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Research Article

Skateboarding-related Injuries Among Males 35-55 Years Old in the US

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Abstract

Skateboarding is a popular activity among teenagers and young adults. However, the activity has been increasing in popularity among older adults the past 10 years. Injuries from skateboarding among older males have not been reported in the literature. The purpose of this study was to review emergency room reports documented in the National Electronic Injury Surveillance System for skateboarding injuries among males 35-55 from 2000-2009. An estimated total of 29,450 reports were documents in NEISS. A majority of the injuries occurred to males 35-40 (55%), who were white (72%). The most common locations for the injury were the home, street, and place of recreation. The most common body regions injured were the hand, arm, and upper trunk.

The head region was noted in 15% of reports. The most common diagnoses were fractures (40%) and soft tissue injuries (36%). Results noted that fractures are a concern for this age group as well as the number of injuries affecting the head region. While it is not known the skateboarding skill level of the injured, older participants should receive proper education and training before participating in an activity that has a high potential for injury. As the rate for participation in skateboarding increases for older adults, so should the concern for serious injury. Retail stores specializing in skateboards should consider offering trainings and advice on the activity for enthusiasts who lack sufficient skateboarding skills.

Introduction

Skateboarding remains a popular activity among youth, especially males in the US. In the US approximately 10% of children 7-17 years old have participated in the activity in 2010 [1]. However, participation is down 49% among 7-11 year old and 32% among those aged 12-17. Traditionally, skateboarding has been an activity primarily for youths with few participants older than 30. However, the National Sporting Goods Association reports an increase in skateboarding activity among US adults 45 -54 years of age of 232% over the same 10-year period [1]. While there is no clear indication the reasons for the increase, it could be related to the popularity of the activity among younger participants and those participants seeking to continue skateboarding at an older age.

Injury rates for skateboarding among younger populations have been reported [2-9]. The rate for skateboarding-related injuries has been constant at 15% of users. Population data on Skateboarding-related injuries among older populations has not been reported. The purpose of this investigation is to consider the epidemiology of skateboarding-related injuries by noting the types of injuries and potential causes of injuries to older males participating in skateboarding. Due to the increase in participation over the past several years, it is also a purpose to examine injury rates.

Methods

Data with a product code of 1333 (skateboards) was obtained from the National Electronic Surveillance System (NEISS) for years 2000-2009. Analysis of data will focus on males between the ages of 35 and 55 years of age. Injuries were initially treated at a hospital (ED that was participating in the NEISS). Information extracted by NEISS includes the product or products related to the injury; descriptions of the injury, which includes primary diagnosis, causes of injuries and type of exercise

involved, anatomical location, the severity of the injury, descriptions of the ED visit, disposition; including hospitalization. General demographic characteristics of the injured person, and a brief comment/narrative of the injury incident were also reviewed.

The location of the injury was also analyzed. The locations listed in the NEISS database include home, ranch, street or highway, other public property, mobile home, industrial place, school, place of recreation or sports, or not recorded. The narratives for all records reported for this study were reviewed and two additional variables were created to indicate the possible contributor of the injury and the type of exercise equipment involved. These variables were not extracted from the NEISS database but developed by the researcher from the narrative of the NEISS database. Information on fatalities was obtained from the NEISS death certificate database for the same period.

Anatomical location of injury was categorized into seven different body regions: the head, upper trunk, lower trunk, hand, foot, arm, and leg. The head region consisted of the head, eyes, ears, forehead, face, mouth, and neck. The upper trunk consisted of the shoulder and upper trunk. The lower trunk consisted of the lower trunk and pubic region. The hand included the wrist and fingers. The foot included the ankle and toes. The arms included the upper and lower arms. The legs consisted of the upper and lower legs and the knees.

The injury diagnosis was also categorized into groups for this study except for amputations, which were not categorized due to the seriousness of the diagnosis. Soft tissue injuries included the NEISS categories of contusions, abrasions, hematomas, and strains or sprains. Lacerations included lacerations, punctures, and avulsions.

Fractures, dislocations, and crushing injuries were combined for analysis. Concussions and internal organ injury were combined due to the serious nature of those injuries. The 'other injury' category included, dental injuries, foreign bodies, nerve damage, burns, dermatitis or conjunctivitis, and other injuries. From a sample of 100 records of the comment/narrative section of the NEISS, we obtained information concerning possible contributors towards injury and the specific types of exercise involved in the injury. From the data it was not possible to determine if the injury was from overuse or overtraining.

NEISS receives and collects data reports from a probability sample of hospital emergency departments in the United States and uses the information to estimate national patterns of product-related injuries [10-12] Some of the emergency departments are located in children's hospitals. Each emergency department participating in NEISS carries a statistical weight that determines how it represents all US emergency departments. We used the NEISS data and weightings to calculate injury estimates.

Calculation of a 95% confidence interval (CI) for the estimated number of injuries was based on the generalized estimated sampling error for NEISS data provided by the CPSC [10].Sampling errors for estimates below 1,200 injuries were not calculated. US Census estimates for 1994–2001 were used to calculate injury incidence rates [11]. To account for the change in the NEISS sampling frame in 1999, the weights were adjusted by computed ratio adjustments developed by the CPSC [12].

Results

An estimated total of 29,450 injuries were obtained from NEISS for skateboarding injuries among males 35-55 years of age. A majority were white (72%) and aged 35-40 (55%). Approximately 5% of reports were from males over 50. The most common locations for the injury were the home (23%, place of recreation (20%), and the street (19.5%). Most subjects were treated and release without hospitalization (90%). There were a small percentage of injured that required hospitalization (3.5%).

Three fourths of the injuries were either dislocations or soft tissue injuries (Table 1). The fractures, dislocations, and avulsions accounted for 40% of the reports followed by soft tissue injuries with 36%. Lacerations were noted in 10% of the results. Concussions and amputations were rare among the diagnoses. Five body regions were mainly affected by the injuries (Table 2). The more common locations were the hand regions, arm, and upper trunk. The head was noted in 15% of the reports.

Table 1: Estimated injuries related to skateboarding.

	N	%
Fracture/dislocation/crushing	11744	40%
Soft Tissue*	10801	36.70%
Lacerations/avulsion/puncture	3141	10.70%
Other†	2193	7.40%
Internal Organ Injury	1172	4%
Concussion	349	1.20%
Amputation	50	>.2%

* Soft Tissue includes contusion, abrasions, hematomas, strains, and sprains.
† Other includes dental injuries, foreign body, nerve damage, burns, dermatitis or conjunctivitis, other injury and not stated.

Table 2: Body Part Involved in Injury.

	N	%
Hand/Wrist/Finger	4936	16.80%
Arm/Elbow	4762	16.20%
Upper Trunk/Shoulder	4783	16.20%
Ankle/Foot/Toe	4522	15.60%
Head/Neck Region	4504	15.30%
Lower Trunk/Pubic Region	1794	6.10%
Leg/Knee	2637	9%
Other/not stated	1512	5%

Conclusions

This study notes that while injuries from skateboarding among adult males are mostly minor, there are a few areas of concern. Foremost, the number of fractures associated with this age group is noteworthy. Moreover, as compared with studies on younger adults [4], the number of fractures is higher among the adults in this study. It is common knowledge that as we age, our bones become less flexible and more at risk for fracture. While costs associated with these injuries are beyond the scope of this study, fractures among this age group could be burdensome with respect to treatment, time lost from work, and rehabilitation.

Although the number of concussions was low, the head region was involved in several reports. One study has suggested the benefit of

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wearing helmets while skateboarding [5]. While we could not determine the skill, level involved among the injured in this study, it is probable that the injured males represent a group who may be unskilled and attempting skateboarding activity because of their child's interest.

As such, parents of young children may be a target audience for prevention of injuries that are typically associated with childhood activities, notably skateboarding, bicycling, and sports-related injuries. Further research efforts are needed to examine this population with respect to injuries more commonly affiliated with children.

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