

OROFACIAL INJURIES IN WATER POLO

Vjekoslav Jerolimov¹, Robert G. Jagger²

¹School of Dentistry, University of Zagreb, Croatia

²Dental School, University of Wales College of Medicine, Cardiff, South Wales

Original scientific paper

UDC: 616-001:797.2

Received: March 27, 1997

Accepted: May 5, 1997

Abstract

The nature and frequency of injuries sustained whilst playing water polo by players in the National Water Polo First Division were determined by a questionnaire. The frequency of reported injuries was 0.57 per player per year. The injury rate was related to a player's position, with the goalkeepers experiencing least injuries and pivots the most. 98% of reported injuries were to the orofacial region. Cut lips were most commonly represented, 48% of all reported injuries. Although the frequency of reported injuries was high, evidence suggests that they were generally not serious. It is obvious that there is a need for the application of mouthguards as protective equipment as well as for the availability of good first-aid treatment during competitive water polo matches.

Keywords: orofacial injuries, water polo

Zusammenfassung

Orofaziale Verletzungen im Wasserball

Die Angaben zur Art und Vorkommen von Verletzungen, die die Wasserballeistungssportler in Ersten kroatischen Wasserballliga während der Spiele abbekamen, sind aufgrund eines Fragebogens erarbeitet. Das Vorkommen der angemeldeten Verletzungen beträgt 0,57 pro Spieler jährlich. Die Verletzungsrate hängt vom Sportlerposition, im Spiel ab, wobei die Torwarte die wenigsten und die Zentrarhale die meisten Verletzungen einbüßen. Von den angemeldeten Verletzungen waren es 96% orofazial. Am häufigsten verzeichnet man die Lippenrisse - 48% von allen angemeldeten Verletzungen. Obwohl die Anmeldungsrate hoch war, zeigte das Verzeichnis, dass es im allgemeinen um keine ernsten Verletzungen geht. Offensichtlich sollen die Mundmaske und Schutzausrüstung angebracht werden, und es erwies sich auch der Bedarf nach dem Notarzt während der Wasserball- Wettbewerbe.

Schlüsselwörter: orofaziale Verletzungen, Wasserball

Introduction

Water polo has been played for more than 120 years. A form of water polo, "football in the water" or "aquatic polo" using a rugby ball, was first described in Yorkshire in 1870. In 1885 the Swimming Association of Great Britain formulated the first official laws of the modern game. It became an Olympic sport in 1900 and before World War I Great Britain enjoyed a period of supremacy. Hungary, Italy, The Netherlands, ex-USSR and former Yugoslavia subsequently became leading international opponents (Šimenc, 1977). Water polo is now played throughout the world. It is a physically demanding sport requiring great fitness and stamina of participants. Although not generally regarded as a contact sport, limited physical contact against the ball carrier is allowed within the rules. In addition, both accidental and intentional illegal contact often occurs. No information is available regarding the nature and the extent of injuries sustained by water polo players.

The intention of this study was to survey the Croatian First Division water polo club players with the purpose to determine the frequency and types of

orofacial injuries sustained, the prevalence of mouthguards and the influence mouthguard use had upon the frequency of orofacial injuries sustained. The aim of this study also was to determine whether the frequency of injuries was related to player position.

Material and method

A retrospective study of injuries sustained by a sample of Croatian First Division water polo club players was undertaken. Questionnaires were sent to the coaches of all 10 clubs in the Croatian First Division who distributed them to all the players in their teams. The information sought from the players included: age, position, years of playing in the 1st Division, injuries sustained, use of mouthguards and treatment details.

Results

Replies were received from 102 players in 8 clubs. This represented 90% of the players of the clubs that responded. Two clubs did not respond.

The mean age of the players was 22.2 ± 3.9 years. The details of the player positions together with the mean ages of the players in those positions are given in Table 1.

Details of the injuries sustained whilst playing water polo are given in Table 2. There was a total of 329 injuries which represents a frequency of 3.2 per player. The mean number of injuries per person per year whilst playing in the First Division was calculated to be 0.57. Only one player used a mouthguard just for one season.

Table 1. Position and ages of players

Position	No. of players	Mean Age
Goalkeeper	13	22,4
Defence	18	24,0
Attack	22	22,4
Defence/attack	46	21,8
Pivot	13	22,6
Total	102	22,2

Table 2. Distribution of injuries

Orofacial	No.	%	Others	No.	%
Lips	158	48,0	Shoulder	3	0,9
Tongue	42	12,8	Elbow	1	0,3
Cheek	30	9,1	Hand/finger	4	1,2
Broken tooth	25	7,6	Knee	1	0,3
Chin	1	0,3	Toe	1	0,3
Jaw/TMJ	1	0,3	Ruptured spleen	1	0,3
Broken nose	10	3,1	Back	1	0,3
Eye	47	14,3			
Ear	3	0,9			
Total	317	96,4		12	3,6
Sum total				329	100

Table 3. Orofacial injuries per position

Position	No. of injuries	No. of players	Average
Goalkeeper	8	13	0,6
Defence	12	18	1,5
Attack	68	22	3,1
Defence/attack	158	46	3,4
Pivot	71	13	5,5
Total	317	102	3,1

Out of 329 injuries the number of orofacial injuries totaled 317, representing a frequency of 3.1 per player. The details of orofacial injuries relative to the playing position are shown in Table 3. Brief details of the reported treatment for injuries sustained whilst playing are given in Table 4.

Table 4. Treatment of injuries (most often)

	No.		No.
Doctor	77	stitches	31
Dentist	23	crowns	10
		dentures	1
Total	100	Total	42

Discussion

Water polo is a very popular sport in Croatia. The National team ranks among the top teams of the world and there are thriving domestic leagues. For the last five years a Croatian club team has been European Club Champion several times. First Division competition games are both highly competitive and physically demanding.

98% of the injuries were to the orofacial region. Particularly common were the injuries of lips, tongue, cheek, eyes and teeth. Cuts to the lips alone represented 48% of all the reported injuries. Only one water polo player used a mouthguard. So it was impossible to determine whether a mouthguard used in water polo would be beneficial to the players. Compared with the findings in other sports we believe that orofacial injuries could be minimized with the use of mouthguards (Jennings, 1990; Maestrello de Moya, Primosch, 1989; Morrow et al., 1991).

Injuries to shoulder, arm and hand were next most frequently reported, but also perhaps surprisingly uncommon. The additional injuries reported were a broken toe, a damaged knee and a ruptured spleen. We believe that hand injuries are very common but being so frequent, and yet of such a relatively mild nature were not reported by these players. Similarly, the widely observed accidental scratching or gouging of the torso was not reported here at all.

The distribution of injuries is obviously related to the fact that the players' bodies, with the exception of head, shoulder and sometimes arms, are immersed in water. The water will cushion even the strongest blow to the body.

The belief that the majority of injuries in water polo are relatively mild is supported by the reported uptake of medical treatment. One third of the reported injuries needed treatment. On 31 occasions stitches were needed. On 23 occasions dental treatment was necessary. Again it is possible that water reduces the impact force, since displaced teeth

are far more frequent in rugby union or basketball (Hill et al., 1985; Lee-Knight et al., 1992).

The frequency of injury was notably related to player position. The goalkeeper and the pivot are specialized positions. The goalkeepers experience relatively few injuries. The purpose of the pivot is to receive and distribute the ball in front of the opponents goal. The pivot receives special attention from the defense and attracts close marking. This survey confirms a high risk of injury associated with this position.

Those players who solely defend, receive less injuries than those who attack or who combine attack and defense.

It is hoped that this survey will provide useful information for coaches and medical advisors associated with water polo teams. It is clear that the wearing of mouthguards by water polo players is to be recommended. Mouthguards prevent direct damage to the teeth, lips and alveolar bone or indirect damage to the temporomandibular joints and can be easily manufactured (Jagger, Clarke, 1974; Milward, Jagger, 1993), as recommended for sports that have a large number of participants and show a risk for oral trauma (Maestrello de Moya, Primosch, 1989).

It is suggested that mouthguards should be coloured so that if they become displaced in the water during play they may readily be identified and retrieved. It is compulsory for a doctor to be present during the course of both First Division league and international matches. In view of the relatively mild nature of the injuries the need for this is debatable. It is clear, however, that there is a need for team personnel to have a sound knowledge of First Aid.

Conclusion

Orofacial injuries were commonly reported in this survey of water polo players in the Croatian 1st Division. These represented 98% of reported injuries. 48% of the orofacial injuries were to the lips. Frequency of injury was related to the position, with goalkeepers sustaining relatively few injuries and pivots the most. Although the frequency of injuries was high, evidence suggests that the injuries were generally not severe. Wearing of mouthguards should be recommended as beneficial in water polo.

References

1. Hill, C.M., R.F. Crosher, D.A. Mason (1985). Dental and facial injuries following sports accidents: A study of 130 patients. *British Journal of Oral and Maxillofacial Surgery*, 23:268-274.
2. Jagger, R.G., D.A. Clarke (1974). Mouthguards for contact sports. *The Dental Technician*, 27(10):15-18.
3. Jennings, D.C. (1990). Injuries sustained by users and non-users of gum shields in local rugby union. *British Journal of Sports Medicine*, 24(3):159-165.
4. Lee-Knight, C.T., E.L. Harrison, C.J. Price (1992). Dental injuries at the 1989 Canada Games: An epidemiological study. *Journal*, 58 (10):810-815.
5. Maestrello-de Moya, M.G., R.E. Primosch (1989). Orofacial trauma and mouth-protector wear among high school varsity basketball players. *Journal of Dentistry for Children*, 56:36-39.
6. Milward, P.J., R.G. Jagger (1993). The silicone mouthguard for contact sports. *Dental Laboratory*, 18(4):30-31.
7. Morrow, R.M., T. Bonci, R.R. Seals, G.M. Barnewell(1991). Oral injuries in Southwest Conference women basketball players. *Athletic Training, JNATA*, 26:344-345.
8. Šimenc, Z. (1977). Vaterpolo. In: *Enciklopedija fizičke kulture*, 2 (pp. 450-458). Zagreb: Jugoslavenski leksikografski zavod.