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Acute injuries in Finnish junior floorball league players

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ABSTRACT

Objectives: To investigate the incidence and characteristics of acute time-loss injuries in Finnish junior floorball league players.

Design: Prospective cohort study with 3-year follow-up.

Methods: One hundred and eighty-six female and male players (mean age 16.6 ± 1.4) took part in the follow-up study (2011–2014). The training hours and games were recorded on a team diary. Floorball related acute injuries were registered and verified by a research physician. The injury incidence was expressed as the number of injuries per 1000 hours of exposure. Incidence rate was calculated separately for games and practices, and for males and females.

Results: One hundred and forty-four acute time-loss injuries occurred. Injury incidence was 26.87 (95 % CI 20.10 to 33.63) in junior league games, and 1.25 (95 % CI 0.99 to 1.52) in team practices. Female players had significantly higher **game injury rate (IRR 1.88, 1.12 to 3.19) and joint/ligament injury rate (IRR 1.70, 1.07 to 2.73)** compared to males. Eighty-one percent of the injuries affected the lower limbs. The ankle (37 %), knee (18 %), and thigh (14 %) were the most commonly injured body sites. More than half of injuries involved joint or ligaments (54 %). Twenty-six percent of the injuries were severe causing more than 28 days absence from sports. Eight anterior cruciate ligament ruptures of the knee occurred among seven female players.

Conclusion: The study revealed that risk of ankle and knee ligament injuries is high in adolescent floorball, specifically among female players.

Key words: epidemiology, athletic injuries, sprains and strains, leg injury, recurrence, team sports

INTRODUCTION

Floorball is a fast-paced indoor team sport with growing popularity worldwide. **The International Floorball Federation (IFF) was founded in 1986 by the national floorball associations of Finland, Sweden, and Switzerland. Today, the IFF has national member associations in 65 countries (personal communication / the IFF). Floorball is one of the most popular team sports in Finland. In 2016 the Finnish Floorball Association had over 850 registered clubs with 54 900 licensed players, of which the number of junior aged players was 28 900 (personal communication / the Finnish Floorball Association). Moreover, floorball is widely played in schools, workplaces and leisure time, and the overall number of Finnish floorball players is estimated to be approximately 350 000 (Finnish Floorball Federation, www.floorball.fi).**

During the past couple of decades floorball has developed from a recreational activity into competitive sport that requires high degree of physical and motor performance abilities. The movement patterns of the field players comprise running in multiple planes of motion, sudden accelerations and decelerations, frequent changes of direction, and handling a stick and the ball during these fast-paced motions. Goalkeepers play mostly on their knees and they save the goal with their hands and body.

In spite of growing popularity, the number of studies on floorball injuries is low. Four prospective studies on epidemiology of floorball injuries have been previously performed **among licensed players in Finland and Sweden.**¹⁻⁴ These investigations have revealed that the most of the acute injuries affect the lower limb, and the ankle, knee and thigh are the most common sites of injuries.¹⁻⁴ One of the most severe sports injuries is a rupture of anterior cruciate ligament (ACL) of the knee which often leads to a long-term absence from sports and increases the risk for degenerative joint disease.⁵⁻⁷ According to the previous studies, the risk of ACL injuries is high in floorball, especially among female players.³⁻⁴

Floorball has also been reported to belong to the highest risk group of sports concerning sports-related eye-injuries.⁸⁻¹⁰ According to a Finnish study at the Ophthalmology Emergency Clinic in Helsinki, **floorball caused 45% of all sports-related eye-injuries during a 6-months study period.**⁸

Correspondingly, in a Swedish study, 56% of sports-related eye-injuries in Jonköping county from 2008 through 2011 occurred in floorball.⁹ A cross-sectional study in Sweden and Switzerland revealed that 28% out of 506 field players in adult series had suffered an injury to the eye or its vicinity at least once.¹⁰ Protective eyewear for floorball has been available for a decade, but use of them is still relatively scarce. Since 2008 protective eyewear has been required in the Finnish junior series among players whose year of birth is 1999 or later, but for older players use of eye protection is not mandatory (personal communication / the Finnish Floorball Association).

The above noted previous studies on floorball injuries have focused on adult top level leagues whereas detailed information on injuries in junior floorball leagues is lacking. Nevertheless, knowledge on epidemiology of typical injuries in particular target groups is crucial for creating effective injury prevention methods. The purpose of the present study was to investigate the incidence and characteristics of acute floorball injuries in female and male junior league players.

MATERIALS AND METHODS

This study is a part of a large PROFITS-study (Predictors of Lower Extremity Injuries in Team Sports) carried out in Finland during 2011–2015. Detailed information of the PROFITS-study is described elsewhere.¹¹ The study was approved by the ethics committee of the Pirkanmaa Hospital District, Tampere, Finland (ETL code R10169), and was performed in accordance with the Declaration of Helsinki.

Eight adolescent floorball teams from three sports clubs from Tampere City district, Finland, were invited to participate in the investigation. The invited study cohort consisted of six male teams and two female teams from the two highest junior league levels. One male team declined to participate. Thus, seven teams were studied during the three consecutive years (2011–2014). **Both female teams played in U20 league of 10 teams, three male teams played in U20 league of 12 teams, and two male teams played in U18 league of 12 teams.** Teams entered the study either in May 2011, April/May 2012 or April/May 2013. Female teams completed all three follow-up years, two male teams completed two follow-up years, and the remaining three

male teams completed one follow-up year. Final participation was based on an informed consent of each player (and parent/guardian if the player was <18 years of age).

Altogether, 193 players entered the study. We included junior players if they were official members of the participating junior teams and played in junior series during the follow-up. Seven players were excluded because they did not play in junior series. Consequently, 186 young floorball players (mean age 16.6 ± 1.4) were included in the study: 111 male and 75 female players. The cohort comprised 18 goalkeepers and 168 field players. Twenty-one female players and 10 male players played in both junior and adult leagues. The players ranged in age from 13 to 20 years during the follow-up. Eight of the players (7 females; 1 male) entered the study at age of 13-14 years. Of the participating players 112 completed one; 45 two; and 29 three follow-up years. Altogether, 289 athlete-years were followed in the study.

The players completed a questionnaire about background information¹¹ at the study onset. The questionnaire included questions about age, sex, starting age, playing position, playing level, and previous injuries. During the follow-up team coaches recorded player participation in team events on a team diary and noted all injured players. An injury was defined as any acute injury occurring during a junior game or practice making the player unable to participate in floorball training or playing during the following 24 hours. All injured players were entitled to free appointment with a physician specialized to sports medicine (J.P., P.K.) at the Medical Center of the UKK Institute.

A research physician (J.H.) contacted the team coaches weekly to check new injuries. For any time-loss injury occurring during team practices or games, the physician contacted the injured player by phone and interviewed her/him using a structured form^{3,11,12} to obtain detailed data and description of the injury. The location, type, place and time of occurrence, injury circumstances and mechanism, treatment and diagnosis, time loss from sports, and whether the injury was a first-time or a recurrent injury were registered. The injury mechanisms were reported as contact (direct contact to the injured body region), indirect contact (contact with other body parts) or non-contact.¹³

An injury of same site and same type as a prior injury that occurred after a player's full return in floorball from a prior injury was defined as a recurrent injury.¹⁴ The recurrence of injuries was classified as early recurrence (a recurrent injury that occurred within 2 months of a player's full return); late recurrence (a recurrent injury occurred within 2-12 months after a player's full return); and delayed recurrence (a recurrent injury occurred more than 12 months after a player's full return). **Contusions and lacerations** were always classified as a first-time injury, whether they were recurring or first-time injuries. The severity of injuries was defined in four categories: minimal injury (an injury causing absence of 1 – 3 days); mild injury (4 – 7 days); moderate injury (8 – 28 days); and severe injury (>28 days).¹⁴

The exposure time on team practices were collected individually for each player. The coach registered players' attendance at each team event, as well as duration of training session and type of training (floorball training; strength/conditioning/warm-up and cool-down exercises). Individual practices performed outside the scheduled team events were not included in the exposure data. The time of exposure to floorball games was calculated for entire teams. The total number of games played by each junior team was collected. Then the exposure time was calculated as follows: each game lasts 60 minutes of actual play and there are always six players on the court (a goalkeeper and five field players) resulting in total exposure of 6 hours per game per team.

Data were analyzed using SPSS Statistics Software, version 22 (SPSS, Chicago, Illinois) and OpenEpi (Version 3.01).¹⁵ **Means with SD and medians with range were** used to describe continuous data and frequency tables were used for categorical variables. The injury incidence was expressed as the number of injuries per 1000 hours of exposure. Incidence rate was calculated separately for games and practices, and for males and females. The Mid-P Exact test was used to compare incidence rates between subgroups. Injury incidences and incidence rate ratios (IRR) were expressed with 95 % confidence interval (CI). A p value <0.05 was considered significant. **Benjamini-Hochberg adjustments for p values were calculated to control false discovery rate arising from multiple comparisons problem. Critical value for a false discovery rate was set to 0.25.**

RESULTS

The baseline characteristics of the subjects, as well as exposure hours and number of injuries during the follow-up are presented in Table 1. Total of 178 acute injuries were reported during the 3-year follow-up. Thirty-four of the reported injuries were excluded from the analyses, because they were not time-loss injuries (n=4) or they had occurred in adult league games (n=30). Fourteen female and three male participants had suffered 26 and 4 acute injuries, respectively, in adult league games during the follow-up. Altogether, 144 acute time-loss injuries were analyzed. Rates of injury in junior league athletes by type of exposure are presented in Table 2. Injury incidence was higher in games compared to practices (IRR 21.21, 95 % CI 15.30 to 29.82, $p < 0.001$). **Female players had significantly higher game injury rate and joint/ligament injury rate compared to males (Table 2).**

Eighty-one percent of injuries affected the lower limb. The ankle was the most common site of injury (37 %), followed by the knee (18 %) and thigh (14 %) (Table 2). Twenty-one ankle injuries and 17 knee injuries occurred in games. Injury incidences of ankle and knee injuries in junior league games was 9.56 (95 % CI 5.49 to 13.63) and 7.74 (95 % CI 4.08 to 11.41) per 1000 game hours, respectively. More than half (54 %) of injuries involved joint or ligament (Table 2). Number of ankle and knee joint/ligament injuries was 52 and 21, respectively. Most common injured ligament structures were the lateral ligament complex of the ankle joint (n=49) and the ACL of the knee (n=8). All of the eight ACL injuries in the study occurred in female players.

Thirty-one muscle or tendon strains occurred and majority of them affected the posterior thigh (n=9), anterior thigh (n=8), and groin (n=7). Tendon strains included one Achilles tendon rupture and one plantar fascia rupture. Contusions (n=13) were most common in the knee (n=5) and anterior or lateral thigh (n=3). Nine fractures involved the toe (n=3), coccyx (n=2), wrist, rib, ankle, and fibula. Eight of the injuries were categorized as an undefined injury, due to unspecific diagnosis (eg. acute back injury). In addition, three concussions and two eye injuries occurred among the players.

Direction change/sudden stop was the most frequent injury situation (21 % of all injuries), followed by collision/body contact with another player (19 % of all injuries). Proportions of contact injuries, indirect contact injuries and noncontact injuries were 32 %, 12 %, and 56 %, respectively. Seventy-seven percent of ankle ligament injuries and 86 % of knee ligament injuries were noncontact/indirect contact injuries. All ACL injuries occurred without direct contact to the knee region: three of them as a result of an indirect contact (push to the upper body), two in sudden direction change, two in shooting, and one in running. Five ACL injuries occurred in junior games, and three in floorball practices. Two eye injuries occurred in games: one was caused by a stick, another by a collision with a wall bar. Players with eye injury did not wear protective eyewear when the injury occurred. Two concussions resulted from collision/body contact with another player while playing floorball, and one was caused by a hit of a medicine ball during conditioning training.

Seventeen percent of injuries were recurrent injuries: 20 players sustained 24 recurrent injuries. In 13 cases prior injury was sustained before the start of the study. **Nine players out of 74 who completed more than 1 study year suffered recurrences (12 re-injuries) during their 2nd or 3rd follow-up year.** The recurrent injuries included 23 ligament/joint injuries, and a muscle strain. Twenty out of 24 recurrent injuries were lateral ankle sprains, and the remaining four injuries included an ACL rupture, a meniscal tear, a shoulder subluxation, and a hamstring muscle strain. Twelve players suffered one recurrent ankle sprain, and four players had two recurrences. Eleven out of 20 recurrent ankle sprains were delayed recurrences, eight were late recurrences and one was early recurrence. Sixteen out of 20 recurrent ankle sprains were noncontact/indirect contact injuries, and 3 recurrent sprains affected braced ankles.

Severity of injuries is presented in Table 3. The most typical severe injuries involved the knee (n=15) and ankle (n=10). The most common type of severe injury was joint/ligament injury (n=25), followed by muscle strain (n=5). In addition, severe injuries included three fractures (toe, ankle, and fibula), two eye injuries (retinal ablation), an acute lower back injury, and lower limb contusion. Two eye injuries caused time-loss of 42 and 100 days.

The study cohort comprised 18 goalkeepers (5 females, 13 males). During the follow-up, five goalkeepers suffered from ten acute injuries: 3 of them occurred in junior games (2 noncontact knee injuries; concussion), 3 in floorball practices (hamstring rupture; noncontact ankle sprain; noncontact knee injury), and 4 in conditioning training (3 noncontact ankle sprains; low back injury). Goalkeepers' injuries in floorball practices and games occurred while saving the goal, whereas ankle sprains in conditioning training occurred in running exercises and a back injury in weight lifting.

Half of all injuries (51 %) were diagnosed and treated by medical practitioners, while the remaining injuries were self-treated at home and the diagnosis was determined by the study physician (J.H.) during a telephone interview. Twenty-three percent of injuries were diagnosed by a specialist doctor in a private health care clinic, 17% were diagnosed at the Medical Center of the UKK Institute (J.P. or P.K.), 6 % by a physician in a hospital, 3% by a physician in a public health care center, and 2 % were diagnosed by other medical practitioners (physiotherapist or nurse). All ACL injuries were verified by magnetic resonance imaging (MRI).

DISCUSSION

This is the first prospective study on epidemiology of acute floorball injuries in junior league players. Earlier studies have focused on describing injuries in adult top level floorball.¹⁻⁴ Our study found that the most frequently injured body parts in adolescent floorball players were the ankle, knee and thigh, and the most of the injuries affected joint/ligament structures. These findings are consistent with injury profile in adult floorball players.¹⁻⁴ The most significant finding of this prospective study was the very high rate of injuries in young female players. Compared to men, women had significantly higher rates of game and joint/ligament injuries.

It is noteworthy that in the present study including only adolescents, one fourth of injuries were severe, causing time-loss from sports more than 28 days. This is in clear contrast with findings from the previous floorball studies,²⁻⁴ which showed that most of the injuries among adult players are minor. Eight ACL injuries occurred in this study and all of the affected players were women. Many previous studies have

proven that females are more prone to knee injuries.¹⁶⁻¹⁹ Further, it has been estimated that females have approximately 4 to 6 times higher risk for ACL tear than their male counterparts.¹⁸

In the current study, 68 % of all injuries occurred without a direct contact to the injured body region. Eighty-six percent of knee ligament injuries and 77 % of ankle ligament injuries occurred via noncontact/indirect contact mechanism. All the ACL ruptures occurred in noncontact/indirect contact situations. Griffin and co-workers¹⁶ have pointed in their study that majority of ACL injuries (70%) takes place in noncontact situations. This indicates that intrinsic, person-related factors are of importance. Team ball sports have high rates of knee injuries in particular, most likely because players perform frequently rapid cutting maneuvers as well as jumps and landings. To avoid injurious forces in these fast sports movements, proper technique and movement control are needed.¹³

Number of recurrent ankle sprains was rather high among our junior players. Twenty out of 24 recurrent injuries were ankle sprains. According to Bahr & Bahr²⁰ athletes have an increased risk of recurrent injury during the first year after an ankle injury. Similar trend have been found in the risk of recurrent knee joint, hamstring and groin injuries.²¹⁻²² Bracing and proprioceptive training have been shown to be effective in decreasing the risk of both first-time and recurrent ankle sprains,²³⁻²⁷ but there is limited evidence on prevention of other types of recurrent injuries. However, in general many intervention studies have shown that prevention of sports injuries is possible by regular neuromuscular training.^{12,28-31} Consequently, preventive training programs should be included in weekly and year-round training of these adolescent floorball players.

Two eye injuries occurred in the present study: one of them was caused by a stick and another by a collision with a wall bar. Even though the number of eye injuries was low, these severe injuries should be taken into consideration. Neither of these injured players wore protective eyewear when the injury occurred. Earlier studies have estimated that floorball is one of the high-risk sports concerning eye-injuries⁸⁻¹⁰ and therefore the use of protective eyewear during floorball practices and games is crucial. Previous studies have shown that proper eye protectors can reduce the risk of eye injury by 90%.³²⁻³³ **Since 2008 protective eyewear has**

been required in the Finnish junior series among players whose year of birth is 1999 or later, but all participants of this study were born before 1999, thus use of eye protection was not mandatory for them.

Our study has several strengths. First, all the data was collected prospectively. Second, exposure time on team practices was collected individually and game exposure was based on actual playing time of each team. Third, accuracy of injury data collection was good, because communication with the participating teams was rather easy to carry out in the relatively small area (one city). However, our study also had some limitations. First, players' inconsistent follow-up time can be seen as a limitation. Female teams completed all three follow-up years, while male teams were involved only in one-year or two-year follow-ups. On the other hand, the total follow-up time was relatively similar in female and male teams. Also, we feel that alternating follow-up time was not a major problem, since all the reported injury rates were based on true exposure hours in practices and games.

Another limitation is that only half of the injuries were diagnosed by clinical examination. The remaining half was diagnosed by the study physician's (J.H) telephone interview. Thus, it was possible that precision in reporting injuries, such as the details of the injury type (structure) and injury mechanism, could remain somewhat uncertain. In addition, some minor injuries may have not been reported. Finally, the study cohort itself can be seen a limitation because the participants of the current study represented a relatively small proportion of the all young floorball players in Finland. **Hence, some risk factors of injury, such as team habits and training conditions might be different in a larger youth floorball population.**

Conclusions

The present study revealed that injury risk in adolescent floorball is considerable. The ankle, knee and thigh were the most commonly injured body parts in both sexes. Majority of the knee and ankle injuries occurred in noncontact/indirect contact circumstances, and concerning ankle sprains, notable was the high recurrence rate. Compared to men, the female players had significantly higher injury rate during games, and also the rate of joint and ligament injuries was significantly higher in women. Results of this study can be used to

design prevention strategies to reduce injuries in adolescent floorball. This information is beneficial to athletic coaches, physical therapists, physicians, as well as athletes themselves.

Practical implications

- Preventive measures in adolescent floorball should focus on ankle and knee ligament injuries.
- Treatment, rehabilitation and return to sport after an injury should receive special attention to avoid recurrent injuries.
- Use of eye protection should be mandatory in floorball.

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Table 1. Demographic information, exposure time and number of acute time-loss injuries in female and male junior league players (n=186).

	Female, n=75	Male, n=111
Age, y	16.1 (1.5) †	16.9 (1.3) †
Height, cm	166.5 (5.6) †	177.5 (164.5-199)*
Weight, kg	59.4 (45.5-80.0)*	68.3 (52.4-98.5)*
BMI	21.5 (17.8-27.2)*	21.7 (17.2-29.8)*
Menarche, no/yes	2/73	-
Playing experience, y	6.0 (2.5)†	8.7 (2.8)†
Total exposure, h	35 848 [^]	34 095 [^]
Game exposure, h	960 [^]	1236 [^]
Training exposure, h	34 888 [^]	32 859 [^]
Total number of injuries	86 ^{^^}	58 ^{^^}
Game related injuries	35 ^{^^}	24 ^{^^}
Training related injuries	51 ^{^^}	34 ^{^^}

†Results given as mean (\pm SD). *Results given as median (range). [^]Results given as total hours of exposure.

^{^^} Results given as total number of injuries for the subgroups.

Table 2. Number and incidence of acute time-loss injuries and incidence rate ratio for female and male floorball in junior league games.

	All players (n=186)		Female players (n=75)		Male players (n=111)		IRR (95% CI) ^	p Value	p Value ^{BH}
	n*	Incidence (95% CI)	n*	Incidence (95% CI)	n*	Incidence (95% CI)			
All injuries**	144	2.06 (1.72 to 2.39)	86	2.40 (1.89 to 2.91)	58	1.70 (1.26 to 2.14)	1.41 (1.01 to 1.98)	0.04	0.25
Game-related injuries†	59	26.87 (20.10 to 33.63)	35	36.46 (24.60 to 48.31)	24	19.42 (11.72 to 27.11)	1.88 (1.12 to 3.19)	0.02	0.17††
Training-related injuries‡	85	1.25 (0.99 to 1.52)	51	1.46 (1.06 to 1.86)	34	1.03 (0.69 to 1.38)	1.41 (0.92 to 2.20)	0.12	0.42
Injury location**									
Ankle	53	0.76 (0.55 to 0.96)	32	0.89 (0.58 to 1.20)	21	0.62 (0.35 to 0.88)	1.45 (0.84 to 2.55)	0.19	0.42
Knee	26	0.37 (0.23 to 0.51)	16	0.45 (0.23 to 0.66)	10	0.29 (0.11 to 0.48)	1.52 (0.69 to 3.48)	0.30	0.44
Thigh	20	0.29 (0.16 to 0.41)	13	0.36 (0.17 to 0.56)	7	0.21 (0.05 to 0.36)	1.77 (0.71 to 4.72)	0.23	0.42
Lower back/sacrum	8	0.11 (0.04 to 0.19)	6	0.17 (0.03 to 0.30)	2	0.06 (0.00 to 0.14)	2.85 (0.60 to 20.54)	0.20	0.42
Hip/groin	8	0.11 (0.04 to 0.19)	5	0.14 (0.02 to 0.26)	3	0.09 (0.00 to 0.19)	1.59 (0.37 to 8.06)	0.55	0.65
Wrist	6	0.09 (0.02 to 0.15)	4	0.11 (0.00 to 0.22)	2	0.06 (0.00 to 0.14)	1.90 (0.34 to 14.85)	0.49	0.61
Head/face	5	0.07 (0.01 to 0.13)	3	0.08 (0.00 to 0.18)	2	0.06 (0.00 to 0.14)	1.43 (0.21 to 12.00)	0.73	0.79
Foot/toe	5	0.07 (0.01 to 0.13)	1	0.03 (0.00 to 0.08)	4	0.12 (0.00 to 0.23)	0.24 (0.01 to 1.89)	0.20	0.42
Lower leg/achilles	4	0.06 (0.00 to 0.11)	1	0.03 (0.00 to 0.08)	3	0.09 (0.00 to 0.19)	0.32 (0.01 to 2.97)	0.35	0.49
Shoulder	4	0.06 (0.00 to 0.11)	2	0.06 (0.00 to 0.13)	2	0.06 (0.00 to 0.14)	0.95 (0.10 to 9.14)	0.96	0.97
Neck/upper back	2	0.03 (0.00 to 0.07)	2	0.06 (0.00 to 0.13)	-	NA	NA	0.26	0.42
Abdomen/rib	2	0.03 (0.00 to 0.07)	1	0.03 (0.00 to 0.08)	1	0.03 (0.00 to 0.09)	0.95 (0.02 to 37.09)	0.97	0.97
Finger	1	0.01 (0.00 to 0.04)	-	NA	1	0.03 (0.00 to 0.09)	NA	0.49	0.61
Injury type**									
Joint/ligament	78	1.12 (0.87 to 1.36)	50	1.39 (1.01 to 1.78)	28	0.82 (0.52 to 1.13)	1.70 (1.07 to 2.73)	0.02	0.17††
Muscle/tendon	31	0.44 (0.29 to 0.69)	19	0.53 (0.29 to 0.77)	12	0.35 (0.15 to 0.55)	1.51 (0.73 to 3.20)	0.27	0.42
Contusion	13	0.19 (0.08 to 0.29)	6	0.17 (0.03 to 0.30)	7	0.21 (0.05 to 0.36)	0.82 (0.26 to 2.52)	0.72	0.79
Fracture/bone injury	9	0.13 (0.04 to 0.21)	2	0.06 (0.00 to 0.13)	7	0.21 (0.05 to 0.36)	0.27 (0.04 to 1.22)	0.09	0.42
Undefined^^	8	0.11 (0.04 to 0.19)	6	0.17 (0.03 to 0.30)	2	0.06 (0.00 to 0.14)	2.85 (0.60 to 20.54)	0.20	0.42
Concussion	3	0.04 (0.00 to 0.09)	3	0.08 (0.00 to 0.18)	-	NA	NA	0.13	0.42
Eye injury	2	0.03 (0.00 to 0.07)	-	NA	2	0.06 (0.00 to 0.14)	NA	0.24	0.42
Specific injuries**									
ACL rupture α	8	0.11 (0.04 to 0.19)	8	0.22 (0.07 to 0.38)	-	NA	NA	0.01	0.17††
Lateral ankle sprain β	49	0.70 (0.50 to 0.90)	30	0.84 (0.54 to 1.14)	19	0.56 (0.31 to 0.81)	1.50 (0.85 to 2.71)	0.17	0.42

*Number of injuries in junior league games and team practices. **Incidence is based on 1000 hours of total exposure (junior game + practice hours). † Incidence is based on 1000 hours of junior game exposure. ‡ Incidence is based on 1000 hours of training exposure. ^ Incidence rate ratio for female versus male floorball players. Significance level was < 0.05. NA = not available. ^^Undefined back and neck injuries with unspecified diagnosis. α Anterior cruciate ligament rupture of the knee. β Injury of the lateral ligament complex of the ankle. ^{BH} Benjamini-Hochberg adjusted p Values for controlling False Discovery Rate of 0.25. ††Significant Benjamini-Hochberg adjusted p Values.

Table 3. Severity of floorball injuries (n=144) by body region, given as number of injuries.

Body region	Minimal (1-3 days)			Mild (4-7 days)			Moderate (8-28 days)			Severe (>28 days)			All injuries		
	Female	Male	All	Female	Male	All	Female	Male	All	Female	Male	All	Female	Male	All
Head/neck	2	-	2	-	-	-	2	-	2	-	2	2	4	2	6
Upper limbs	1	-	1	2	2	4	2	2	4	1	1	2	6	5	11
Spine/trunk	3	1	4	2	-	2	2	2	4	1	-	1	8	3	11
Lower limbs	11	8	19	19	17	36	18	11	29	20	12	32	68	48	116
All injuries	17	9	26	23	19	42	24	15	39	22	15	37	86	58	144