

# Injuries and Illness in Olympic Level Water Polo Athletes – a Three-Season Prospective Study

*Verletzungen und Krankheiten bei olympischen Wasserballspielern – eine prospektive Studie über drei Saisons*

## Summary

- › **Problem:** Epidemiological data of injuries and illnesses in water polo athletes are limited. This study's objective was to describe the incidence, prevalence, and severity of health problems among a cohort of elite players.
- › **Methods:** We conducted a prospective cohort study with 24 elite water polo athletes over 2.5 years. Health problems were recorded weekly with the Oslo Sports Trauma Research Center Questionnaire on health problems and subsequently categorized into illnesses and injuries according to the recently published International Olympic Committee guidelines. Based on the athlete's weekly responses, we calculated health problem prevalence, incidence and severity.
- › **Results:** A total of 288 health problems were reported, including 76 illnesses and 212 injuries resulting in a weekly prevalence of 30.3% (95% CI: 28.2-32.4) for all health problems. Of these, 115 (39.9%) were categorized as substantial, of which 76 were illnesses, and 39 were injuries. The overall acute injury incidence rate was 1.66 injuries (95% CI: 1.23-2.09) per 1,000 sports exposure hours. The training and competition acute injury incidence rates were, respectively, 1.20 (95% CI: 0.81 – 1.59) per 1,000 training hours and 5.38 (95% CI: 3.18 – 7.58) per 1,000 competition hours.
- › **Conclusion:** There was a high prevalence of injuries among this cohort of elite water polo athletes. Future efforts that further improve athlete safety should focus on both acute and repetitive mechanism injuries.

## KEY WORDS:

Epidemiology, Acute Injury, Repetitive Injury, Injury Mechanism

## Introduction

Water polo is a team sport that was first played during the 19th century and has been an Olympic discipline since 1900 (4). The sport has gained popularity over the years and is played nowadays by both men and women worldwide. Water polo is a sport in which endurance, strength are essential physical traits that dictate, next to technical skills, individual performance. From the recreational to the elite level, there

## Zusammenfassung

- › **Hintergrund:** Epidemiologische Daten über Verletzungen und Krankheiten bei Wasserballspielern sind derzeit begrenzt. Ziel dieser Studie war es, die Inzidenz, Prävalenz und Schwere von Gesundheitsproblemen bei einer Kohorte von Elite-Spielern zu beschreiben.
- › **Methoden:** Wir haben eine prospektive Kohortenstudie mit 24 Elite-Wasserball-Spielern über 2,5 Jahre durchgeführt. Gesundheitsprobleme wurden wöchentlich mit dem Fragebogen des Oslo Sports Trauma Research Center für Gesundheitsprobleme erfasst und anschließend gemäß den vor kurzem veröffentlichten Richtlinien des Internationalen Olympischen Komitees in Krankheiten und Verletzungen eingeteilt. Basierend auf den wöchentlichen Antworten der Athleten berechneten wir die Prävalenz, Inzidenz und Schwere von Gesundheitsproblemen.
- › **Ergebnisse:** Insgesamt wurden 288 Gesundheitsprobleme gemeldet, darunter 76 Krankheiten und 212 Verletzungen, was zu einer wöchentlichen Prävalenz von 30.3% (95% CI: 28.2-32.4) für alle Gesundheitsprobleme führte. Davon wurden 115 (39.9%) als erheblich eingestuft, davon waren 76 Erkrankungen und 39 Verletzungen. Die Gesamtinzidenzrate für akute Verletzungen lag bei 1,66 Verletzungen (95% CI: 1,23-2,09) pro 1.000 Sportstunden. Die Inzidenzraten für akute Verletzungen im Training und im Wettkampf betragen 1,20 (95% CI: 0,81-1,59) pro 1.000 Trainingsstunden bzw. 5,38 (95% CI: 3,18-7,58) pro 1.000 Wettkampfstunden.
- › **Zusammenfassung:** In dieser Kohorte von Elite-Wasserball-Spielern gab es eine hohe Prävalenz von Verletzungen. Zukünftige Bemühungen zum weiteren Schutz der Gesundheit von Athleten sollten sich sowohl auf akute als auch auf repetitive Verletzungsmechanismen konzentrieren.

## SCHLÜSSELWÖRTER:

Epidemiologie, akute Verletzungen, Überlastungsverletzung, Verletzungsmechanismus

is a lot of physical contact between players which links to high injury risk (7, 9, 12, 19, 21).

A limited number of studies that report on injuries and illnesses during international competitions illustrate the high injury rates in elite water polo (8, 14, 17, 19, 20). At the 2016 Olympic Games in Rio de Janeiro (Brazil), the injury rate of water polo ranked fifth amongst all sports with 19.4 >

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Table 1

Absolute numbers, prevalence, severity, and burden of all and substantial health problems. Data are presented as averages (95% CI).

ALL HEALTH PROBLEMS	ALL	ILLNESS	ACUTE MECHANISM INJURY	REPETITIVE MECHANISM INJURY
Number	288	76	77	135
AVG Weekly Prevalence	30.3% (28.2-32.4)	5.0% (4.0-6.0)	10.2% (9.0-11.5)	14.4% (12.9-15.9)
AVG Cumulative Severity	82.9 (64.4-101.5)	70.0 (60.8-79.1)	119.7 (108.7-130.6)	63.3 (55.0-71.5)
AVG Weekly Severity	185.2 (168.3-202.1)	41.2 (32.1-50.4)	71.4 (60.5-82.4)	66.2 (57.9-74.5)
AVG Time Loss (in Days)	3.4 (2.3-4.5)	3.1 (2.6-3.6)	4.7 (4.0-5.4)	1.6 (1.1-2.1)
Burden	27.06 (25.32-28.80)	7.83 (6.89-8.76)	11.64 (10.50-12.78)	7.59 (6.67-8.51)
SUBSTANTIAL HEALTH PROBLEMS	ALL	ILLNESS	ACUTE MECHANISM INJURY	REPETITIVE MECHANISM INJURY
Number	115	76	25	14
AVG Weekly Prevalence	6.7% (5.7-7.7)	5.0% (4.0-6.0)	2.8% (2.1-3.5)	1.3% (0.8-1.7)
AVG Cumulative Severity	97.6 (83.7-111.5)	70.0 (60.8-79.1)	197.2 (187.5-206.9)	143.9 (138.3-149.4)
AVG Weekly Severity	87.0 (73.1-100.9)	41.2 (32.1-50.4)	38.2 (28.5-48.0)	15.6 (10.1-21.2)
AVG Time Loss (in Days)	6.1 (5.1-7.1)	3.1 (2.6-3.6)	12.1 (11.4-12.8)	9.1 (8.7-9.6)
Burden	20.39 (18.88-21.90)	7.83 (6.89-8.76)	8.82 (7.82-9.81)	3.72 (3.08-4.37)

(95%CI: 14.0–24.8) injuries per 100 athletes (20). Comparing water polo to other aquatic events, Prien et al. described injury and illness rates during three consecutive FINA world championships (19). Although the authors did not report the exact injury and illness rates, water polo had the second-highest injury rate after high diving and the highest illness rate amongst all aquatic disciplines. More comprehensively, Mountjoy et al. summarised across 4 Olympic Games and 4 World Championships, that water polo players sustained 56.2 (95%CI: 49.5–62.9) injuries 1000 match hours (17). Most of these were sustained at the head (25.6%), hand (16.1%), and trunk (12.7%). Despite being high-quality data, reported injuries and illnesses during international events only provide a snapshot of the actual injury risks to which elite water polo players are exposed.

Consequently, our knowledge about health issues in elite water polo players remains too limited to support the development of preventive approaches at this level of play. Long-term and frequent prospective data collection in this select athletic population is a solution to this issue. Accordingly, this study aims to monitor the incidence and prevalence of injury and illness among Olympic level Dutch water polo players during three competitive seasons.

## Methods

### Study Design

This prospective cohort study spanned a 2.5-year follow-up (2nd September 2017 to 22nd March 2020; a total of 129 weeks). The cohort consisted of male water polo players ( $n=24$ ), all members of the Dutch Olympic program (TeamNL) during the study period. After de-identification, this study's data was provided by the medical staff of TeamNL from their standard weekly health

monitoring. The Medical Ethics Committee of the Amsterdam UMC (location VUmc, Amsterdam, Netherlands) approved the mentioned procedure (registration number 2020.087).

### Health Monitoring Procedures

The standard athletes' health monitoring involved a weekly online survey distributed by e-mail (Briteback, Norrköping, Sweden). Every Monday, athletes were asked to report their training and competition exposure during the past 7 days and any health problems they experienced over that time. If no response was received within 3 days, an automated reminder was sent. If athletes failed to respond for 2 consecutive weeks, they were contacted by the physician of TeamNL (MM).

### Training and Competition Exposure

In the weekly survey, athletes reported their training and competition exposure. We divided training exposure into sports specific training, strength & condition training, and competition. Exposure was expressed in hours.

### Health Problem Registration

The Dutch translation of the Oslo Sports Trauma Research Centre (OSTRC) Questionnaire on Health Problems was implemented for illness and injury registration (5, 6). The content and procedure of the OSTRC questionnaire have been described previously (5, 6). The registry employed the original OSTRC questionnaire (6) and not yet incorporate the 2020 revisions (5). In short, the OSTRC questionnaire asks athletes four questions about any health problems encountered in the previous 7 days and the problem's consequences on training and competition participation. In the case of time-loss, the number of days during which the athlete could not train or compete was registered. Athletes were instructed to report all health problems,

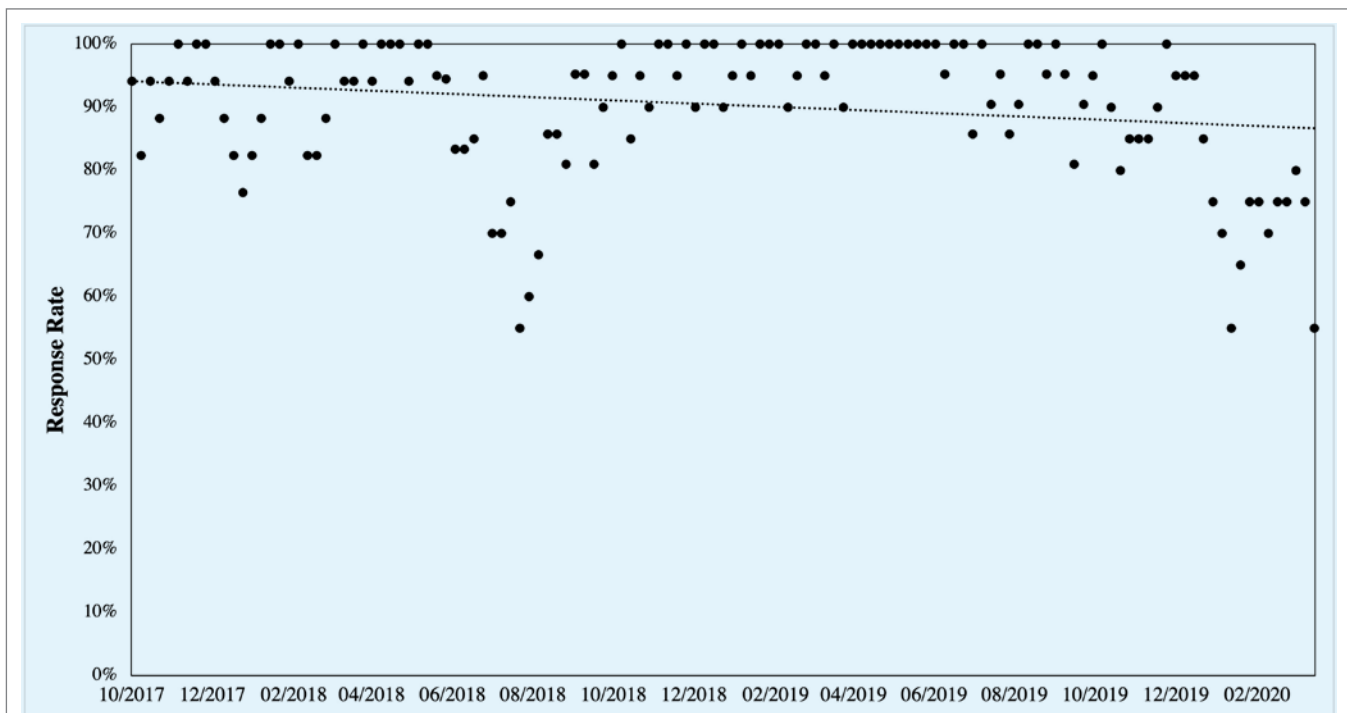


Figure 1

Weekly response rates during the 129-week follow-up period.

regardless of whether they already reported the same problem previously or received treatment. In case a new problem was reported, athletes were asked to specify whether the problem was an injury or an illness. In case of an injury, athletes provided in subsequent questions the injury's anatomical location, cause, and activity during the occurrence. Injuries not related to competition nor training (i.e. holidays or home accidents) were excluded from the analysis. In case of illness, athletes reported all symptoms experienced.

### Classification and Diagnosis of Reported Health Problems

For the classification, diagnosis and reporting of registered health problems, we implemented the recommendations of the recently published IOC guidelines on the recording and reporting of epidemiological data on injury and illness in sports (2, 18). Our health problem registration was, however, implemented before the IOC recommendations were made. As such, we could not follow these guidelines to the letter. We explain here only where and why we deviated from the IOC recommendations.

Acute mechanism injuries were defined as those injuries with a sudden onset and identifiable injury mechanism. The recent IOC recommendations redefine overuse injuries into repetitive injuries with a sudden or gradual onset. We could only classify injuries with a repetitive mechanism without a further subdivision into a gradual or sudden onset in our data.

Exacerbations were defined as health problems reported previously but increased in severity, or problems that re-occurred within four weeks of reported recovery. Recurrences were defined as health problems that were reported previously but recovery occurred more than four weeks ago.

### Statistical Analysis

Means and corresponding standard deviations (SD) were calculated for the baseline demographics. We made prevalence calculations for all and substantial health problems following the methodology outlined by Clarsen et al. (5, 6), which are pre-

sented weekly averages with their respective 95% confidence intervals (CI). Substantial health problems were defined as those leading to moderate or severe adaptations in training volume, moderate or severe reductions in performance, or complete inability to participate (5, 6).

For each week, prevalence measures were calculated for reported health problems by dividing the number of athletes reporting a problem by the number of total questionnaire respondents. For acute mechanism injuries, we calculated the injury incidence rate and corresponding 95% CIs as the number of new injuries reported per 1,000 hours of exposure.

As described by Clarsen et al., each OSTRC question is assigned a score of 0 (no health problems) to 25 (unable to participate) (5, 6). From these scores, for each reported health problem, a severity score was calculated weekly, ranging from 0 to 100. A cumulative severity score was calculated for each health problem to value the health problem's impact on the athlete. We also calculated for each registered health problem the cumulative time loss in days, and the burden as the number of days of time loss per 1,000 hours of exposure (3, 10, 11).

## Results

### Population Characteristics

Of the 24 athletes included in the study, 15 were part of the TeamNL selection during the entire follow-up period. The average weekly response rate to the health surveys was 90.4% (SD 10.9), with the response rate ranging from 55% (weeks 120 and 129) to 100% (multiple weeks) (Figure 1). Per week athletes had on average 15.2 (SD 4.3) hours of sports exposure, of which 9.8 (SD 3.0) consisted of sports specific training, 3.4 (SD 1.1) of strength & conditioning, and 1.9 (SD 1.1) of competition.

### Number, Prevalence and Severity of Health Problems

A total of 288 health problems were reported by 23 of the 24 athletes, including 76 illnesses by 20 athletes and 212 injuries by 23 athletes (Table 1). Figure 2 presents over the follow-up

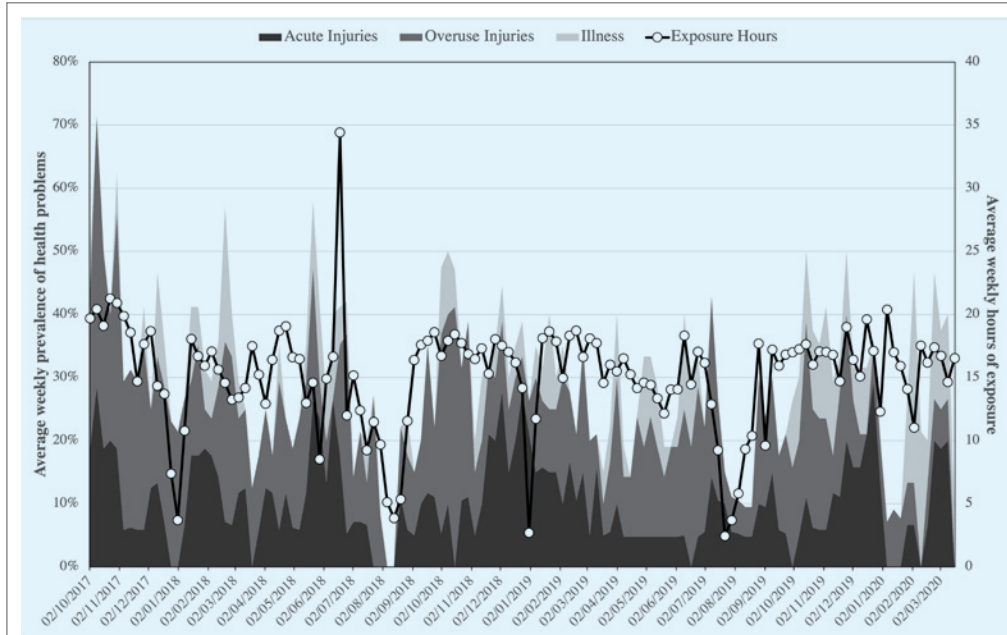


Figure 2

Weekly cumulative prevalence of health problems reported and the average weekly individual exposure in hours over the 129-week follow-up period.

period, the weekly prevalence of health problems and weekly overall exposure. Of all registered health problems, 115 (39.9%) were categorised as substantial, of which 76 were illnesses, and 39 were injuries. The average weekly prevalence of all health problems was 30.3% (95% CI: 28.2-32.4) and for substantial problems, 6.7% (95% CI: 5.7-7.7). Of all injuries, 129 (60.8%) were new injuries, 53 were recurrences (25.0%) and 30 exacerbations (14.2%). One athlete (4.2%) reported no injury during the study, one athlete (4.2%) reported one injury, three athletes (12.5%) reported two injuries, and 19 athletes (79.2%) reported more than three injuries.

### Injury and Illness Details

As we have a relatively small population of only 24 athletes and a limited number of reported health problems, we cannot provide a detailed breakdown of injury and illness patterns with their respective burden. We provide a summary of the results by uniquely reported injuries and illnesses, i.e. excluding exacerbations and recurrences, in Table 2.

### Acute Mechanism Injury

A total of 77 unique acute injuries were reported by 20 athletes, resulting in an average weekly prevalence of 10.2% (95% CI: 9.0-11.5%) (Table 1). Of these 36 could be linked to training activities, and 23 to competition. The overall acute injury incidence rate was 1.66 injuries (95% CI: 1.23-2.09) per 1,000 sports exposure hours. The training and competition acute injury incidence rates were, respectively, 1.20 (95% CI: 0.81 – 1.59) per 1,000 training hours and 5.38 (95% CI: 3.18 – 7.58) per 1,000 competition hours. The hand (25.0% of all acute injuries), head (21.9%), and elbow (14.1%) were the most commonly reported acute injury locations (Table 2). Most acute injuries ( $n=35$ ; 45.5%) occurred via direct contact with another player, followed by 10 (17.5%) injuries via direct contact with an object, and 9 (15.8%) noncontact injuries. Acute injuries represented the most severe injuries with the highest cumulative severity, the highest number of days lost, and the highest burden. The body region with the highest burden was the hand/fingers with 2.01 (95% CI: 1.53-2.48) days lost per 1,000 hours of exposure.

Followed by the elbow and head with 1.19 (0.83-1.56) and 0.73 (0.44-1.01) days lost per 1,000 hours exposure. Injuries to the upper arm, lower arm, and shoulder were the most severe with average cumulative severities scores of 253.0 (SD 24.5), 148.0 (SD 8.1), and 115.2 (SD 18.6).

### Repetitive Mechanism Injury

A total of 135 unique repetitive mechanism injuries were reported by 22 athletes, corresponding to an average weekly prevalence of 14.4% (95% CI: 12.9-15.9%) (Table 1). The most commonly reported repetitive mechanism injuries were to the shoulder ( $n=28$ ; 29.2%), lumbosacral region ( $n=16$ ; 16.7%), and the hip/groin region ( $n=11$ ;

11.5%) (Table 2). The knee and elbow were the repetitive injury regions with the highest burden, respectively 0.90 (95% CI: 0.58-1.22) and 0.84 (95% CI: 0.54-1.15) days lost per 1,000 hours of exposure. In terms of severity, injuries to the knee, abdomen, and elbow were most severe with average cumulative severities of 166.4 (SD 13.5), 110.0 (SD 7.1), and 97.8 (SD 13.2), respectively.

### Illnesses

The average weekly prevalence of illness was 5.0% (95% CI: 4.0-6.0) (Table 1). Based on the reported symptom clusters, the most commonly registered illnesses affected the upper respiratory ( $n=30$ ; 39.5%) and gastrointestinal ( $n=12$ ; 15.8%) body systems (Table 2). Other illnesses were too infrequent for reliable epidemiological measures. Upper respiratory tract infections were also the most severe and burdensome with an average cumulative severity of 84.3 (SD 40.3), and time loss of 1.95 (95% CI: 1.48-2.42) days per 1,000 hours of exposure.

### Discussion

The aim of our study to describe the incidence and prevalence of injury and illness among Olympic level Dutch water polo players during three competitive seasons. Our prospective data showed that roughly one out of three athletes suffered from a health problem during any given week. Repetitive mechanism injuries were the most common. Acute injuries had the most severe consequences as shown by the cumulative severity per injury, days lost from participation, as well as burden.

The overall injury pattern found in our cohort is difficult to compare to previous literature which focuses on competitive events only (8, 14, 15, 17, 19, 20). Our competition injury incidence rate of 5.38 (95% CI: 3.18 – 7.58) per 1,000 match hours, for instance, does not correspond to the 56.2 (95% CI: 49.5–62.9) injuries per 1,000 match hours as found in competition registries (17). Injury rates, in general, are higher during competitive events and show an over-presentation of acute injuries. The latter is illustrated by our finding that repetitive mechanism injuries ( $n=135$ ) are twice as common as acute injuries ( $n=77$ ).

We established that the shoulder is the most commonly affected body part overall, with 28 out of 33 injuries being repetitive in nature. This corresponds with previous literature that also points towards the shoulder (13, 16, 21, 22, 25). Illnesses mainly affected the upper respiratory tract, which is in agreement with previous registrations of athlete illnesses (8, 20).

### Methodological Strengths & Limitations

There are several methodological considerations that require thought when interpreting our results. Foremost, our results report on a relatively small convenience sample of elite water polo players. Our findings may not be representative of the broader (elite) water polo population. Future studies should ideally include larger samples of water polo players in order to minimise selection bias and to validate our results.

As with any injury questionnaire, the OSTRC questionnaire is subject to recall bias. This is especially true if the respondent does not complete the survey within due time. Although unable to rule out, we minimised recall effects by registering health complaints weekly, as suggested for this questionnaire (5, 6).

By extracting data out of the ongoing health monitoring of the Dutch Olympic program (TeamNL), we received a very high response rate of on average 90%. This approach also improved the accuracy of the data in our dataset, while all self-reported health problems were reviewed with the team's sports physician and re-classified if necessary. A very important limitation to this approach, however, is that in any ongoing health monitoring, clinical intervention is expected once a health problem is reported. This may not have impacted the occurrence of injuries in our report, but likely has reduced the severity of reported injury and illness due to subsequent medical care provided.

The OSTRC questionnaire is not limited to time-loss injuries alone but registers health problems based on injury and illness consequences (5, 6). Our results, as such, paint a very detailed picture of all injuries and illnesses that are encountered by elite water polo athletes over a prolonged period. Consequently, our study provides unique insights into the injury patterns, onset mechanisms, and burden of elite water polo players and may be used as a baseline for further research.

### Clinical Implications

The high incidence and prevalence of health-related problems among elite water polo athletes suggest that an early focus on prevention approaches is warranted (21, 22). Prevention efforts should be directed at the most common and burdensome injuries (23, 24). In general, about 30% of our elite athletic sample is injured during any week. The majority of which are repetitive mechanism injuries, which in general do not necessarily lead to time-loss but in fact can affect an athlete's performance (1). It makes sense to focus, consequently, on the prevention, early recognition, and medical care of such injury types – predominantly to the shoulder – as they are most prevalent in water polo (16, 25). Additionally, acute injuries – predominantly to the hand/fingers, arm and shoulder – should not be neglected as these injury types are most burdensome in terms of time-loss and burden.

### Conclusion

Our results show that in a cohort of elite water polo athletes, on average, 30% have a health problem during any week. We established that repetitive mechanism injuries are most common and that acute injuries are most severe. We recommend a focus on development and implementation of measures that prevent or limit the consequences of acute injury, and further research into the onset and prevention of repetitive mechanism injuries. ■

### Conflict of Interest

*The authors have no conflict of interest.*

Table 2

Overview of reported unique health problems by anatomical region (injuries) and classification (illnesses).

ACUTE INJURY	NUMBER	OCCURRENCE TRAINING VS COMPETITION	AVERAGE CUMULATIVE SEVERITY (RANGE)	AVERAGE DURATION IN WEEKS (RANGE)	BURDEN (95% CI)
Head	14 (21.5%)	T=5; C=8 U=1	67.4 (8-240)	1.4 (1-3)	0.73 (0.44-1.01)
Shoulder	5 (7.7%)	T=5; C=0	115.2 (28-350)	3.2 (1-6)	0.26 (0.09-0.43)
Upper Arm	6 (9.2%)	T=2; C=3 U=1	253.0 (14-982)	5.8 (1-20)	0.44 (0.22-0.66)
Elbow	9 (13.8%)	T=7; C=2	115.1 (14-300)	3.8 (1-11)	1.19 (0.83-1.56)
Lower Arm	1 (1.5%)	T=0; C=1	148.0	3.0	
Hand / Fingers	16 (24.6%)	T=8; C=5 U=3	99.6 (14-580)	2.5 (1-11)	2.01 (1.53-2.48)
Chest	5 (7.7%)	T=2; C=3	84.4 (20-300)	1.4 (1-3)	0.20 (0.05-0.35)
Hip / Groin	3 (4.6%)	T=3; C=0	99.3 (14-184)	3.0 (1-5)	0.17 (0.03-0.31)
Knee	3 (4.6%)	T=3; C=0	104.0 (40-200)	1.7 (1-2)	0.32 (0.13-0.51)
Foot	2 (3.1%)	T=1; C=1	95.0 (70-120)	1.5 (1-2)	0.32 (0.13-0.51)
Unspecified	1 (1.5%)	-	-	-	-
REPETITIVE INJURY	NUMBER	OCCURRENCE TRAINING VS COMPETITION	AVERAGE CUMULATIVE SEVERITY (RANGE)	AVERAGE DURATION IN WEEKS (RANGE)	BURDEN (95% CI)
Neck	3 (3.1%)	-	18.7 (14-28)	1.3 (1-2)	-
Shoulder	28 (29.2%)	-	50.9 (14-360)	2.1 (1-11)	0.64 (0.37-0.91)
Upper Arm	6 (6.3%)	-	78.7 (14-308)	2.7 (1-10)	0.09 (0-0.19)
Elbow	9 (9.4%)	-	97.8 (14-370)	3.9 (1-21)	0.84 (0.54-1.15)
Lower Arm	3 (3.1%)	-	35.3 (14-52)	1.0 (1-1)	0.03 (0-0.09)
Hand / Fingers	2 (2.1%)	-	38.0 (20-56)	2.5 (1-4)	-
Chest	3 (3.1%)	-	25.3 (14-48)	1.7 (1-3)	-
Thoracic Spine	3 (3.1%)	-	36.7 (14-70)	1.0 (1-1)	0.06 (0-0.14)
Lumbosacral Spine	16 (16.7%)	-	44.9 (8-162)	1.9 (1-8)	0.06 (0-0.14)
Abdomen	1 (1.0%)	-	110.0	2.0	0.06 (0-0.14)
Hip / Groin	11 (11.5%)	-	43.5 (14-268)	1.7 (1-8)	0.09 (0-0.19)
Thigh	4 (4.2%)	-	49.0 (14-122)	1.5 (1-3)	-
Knee	5 (5.2%)	-	166.4 (56-298)	6.0 (3-9)	0.90 (0.58-1.22)
Lower Leg	1 (1.0%)	-	78.0	3.0	-
Unspecified	1 (1.0%)	-	-	-	-
ILLNESS	NUMBER	OCCURRENCE TRAINING VS COMPETITION	AVERAGE CUMULATIVE SEVERITY (RANGE)	AVERAGE DURATION IN WEEKS (RANGE)	BURDEN (95% CI)
Upper Respiratory	30 (39.5%)	-	83.7 (8-776)	1.7 (1-10)	1.95 (1.48-2.42)
Lower Respiratory	1 (1.3%)	-	34.0	1.0	1.25 (0.88-1.62)
Gastrointestinal	12 (15.8%)	-	60.2 (8-132)	1.3 (1-3)	1.22 (0.85-1.59)
Neurological	3 (3.9%)	-	38.0 (28-52)	1.3 (1-2)	0.17 (0.03-0.31)
Psychological	3 (3.9%)	-	47.3 (20-96)	1.3 (1-2)	0.15 (0.02-0.27)
Dermatological	1 (1.3%)	-	8.0	1.0	-
Dental	2 (2.6%)	-	79.0 (46-112)	2.0 (1-3)	0.20 (0.05-0.35)
Otological	2 (2.6%)	-	80.0 (14-146)	2.0 (1-3)	-
Nonspecific Illness	12 (15.8%)	-	59.2 (26-176)	1.5 (1-5)	0.09 (0-0.19)
Energy, Load Management, Nutrition	3 (3.9%)	-	40.7 (26-70)	1.0 (1-1)	0.09 (0-0.19)
Unspecified	7 (9.2%)	-	-	-	-

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