



# Injuries in Estonia 2017



**Tervise Arengu Instituut**  
National Institute for Health Development

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# **Injuries in Estonia 2017**

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When using the data in this publication, reference to the source.

Recommended reference of this publication: Panov, L. Injuries in Estonia 2017. Tallinn: National Institute for Health Development; 2018.

# Contents

Definitions.....	2
Introduction.....	3
1. Injury deaths.....	4
2. Injuries.....	6
2.1 Overview.....	6
2.2 Injuries in children.....	10
2.3 Injuries in adults.....	11
References.....	13

## Definitions

**A superficial injury** – an abrasion, a blister, a contusion, a bruise, an insect bite, an injury with a superficial foreign matter without an open wound [1].

**An adult** – in terms of health statistics, an adult is considered to be a person of the age 15 and older.

**An injury** – bodily damage caused by external factors. This includes injuries, intoxications and other consequences of external causes. Classified based on chapter XIX of the ICD-10.

**Child** – in terms of health statistics, a child is considered a person between the age of 0 to 14.

**Direct medical expenditures** – the expenses made on treatment based on the medical invoices submitted by health care providers to the Estonian Health Insurance Fund. This includes medical invoices submitted for outpatient and inpatient treatment, day treatment, rehabilitative care, nursing care and dental treatment.

**Exposure to animate mechanical forces** – contact with humans, animals, nonvenomous insects, and plants.

**Exposure to inanimate mechanical forces** – exposure to nonliving objects and other mechanical forces. This includes bumping or knocking oneself, getting hit by something, bruising, contact with sharp objects and tools, a foreign object penetrating the skin, eye, etc., as well as the effect of a gunshot and explosion.

**External cause** – external factors, incidents and situations having caused an injury or intoxication. Classified based on chapter XX of the ICD-10.

**Home** – living rooms and adjacent buildings including the yard, excluding living facilities.

**ICD-10** – the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (<http://apps.who.int/classifications/icd10/browse/2016/en>).

**Injury case** – an injury registered by a doctor. If the patient has endured several types of injuries or injuries in several areas of the body, they shall be considered to be one injury case based on the main injury, i.e. main diagnosis.

**Main diagnosis** – the main reason for patient treatment. Encoded based on ICD-10.

**Medical need** – in this report, all injuries which resulted in turning to a health care provider were regarded as injuries needing medical treatment. This includes outpatient, inpatient and day treatment as well as rehabilitative care, dental treatment and nursing care.

**Transport accident** – an accident, traffic-related or non-traffic related, in which a vehicle is involved [1].

**Unintentional injury** – unintentionally sustained injury, i.e. caused by an accident.

## Introduction

The National Institute for Health Development continues to publish reports on injuries and the causes of injuries of Estonian inhabitants. This publication is based on the same methodology as the previous analysis describing the data of 2016. The injury statistics is based on medical invoices submitted by health care providers to the Estonian Health Insurance Fund in 2017. The data regarding injury deaths originates from the Estonian Causes of Death Registry.

The analysis is divided into two parts: injury deaths and injuries. The focus is on the most common causes of injuries. The injuries of children and adults, including the difference between women and men, are viewed separately. The expenditures made by the Estonian Health Insurance Fund for treating injuries are showed by causes of injuries.

Compared to the previous year, both injury deaths as well as morbidity have dropped somewhat. However, there is still a significant gap between men and women: men tend to have considerably more injuries than women. The gap is especially wide in injury deaths.

More detailed statistics has been published in the injuries section of the health statistics and health research database<sup>1</sup>.

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<sup>1</sup> Health Statistics and Health Research Database: [http://pxweb.tai.ee/PXWeb2015/index\\_en.html](http://pxweb.tai.ee/PXWeb2015/index_en.html)

# 1. Injury deaths

- ✓ The main causes of injury deaths are **alcohol and narcotic intoxication, and suicide**
- ✓ **Almost four times** more men than women died due to injuries
- ✓ Every fifth death of **working age men** was due to injuries

849 Estonian inhabitants died due to injuries in 2017 (64,5 people per 100 000 inhabitants). The number of fatalities included seven children (up to 14 years).

Compared to the high mortality rate 23 years ago in Estonia, the number of injury deaths has decreased by four times (figure 1). The fatalities, both in men and women, decreases annually by an average of 5%. The difference between deaths in men and women has remained the same throughout the years: taking into account the population, four times more men than women die due to injuries.

148 young people aged 15–34 lost their lives due to injuries in 2017. In this age group, injuries comprised 62% of all causes of death.

In the European Union, 47 people per 100 000 inhabitants died due to injuries in 2015 [2]. There are more injury deaths in men than women, but the gender gap is two times smaller than in Estonia.

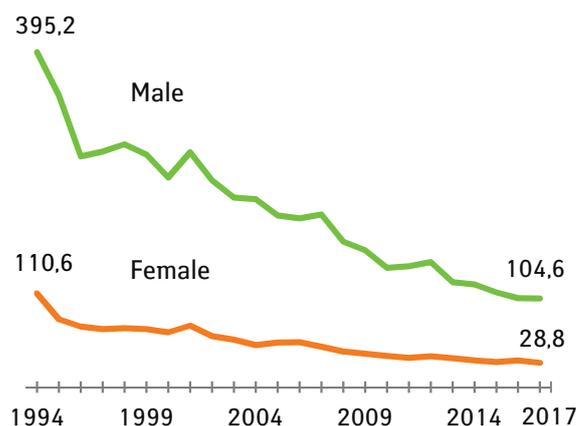


Figure 1. Injury deaths per 100 000 inhabitants, 1994–2017

648 men died due to injuries in 2017 (figure 2). Compared to the previous year, the number of fatalities remained the same. Three quarters of the death cases were between 15–64 of age, meaning that a fifth of the deaths in working age men in Estonia were injury-related. Four boys up to 14 years of age died, which is the smallest number of injury deaths in boys in the last two decades.

The most common cause of injury death in men was intoxication. Death by suicide was almost as common. These two causes resulted in half of the deaths in men.

A third of the deaths were violent – suicide or death as a result of an attack.

The specific cause of death remained unknown in 36 cases. In two thirds of these cases it remained unclear whether it was an accident or a deliberate act.

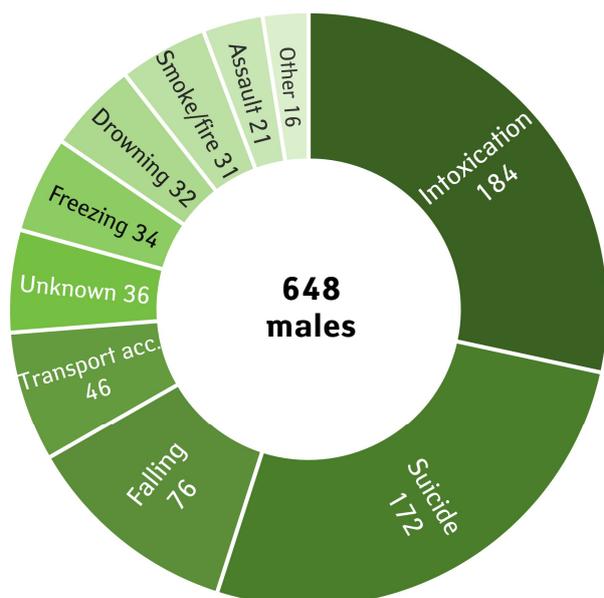


Figure 2. Injury deaths in male by cause of death, 2017

201 women died of injuries in 2017, which is 10% less than that of the previous year. Injury deaths in women increase with age – nearly half of the female fatalities were over 65. Just like last year, deaths of three girls of up to 14 years of age occurred.

The most deaths in women were suicide-related. The second most common cause of death were intoxications. Similarly to men, women also died due to these two reasons in half of the cases.

One third of deaths in women were also violent. The specific cause of death remained unclear in seven cases i.e. a little less than in the case of men.

### Suicides

The number of suicides has decreased from year to year, but at a far slower pace than the number of other injury deaths. Thus, the relative importance of suicides has increased, representing nearly a third of injury deaths in men and women.

Men committed suicide nearly four times more often than women, being, on average, slightly younger than women. The median age of men was between 50–54 years and 60–64 in women. Three men and three women under 20-year-old, including one girl under the age of 15, committed suicide.

### Intoxications

Intoxications resulting in death were mainly alcohol and narcotic intoxication. The number of deaths due to intoxication from other substances (medication, gas, chemicals) was five in men and two in women.

More men died of narcotic intoxication (53% of all intoxication cases) and women of alcohol intoxication (56%).

Mostly men 50–69 years old (70%) and women 45–64 years old (67%) died of alcohol intoxication.

Mainly 25–44-year-old men died of narcotic intoxication (86%). Deceased women were, on average, slightly younger. Among them were two 15–19-year-old girls.

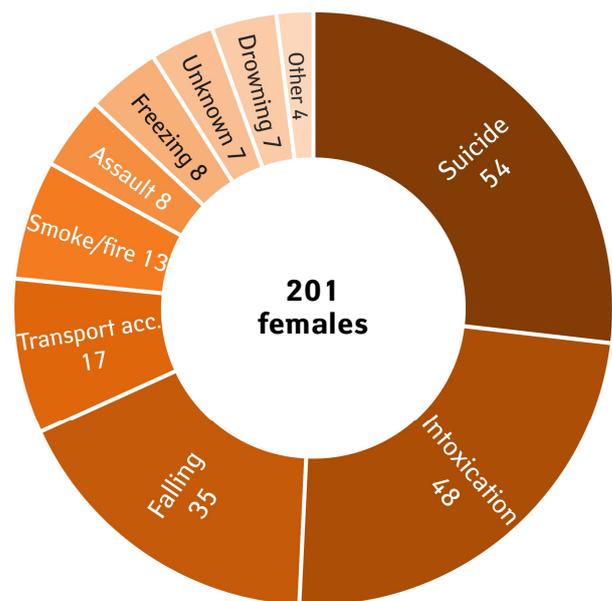


Figure 3. Injury deaths in female by cause of death, 2017

### Falls

Falling was the cause of injury death in 13% of the cases. 111 people died as a result of falling, men 2.5 times more often than women.

In a third of the cases, death resulted after falling from the stairs, from a building or from a higher level. Most of these accidents happened to men. In a fifth of the cases, the cause of the fall was slipping or tripping. The circumstances of falls were unspecified in three quarters of all cases.

Most of the female victims were over 65, half of the men were over 60. 70% of the falls occurred at home. Three people died while performing their work duties [3].

### Freezing to death

The number of deaths by freezing has decreased in years, however 42 people froze to death in 2017. Most of the death cases were in men. Most of them were younger than 65. All women were over 50. Half of the people frozen to death had consumed alcohol [Estonian Forensic Science Institute, unpublished data].

## 2. Injuries

### 2.1 Overview

- ✓ **12% of Estonian inhabitants** needed treatment due to injuries
- ✓ In nearly **half** of the cases, injuries occurred at **home**
- ✓ The expenditures of the public sector on injuries and injury-related complications exceeded **€56 million**
- ✓ **Hospital care** was required in **6%** of the cases, but the cost of the treatment accounted for **67%** of treatment expenditures

12% of Estonian inhabitants i.e. over 156 000 people needed treatment due to injuries in 2017. The number has decreased by 1500 people, compared to the previous year.

Men sustained injuries more often than women – 14 men and 10 women per 100 inhabitants. With age, people tend to get hurt less (figure 4). Since injuries increase in old age (85+), then in total, the number of injuries sustained by over 65-year-old men and women is the same.

Treatment was needed in nearly 179 000 injury cases. This makes 1.1 cases per injured person i.e. the same as in 2016.

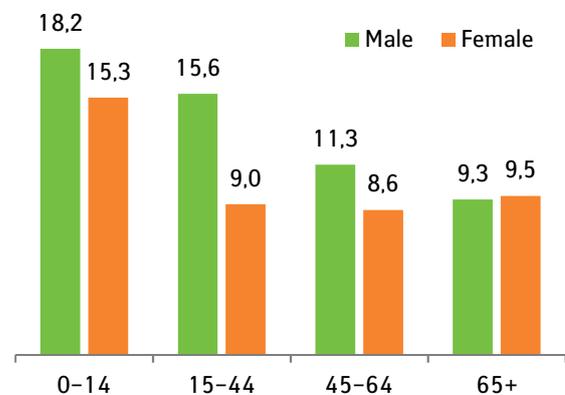


Figure 4. People needing treatment due to injuries per 100 inhabitants by age group, 2017

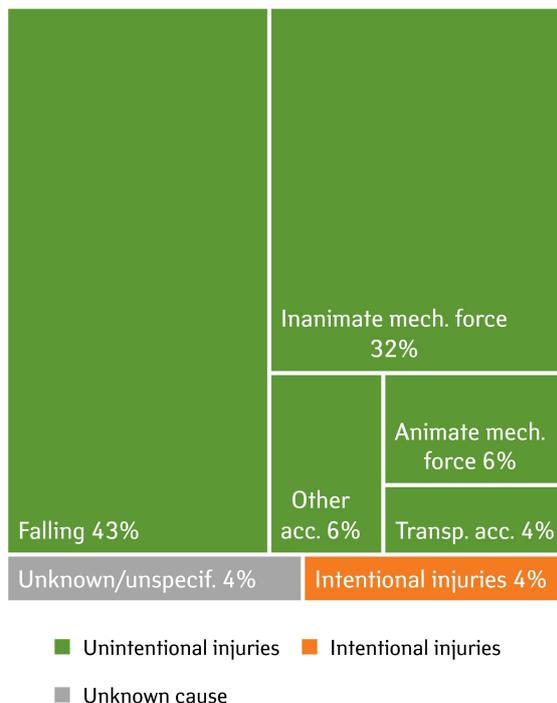


Figure 5. Injury cases based on external cause, 2017

Most of the injuries were a result of an accident. The proportion of deliberate injuries as well as injuries with an unknown or unspecified cause was 4%.

Nearly half of injuries were sustained due to falling (figure 5). A majority of falls occurred on the same level. In a fifth of the cases, falls occurred from higher levels such as from stairs, ladder, buildings, and in the case of children – from furniture and on playgrounds.

In a third of the cases, injuries were sustained by inanimate mechanical forces (see definitions), bumping or knocking oneself, getting hit by something or a foreign object in the eye.

Cases of collisions with people and animals (animate mechanical forces) were almost equal.

Other unintentional injuries include overstraining (47%), burns (21%), exposure to poisonous insects etc. (14%), intoxication (8%), choking, etc.

In nearly half of the cases, injuries occurred at home (figure 6). Most of the injuries sustained at home were caused by falling (39%) or inanimate mechanical forces (43%).

Most of the burns and intoxications – nearly 70% – and half of injuries caused by inanimate mechanical forces happened at home. One quarter of attacks were also committed at home.

40% of falls happened at home, other falling-related injuries were sustained on street, at school, sports fields and other places. In over one tenth of the falls, the place where the injury was sustained is unknown.

Mostly children under the age of five sustained injuries at home – three quarters of all their injuries. Older people who also spend more time at home sustained injuries there in half of the cases.

Other locations are considered sports fields (23%), schools and other public buildings (21%), living facilities (9%) etc.

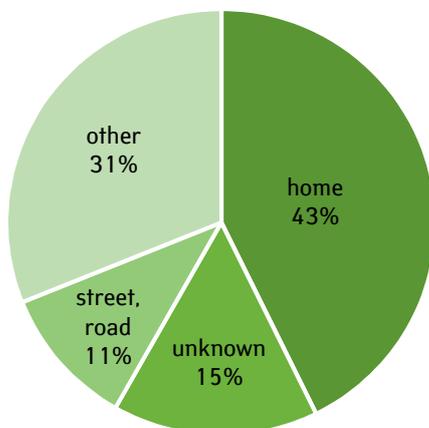


Figure 6. Injury cases based on the place where injury was sustained, 2017

### Serious injuries

More serious injuries requiring hospital care occurred in nearly 11 000 times i.e. in 6% of all cases. Men needed hospital care more often than women (9.3 cases per 1000 men and 7.1 cases per 1000 women).

The need for hospital care increases significantly with age (figure 7). The proportion of people needing hospital care is especially

high in over 85-year-olds, reaching a third in women.

The most cases needing hospital care were caused by falling (62% of cases needing hospital care). When hospital care was needed in nearly a tenth of the cases caused by falling, then in over 85-year-old people, hospital care was needed in a third of cases.

The elderly need more hospital care as they sustain fractures more often as a result of falling: nearly half of falling cases in over 65-year-old women resulted in fractures. For older people, recovery from injuries is more difficult.

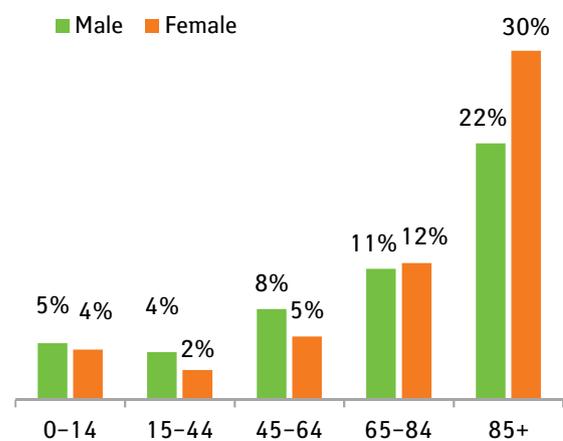


Figure 7. The proportion of injuries needing hospital care by gender and age group, 2017.

Due to injuries, an initial disability was determined in 1239 people, including 649 men and 590 women [Estonian National Social Insurance Board, unpublished data]. Nearly half of men and a fifth of women were of working age.

### Medical expenditures

The public sector expenditures on treating injuries and injury related conditions in Estonian inhabitants in 2017 exceeded €56 million. Direct medical expenditures on injuries totalled €34.8 million. This includes €2 million worth of health services for people without health insurance.

€6.1 million was spent on treating injury complications, sequelae, etc.

In addition to medical expenses, the Health Insurance Fund also paid out sickness benefits to cover injury-related absences amounting to

€10.6 million (34 000 sick leave certificates), care allowances amounting to €426 000, and benefits for accidents at work amounting to €4.1 million [Estonian Health Insurance Fund, unpublished data].

Direct public expenditures covered also feature ambulance expenses, medical equipment and benefits for medicinal products not specified in this report.

An additional €213 000 were spent on treating injuries of foreign nationals.

Although the number of injury cases and the number of injured people is smaller than in the previous year, the direct expenditures made on injuries has increased by 2%. The expenditures have increased due to the rise in prices.

Expenses on the treatment of injuries sustained for different reasons are not proportionate to the number of injuries. For example, treatment was needed due to falling in 43% of the cases (figure 8). However, the proportion of treatment expenditures regarding fall-related consequences was significantly higher – 59%.

reasons do not typically have serious consequences and thus, expenses are smaller.

Men and women needed treatment due to falling almost equally, but the medical expenditures made on treating injuries in women were significantly higher. The medical expenditures of women increase drastically with age (figure 9). The number of falls in elderly was the same as in middle-aged women, but the medical expenses spent on treating the injuries were twice as big.

The biggest expenses were made on injuries requiring hospital care. The share of expenditures in these cases is disproportionately large – 67% of the cost of health services i.e. €23.1 million was spent on 6% of injury cases.

The medical expenditures for treating falling-related injuries, especially in older people, is high due to the need for hospital care. Three quarters of the medical expenses for treating fall-related injuries was spent on only on a tenth of cases of falling that needing hospital treatment.

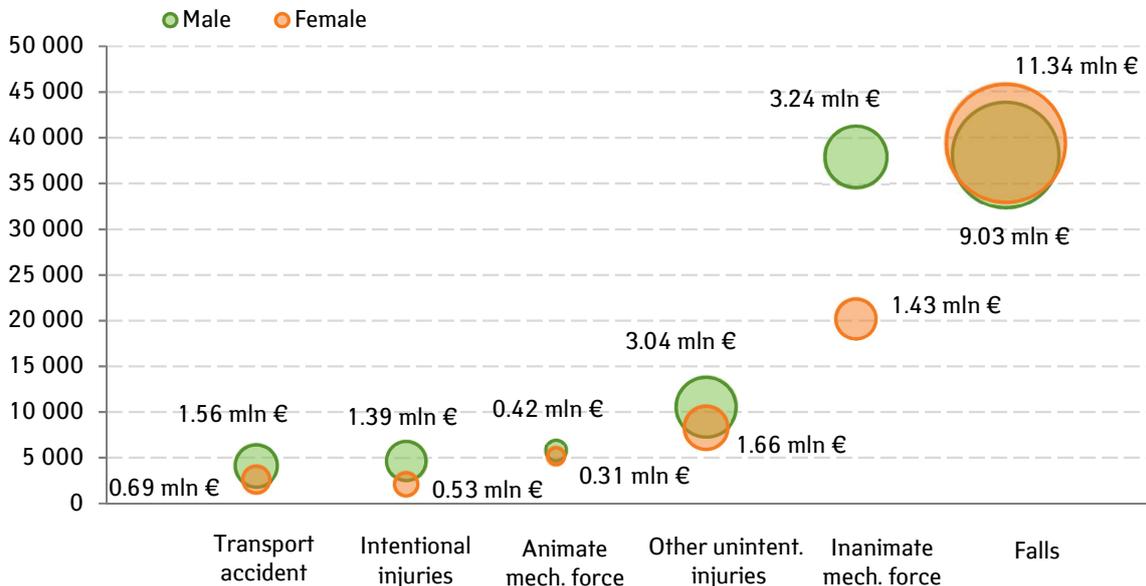


Figure 8. Injury cases and direct treatment expenditures for injuries by external cause and gender, 2017

Injuries sustained by inanimate mechanical forces were in second place (32%), although the cost of the treatment was significantly smaller – 13% of all injury medical treatment expenditures. Injuries sustained due to these

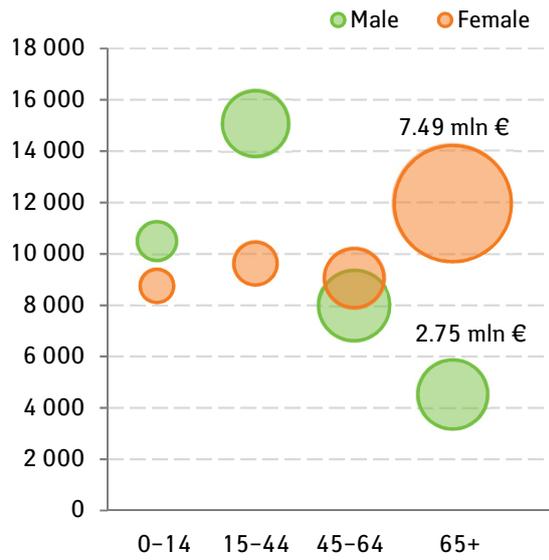


Figure 9. Injury cases due to falling and their direct treatment expenditures by gender and age group, 2017

## 2.2 Injuries in children

- ✓ Every **sixth child** needed treatment due to injuries
- ✓ **Children under the age of one** sustain most injuries **falling** from a **higher level**
- ✓ Older children have accidents in **school and** on the **sports field** as often as they do at home

36 100 children (0–14) needed treatment in 2017 due to injuries – this means 300 children more than in the previous year. Boys get injured more often than girls – 18 boys and 15 girls per 100 inhabitants.

The probability of getting injured increases with age, so that nearly a fifth of schoolchildren required medical help due to injuries (figure 10).

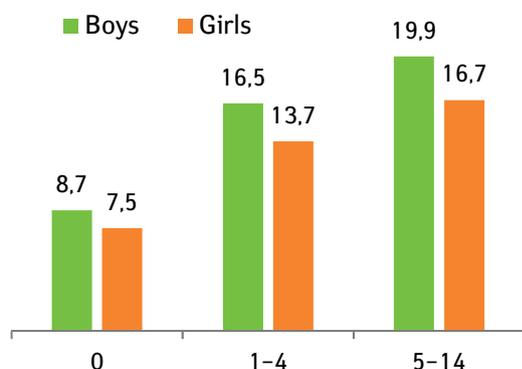


Figure 10. Children needing treatment due to injuries per 100 inhabitants by age group, 2017

### Children under the age of one

In 2017, doctors were contacted in 1 132 cases regarding children under the age of one needing treatment due to injuries. Children mostly received injuries at home (89% of all cases).

The most common cause of injuries was falling (63% of the cases), followed by bumping or knocking oneself or getting hit by something, and burns.

Children most often fell from the bed and other furniture as well as other locations higher from the ground. Such accidents comprised three quarters of all falls. In 75% of all cases, falls resulted in superficial head injuries and in 10%, falls resulted in fractures.

In nearly 100 cases, children had burn injuries. In half of the cases, the burns were caused by

hot liquid, and in a quarter of the cases by exposure to hot heating units.

In 14% of injury cases, children under the age of one needed hospital treatment, mostly due to falling.

### Children from the age of one to four

Young children needed treatment in 9 400 injury cases. 70% of the injuries happened at home. The main cause of injury in children was falling (44% of all cases). Cases of falling on the same level and from a higher level were equal in numbers. One fifth of received injuries were fractures.

In a fifth of the cases, children sustained injuries due to bumping or knocking oneself, being hit by something, etc. In over 400 cases, the child needed medical help due to a foreign object in the airways or digestive tract. Children also got hurt resulting from exposure to hot liquids, heating units, etc. almost as often. Medical treatment due to intoxication was needed in 130 cases, mainly due to swallowing medicines and chemicals.

### Children over the age of five

Most often, children aged 5–14 years needed treatment due to injuries (21.5 cases per 100 children). In this age, injuries are sustained at school or on sports field even more frequently than at home – in nearly 40% of cases.

Older children were also most often injured due to falling (45% of all cases), but the falls occurred more so on the same level. In a third of the cases, falls occurred from a higher level, mainly on playgrounds. In one third of cases, falling resulted in a fracture.

The most common causes of injuries were also knocking oneself or getting hit by something (9 200 cases), collisions with other people (1 600 cases), falling off a bicycle (800 cases).

## 2.3 Injuries in adults

- ✓ **13% of men** and **10% of women** needed treatment due to injuries
- ✓ Men between the age of **25–34** get injured **twice as often** as women of the same age
- ✓ **Over 85-year-olds** get injured **due to** falling **80%** of all cases

Due to injuries, 120 300 adults (people aged 15 and over) needed treatment in 2017, including 66 800 men and 53 500 women. This makes 13.1 men per 100 males and 9.0 women per 100 females. Compared to the previous year, the number of injured people decreased by 1800.

quarter of the cases, falling resulted in a fracture.

Exposure to inanimate mechanical forces was the cause of an average of 40% of injuries sustained by men. The most common causes were knocking oneself, exposure to tools and equipment, and a foreign object in the eye.

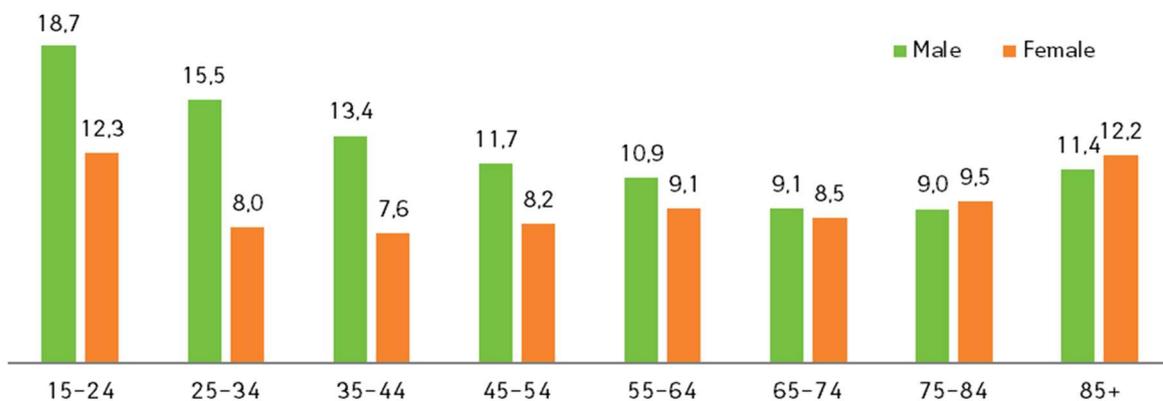


Figure 11. Adults needing treatment due to injuries per 100 inhabitants by age group, 2017

The total number of injury cases was 136 600 (15 cases per 100 men, 10 cases per 100 women). Thus, injuries occurred in men 50% more than in women.

In age groups, the differences between men and women are even more significant (figure 11). 15–24-year-old men received most injuries, but the gender gap is double in the next, 25–34-year-old age group.

### Injuries in men

The main causes of injuries are falling and exposure to inanimate mechanical forces. The number of falls increases with age (figure 12) and the share of other causes in getting injured decreases.

Three quarters of falls took place on the same level, mainly due to slipping and tripping. Falls from a higher level are rather common (25%), especially from stairs and ladders. In one

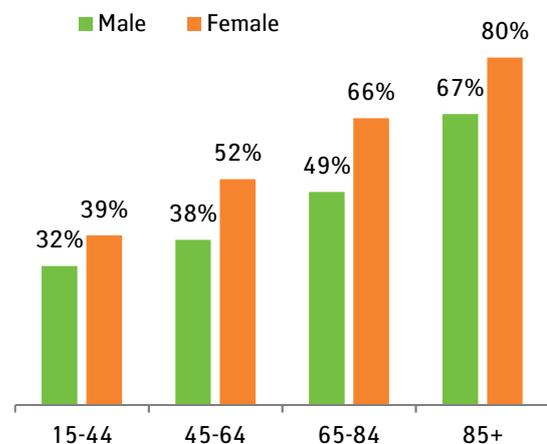


Figure 12. The share of falls in all injury causes by gender and age group, 2017

The probability of receiving injury at home increases with age. Younger men sustain injuries at home in under 40% of all cases, and up to 60% of all cases in older age.

### Injuries in women

Similarly to men, women also get most injuries by falling or by exposure to inanimate mechanical forces. The share of falling also increases with age in women (figure). In women, falls account for a more significant part of injury causes than in men.

In a fifth of the cases, women fell down higher from the ground, mainly from the stairs. Younger women sustained fractures resulting from falling in a fifth of all the cases, and over 65-year-olds in almost half of the cases.

Inanimate mechanical forces were the cause of an average of 25% of injuries sustained by women. The most common causes were knocking oneself and a foreign object in the eye.

Women were more likely to sustain injuries at home than men, 40% in the case of younger people and 60% in the case of older people.

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3. Töökeskkond 2017. Tallinn: Tööinspeksioon; 2018. [http://www.ti.ee/fileadmin/user\\_upload/failid/dokumendid/Meedia\\_ja\\_statistika/Tooekeskkonna\\_uelevaated/2015/Tookeskkond\\_2017\\_veebi.pdf](http://www.ti.ee/fileadmin/user_upload/failid/dokumendid/Meedia_ja_statistika/Tooekeskkonna_uelevaated/2015/Tookeskkond_2017_veebi.pdf)

## Health and health care statistics:

- **Health statistics and health research database**  
<http://www.tai.ee/tstua>
- **Website of Health Statistics Department of National Institute for Health Development**  
<http://www.tai.ee/en/r-and-d/health-statistics/activities>
- **Dataquery to National Institute for Health Development**  
[tai@tai.ee](mailto:tai@tai.ee)
- **Database of Statistics Estonia**  
<http://www.stat.ee/en>
- **Statistics of European Union**  
<http://ec.europa.eu/eurostat>
- **European health for all database (HFA-DB)**  
<http://data.euro.who.int/hfadb/>
- **OECD's statistical databases (OECD.Stat)**  
[http://stats.oecd.org/index.aspx?DataSetCode=HEALTH\\_STAT](http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT)

