY

- The improvements to these standards included:
 - Prominent warnings advising against somersaulting and multiple jumpers
 - Extended padding to fully cover both frame and springs
 - Specific measures to retain padding and to ensure it survived impacts
 - No access for children under 6 years of age, and the prohibiting of ladders packaged with trampolines, to limit unsupervised access by children under six

SOME HISTORY

- In 2001 patents were granted for enclosures to prevent people fall off trampolines
- Subsequently enclosures began appearing in the market
- In 2003 the ASTM Trampoline Subcommittee published ASTM F2225-03
- Given that padding and enclosure safety interventions were upgraded or begun over 10 years ago the question to be answered is: Are these interventions working?

SOME HISTORY

- Past studies of trampoline injuries have focused on the overall annual rate and type
- This study looked at the relative proportions of specific injuries causes
- It then plotted them over a five year period to ascertain the trend and whether unwanted injury causes were declining eg if enclosures were widespread and stopping children falling off, then over the period 2002 to 2009 a decline would be expected in proportion to the reduction in injuries

METHODOLOGY

- The injuries were allocated into user behavior five cause-categories:
 - Injuries the jumper causes to him or herself, on the trampoline mat (“hurt-myself”)
 - Falling off, on to the ground (“falling-off”)
 - Impact with the Frame or Springs (“frame and springs”)
 - Multiple jumpers on the trampoline at the same time. (“multiple jumpers”)
 - Injuries while getting on or off the trampoline (“getting on and off”)

METHODOLOGY

- These categories were then used for assessing the two safety interventions, namely:
 - Pads should prevent contact with the frame and springs
 - Enclosures should stop people falling-off
- If these interventions were effective the associated injuries would decline

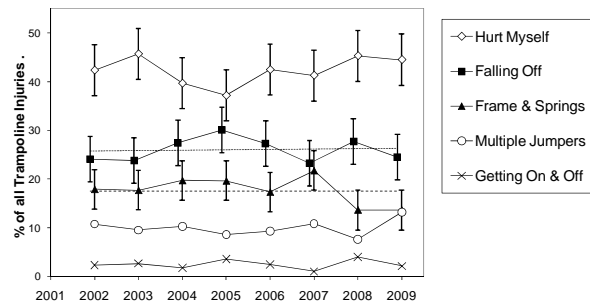
RESULTS

- This study confirmed that there was no evidence for a decline within the injury cause-categories that should be prevented by these interventions from 2002 to 2009
- Instead injuries that should have been prevented by enclosure and padding remain close to half of all trampoline injuries and they are not declining
- The results in Figures 1 and 2 show that **falling-off** and **frame and springs** cause-categories together account for 46% of injuries, and since 2002 there has been little or no change to the proportion of injuries that safety pads and enclosures are designed to reduce

RESULTS

Figure 1

Relative proportions of the five injury cause-categories with time



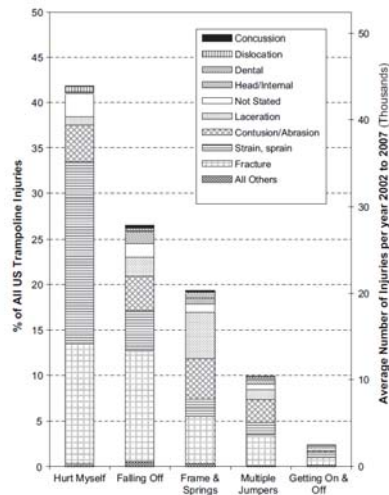
RESULTS

- ❑ A paper Furnival *et al.* [Pediatrics 1999;103(5):57] covering the period 1990 to 1997, before enclosures were introduced, reports that 28% of injuries were caused by **falling-off**, and fractures were more frequently associated with **falling-off** than with other causes
- ❑ The results from the present study are substantively the same: 27% of injuries caused by **falling-off** with almost the largest share of fractures
- ❑ This suggests that for **falling-off** injuries there has been no measurable change since the 1990's

RESULTS

Figure 2

Analysis of the NEISS data from 2002 to 2007, in cause-categories



Injury Prevention 2010; 16:185-189. Doi:10.1136/ip.2009.025494

CONCLUSIONS

- If the trampoline enclosure and padding interventions were effective the associated injury causes would be in decline
- Instead they remain close to half of all trampoline injuries with no significant change over the period of the study
- This paper shows that in spite of additional safety interventions on consumer trampolines initiated in 1997 and required by the standards in 1999, the expected reductions in the relevant injury categories have not materialized

CONCLUSIONS

- ❑ The primary conclusion of this study is that around 27% of injuries are the result of children falling off, and 19% are still from impacts with frames and springs
- ❑ Given the potential benefits, it is strongly recommended that steps are taken to ensure these safety interventions, or their equivalents, are in place, work properly and remain effective for the life of consumer trampolines
- ❑ Soft-edged trampolines such as the SpringFree that have totally eliminated the need for impact attenuating padding should be encouraged by consumer bodies around the world



CONCLUSIONS

- ❑ Trampolines can be dangerous toys and our children need to be protected from exposure to dangerous toys
- ❑ It is recommended that Governments mandate trampoline padding and enclosures for all domestic trampolines
- ❑ Australia will lead the world when the ACCC passes legislation in 2012 mandating minimum safety requirements for domestic trampolines sold into the Australian market

SPOT THE DIFFERENCES



VS



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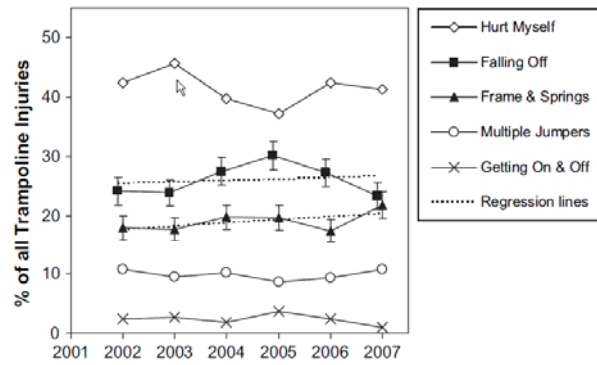
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RESULTS

Figure 1

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