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 29,460 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.

<table>
<thead>
<tr>
<th>Injury Description</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fracture/dislocation/crushing</td>
<td>11744</td>
<td>40%</td>
</tr>
<tr>
<td>Soft Tissue*</td>
<td>10801</td>
<td>36.70%</td>
</tr>
<tr>
<td>Lacerations/avulsion/puncture</td>
<td>3141</td>
<td>10.70%</td>
</tr>
<tr>
<td>Other†</td>
<td>2193</td>
<td>7.40%</td>
</tr>
<tr>
<td>Internal Organ Injury</td>
<td>1172</td>
<td>4%</td>
</tr>
<tr>
<td>Concussion</td>
<td>349</td>
<td>1.20%</td>
</tr>
<tr>
<td>Amputation</td>
<td>50</td>
<td>&gt;.2%</td>
</tr>
</tbody>
</table>

* 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.

<table>
<thead>
<tr>
<th>Body Part</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand/Wrist/Finger</td>
<td>4936</td>
<td>16.80%</td>
</tr>
<tr>
<td>Arm/Elbow</td>
<td>4762</td>
<td>16.20%</td>
</tr>
<tr>
<td>Upper Trunk/Shoulder</td>
<td>4783</td>
<td>16.20%</td>
</tr>
<tr>
<td>Ankle/Foot/Toe</td>
<td>4522</td>
<td>15.60%</td>
</tr>
<tr>
<td>Head/Neck Region</td>
<td>4504</td>
<td>15.30%</td>
</tr>
<tr>
<td>Lower Trunk/Public Region</td>
<td>1794</td>
<td>6.10%</td>
</tr>
<tr>
<td>Leg/Knee</td>
<td>2637</td>
<td>9%</td>
</tr>
<tr>
<td>Other/not stated</td>
<td>1512</td>
<td>5%</td>
</tr>
</tbody>
</table>

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

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.

References