

INJURIES TO THE OROFACIAL STRUCTURE IN A SELECTED SAMPLE OF HANDBALL PLAYERS

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Abstract:

Injuries of the orofacial tissue frequently occur in many sports, and the possibility of orofacial injury during the sports season amounts to 10%, and throughout a career 33% to 56%. The aim of the present study was to determine the frequency and seriousness of injury of the orofacial structure in a selected population of top handball players (Croatian National Team). The study was carried out via a questionnaire which each player completed (15 players).

The total number of injuries of the orofacial structure was 132 injuries, i.e. 8.8 for each player during his career. During the last year 8 injuries have been recorded, which corresponds to the average of several years. The most frequent injuries were lacerations of the lips, tongue and face, which comprised almost 79% of all injuries. The frequency of injury also depends on the position in the team, and consequently goalkeepers were most often injured, followed by field players and then pivot players, while wings were the least frequently injured. Medical intervention was needed in only five cases.

When comparing the injuries reported in this investigation with those received by the Croatian Premier League water-polo players similarity was observed in the frequency of injuries to the orofacial structures and also the lack of protective equipment during matches.

Injuries which are relatively slight and only occasionally require medical intervention, have a non-stimulating effect on the utilisation of protective equipment - mouthguards. All injuries to the teeth could be prevented or at least diminished by use of a mouthguard. This study, on such a small but specific sample, has proved that the need has arisen for a further study on a considerably larger sample of handball players.

Key words: orofacial structure, injuries, handball.

VERLETZUNGEN DER OROFAZIALEN STRUKTUR IN DER AUSGEWÄHLTEN STICHPROBE DER HANDBALLSPIELER

Zusammenfassung:

Verletzungen des orofazialen Gewebes kommen in vielen Sportarten vor. Für den Sportler steht die Wahrscheinlichkeit, eine orofaziale Verletzung abzubekommen, bei 10% pro Sportsaison und bei 33%-56% in der ganzen Sportkarriere. Das Ziel dieser Studie war, die Häufigkeit und die Schwere der orofazialen Verletzungen in der ausgewählten Stichprobe der Leistungshandballspieler (kroatische Nationalmannschaft) zu bestimmen. Die Studie wurde mittels eines Fragebogens durchgeführt, den jeder der 15 Spieler ausfüllte.

Es wurden im total 132 Verletzungen der orofazialen Strukturangemeldet, d.h. 8,8 pro Spieler in seiner Karriere. In der letzten Saison kamen 8 Verletzungen vor; eine Zahl, die mit dem Durchschnitt von mehreren Jahren übereinstimmt. Die häufigsten Verletzungen waren Lippen-, Zungen- und Gesichtsrisse, die zusammen 79% aller angemeldeten Verletzungen machen. Die Häufigkeit der Verletzungen hängt auch von der Spielposition ab, so dass Torwarte am häufigsten verletzt wurden, von Feldspielern und Pivotspielern gefolgt, während Außenspieler ziemlich wenige Verletzungen abbekamen. Ärztliche Intervention wurde nur in fünf Fällen nötig.

Vergleicht man die in dieser Studie beobachteten Verletzungen mit den Verletzungen von Wasserballspielern der Ersten Wasserballliga, sind die Ähnlichkeiten in der Häufigkeit orofazialer Verletzungen sowie in der mangelnden Schutzausrüstung beim Spiel bemerkbar.

Die ziemlich leichte Verletzungen, die nur ausnahmsweise ärztliche Hilfe benötigen, wirken nicht stimulierend auf den Gebrauch der Mundschutzausrüstung. Alle Zahnverletzungen konnten mit so einer Mundmaske vermieden oder zumindest vermindert werden. Da die Ergebnisse dieser Studie auf einer kleinen aber spezifische Stichprobe interessant sind, erwies sich der Bedarf nach weiteren Studien auf einer bedeutend grösseren Stichprobe der Handballspieler.

Schlüsselwörter: orofaziale Struktur, Verletzungen, Handball

Introduction

Injuries to the orofacial tissues occur frequently in numerous sports (Asembo and Wekesa, 1998; Berg et al., 1998; Castaldi, 1987; Clegg, 1969; Davies and Knott, 1984)). In their investigation in Australia Davies and

Knott observed that a third of all dental injuries was caused during sport activities (De Wet, 1981). W.C. Goldwin, Director of Sports Dentistry at the University of Michigan Dental School defined contact sport as any sport in which an object can hit the jaw or teeth (Diangelis and Bakland, 1998). I.L.

Kerr, President of the Dental Health Board at the Olympic Committee of the United States of America proposed that this definition be extended to include any activity which can induce stress in the stomathognathic system resulting in a comprehensive clenching of the teeth. Other investigations have shown the possibility of orofacial injuries during the sports season to be 10% and during a career 33 to 56% (Fagerli et al., 1990; Hill et al., 1985).

The prevalence of injuries varies and amounts to 12.3% in secondary school athletes, 18.2% in primary school children during recreational sport, 22.6% in young ice-hockey players and as high as 31% in young basketball players (Ishijima et al., 1998).

An investigation carried out on a sample of Premier League Croatian water-polo players showed that 98% of injuries involve orofacial injuries, of which approximately 50% are injuries to the lips (Jerolimov and Carek, 1997; Jerolimov and Jagger, 1997).

The object of this pilot study was to determine the frequency and seriousness of injuries of the orofacial structure in a selected population of top handball players (Croatian National Handball Team) and to compare the results with earlier results in water polo players. Handball and water polo are similar sports: both are physically demanding and in the Republic of Croatia both have the highest international value at club and national team levels (Jerolimov and Carek, 1997; Jerolimov and Jagger, 1997).

Material and method

The study included 15 handball players from the Republic of Croatia, during training for the national selection in Pula (1997) (Table 1).

The players were members of eight handball clubs. The average number of playing years amounted to 14.7 years. The study was carried out via a questionnaire which was distributed to the players and which they completed themselves.

Results and discussion

From the data obtained from the questionnaire we established that the total number of injuries to the orofacial structure amounted to 132, i.e. an average of 8.8 per player during his career so far (Table 2). During the previous year there have been 8 injuries recorded, which is in accordance with the average number of injuries during a career. The most frequent injuries were lacerations of lips, tongue and face amounting to almost 79% of the injuries, while all other injuries amounted to 21% of the total number of injuries.

An injury depended on the position of a player in the team (Table 3). During a handball game the goalkeepers are the most frequently injured, followed by field players, then pivots, while the players on the wings have the lowest average frequency of injuries to the orofacial structure during their career. The results of this study differ from those of Wedderkopp and his co-workers who established that the most frequent injuries were those of the field players, and they concluded that the position played and any previous injury are risk factors for the occurrence of a new injury (Maestrello-de Moya and Primosch, 1989). Differences in the number of injuries according to the position in the team occurred because other investigators examined the total injuries to players while we restricted our examination to injuries to the orofacial structure.

Table 1: Frequency of subjects according to position in the team.

Position in the game	Number of players	Years of playing	Average years of playing
Goalkeeper	2	15 + 10	12.5
Pivot	3	10 + 14 + 20	14.7
Wing	3	16 + 18 + 15	16.4
Field	7	16 + 17 + 18 + 14 + 8 + 20 + 10	14.7
TOTAL	15	221	14.73

Table 2: Types of injury and their frequency.

Type of injury	Number of injuries during career	%	Number of injuries during the last year	Medically treated
Lacerations of lips, tongue and face	104	78.79	5	2
Loose or knocked out teeth	7	5.3	0	0
Broken tooth	11	8.33	3	3
Injury and pain of the TMZ	9	6.82	0	0
Broken jaw	0	0	0	0
Concussion	1	0.76	0	0
TOTAL	132	100	8	5

Table 3: Number of injuries depending on position in the team.

Position in play	Number of injuries during career	Average number of injuries	Number of injuries during the last year
Wing	7	2.4	
Field	60	8.6	4
Pivot	22	7.3	1
Goalkeeper	43	21.5	3
Total	132		8

Medical intervention was provided in five cases. Three broken teeth and two lacerations were medically treated. With regard to the issue of using a mouthguard, only one player reported that he had attempted to use a mouthguard. Breathing difficulties were given as the main reason for not using a mouthguard during a match. In this respect 43 injuries during a fifteen-year career is very significant, which is an average of 2.87 injuries a year. Out of the total number of 43 injuries, 40 (93%) involved lacerations of lips, tongue and face, which could have been completely prevented by the use of a mouthguard. Only three injuries (7%) involved injuries to the jaw joints, which could also have been prevented, or at least diminished, by the use of a mouthguard. During the previous year the same player was injured three times, which is in accordance with the average number of his injuries. All three injuries fell into the group of lacerations and none were medically treated. According to data from literature, over half of all injuries to the orofacial structure comprise lacerations of soft tissues, most frequently in the area of the lips. Fagerli and his co-workers established that the majority of lacerations occur on the face (Nielsen and Yde, 1988). With regard to

frequency, teeth injuries are second, while all other injuries are relatively infrequent (Ishijima et al., 1998; Jerolimov and Carek, 1997). The results of this study differ to a certain extent from literature data, because lacerations comprised 78.79% of all injuries. Injuries to teeth were second, although they represented a lower percentage (13.63%) than in the investigations of other authors which were carried out in other sports. All other injuries to the orofacial structure were very infrequent. Out of the 18 teeth injuries, 11 involved broken teeth (61%), and 7 (39%) loose or knocked out teeth. During an investigation carried out on basketball players 60% of teeth injuries consisted of broken teeth (Seil et al., 1998), which is an identical result to that of our study. Although the study involved top athletes, who have been engaged in sport for a long time and who know how to protect themselves and avoid injury, the average number of injuries during the previous year did not differ from the average number of injuries during their careers. Fortunately, only a small number of injuries required medical intervention, which is in congruence with the results of Nielsen and Yde, who established that 40% of injuries were treated by the players themselves (Seil et

al., 1997). In their investigation Assembo and Wakes determined that 85.07% of all injuries occurred because of the action of the opponent, usually a collision (55.22%). They also noticed that 59.24% of the injuries are head injuries which mainly occur during attack and less frequently during defence, and 56.7% of injuries occur in the second half-time. Only 38.81% of injuries lead to players substitution. There was no difference in the way the injury occurred between male and female players (Maestrallo-de Moya and Primosch, 1989). Seil and his co-workers observed that injury was more frequent during matches than during training. The ratio of injury during training and matches differed according to the importance of the match. Players of lower rank were injured more frequently during training than players of higher rank, who were injured more frequently during matches. A correlation was recorded between the seriousness of the injury and the importance of the match, the majority of injuries during attack, particularly counterattack, and variation according to the number of injuries, depending on the position in the team (Škrinjarić, 1995; Wedderkopp et al., 1997). In accordance with the results of the study it is proposed that changes are made in the rules for handball or preventive programmes for reducing injuries (Maestrallo-de Moya, 1989; Seil et al., 1998; Wedderkopp et al., 1999).

When comparing the results of an investigation carried out on a sample of the Croatian Premier League water-polo players (Jerolimov and Jagger, 1997), similarity was observed with the results of the present investigation with regard to the frequency of lacerations of the lips, tongue and face

(89.33%) in the total number of injuries to the stomathognathic system. The frequency of teeth injuries during water polo amounted to 98.8%, and all other injuries 0.79%. It is interesting to compare the number of injuries with regard to the position in the team. Goalkeepers in water polo are the least injured players, with an average of 0.6 injuries, while in handball their average is 21.5 injuries. In handball the pivot is injured 7.3 times on average, while in water polo the pivot is the most frequently injured player, with 5.5 injuries. The average number of injuries suffered by a water-polo player during his career is 3.1 injuries, while in handball this number is 8.8 (Jerolimov and Carek, 1997). Because of the similarity between these two sports (contact sport, the ball is the object of the game, use of zone defence and individual marking of the opponent) greater conformity was expected in the number of injuries and their frequency, according to the position in the team. It can be assumed that water, as an aggravating factor in the game, reduces the possibility of blows, i.e. reduces the force of the blows made.

Conclusion

Finally, it can be concluded that the results of this pilot-study indicate the need for further research, which would include a larger number of players both from male and female teams of the highest ranking competitions, in order to enable appropriate comparisons and correct conclusions.

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