

INCIDENCE OF EYE INJURIES IN SPORTS

By **Rachel North** PhD BSc FCOptom

The increase in sports related eye injuries has been exponential in recent years. Sport is now the biggest cause for hospital admission for serious eye injury.

Not all sports are equally dangerous and it is important for practitioners to know the relative risks. This is a summary of research in this important area of interest. Sports Eye Injuries can be divided roughly into three groups (*see Fig 1 Types of sporting eye injury*).

SURVEYS

GREGORY

1986 - Sussex Eye Hospital. Gregory's survey (*see Fig 2 incidence of eye injuries*) showed that the majority of injuries were to men (75%) and that squash the commonest cause of injury. 20% of all patients were admitted to hospital and 6% of patients had broken spectacles. He concluded that there was a need to inform patients of the availability of eye protectors and where to purchase them.

Table 1 Types of sporting eye injury

Contusion: eg racket sports, football, boxing	Perforating: eg squash, golf	Radiation: (Including UV) e.g. ski-ing, sailing, climbing
Black eye Subconjunctival haemorrhage Hyphaema Iridodialysis Angle recession Cataract Retinal detachment / tear Commotio retinae Blowout fracture	Corneal lacerations Iris prolapse Subluxation of crystalline lens Intraocular foreign bodies	Photokeratitis Cortical cataracts Pterygium

Fig 2 Incidence of eye injuries - Gregory (1986)

Sport	Total No.	Male	Female
Squash	24	18	6
Soccer	19	19	0
Badminton	16	6	10
Tennis	11	9	2
Rugby	6	6	0
Cricket	5	4	1
Basketball	3	1	2
Hockey	3	2	1
Golf	2	2	0
Marbles	1	1	0
Karate	1	1	0
Lacrosse	1	0	1
TOTALS	92	69	23

JONES 1988

This was a one year study (*see Fig 3 types of injury, sport and visual outcome*) of eye injuries admitted as inpatients to the Manchester Royal Infirmary (n=52). Racket sports accounted for half of the injuries. Sports appeared to be an increasing cause of serious eye injuries (52 out of 207), none of the patients had worn eye protectors.

Fig 3 Types of injury, sport and visual outcome

INJURIES SUSTAINED	No.
Macroscopic hyphaema	31
Raised IOP	12
Commotio retinae	12
Skin lacerations	10
Angle recession	8
Vitreous haemorrhage	7
Iris tears or dialysis	6
Blowout fracture of orbit	5*
Retinal break & RD	4
Penetrating injury	3
Choroidal rupture	1
Cataract	1

* football, squash racket, hockey stick, cricket ball

PATIENTS WITH SEVERE VISUAL LOSS			
Case	VA	Injury	Sport
1	6/18	Macular damage	Badminton
2	6/24	Ret. detachment	Squash
3	6/36	Macular damage	Rugby
4	3/30	Macular damage	Squash
5	1/24	Macular damage	Badminton
6	CF	Ret. detachment	Golf
7	NPL	Enucleation	Squash

MACEWEN 1989

MacEwen carried out a one year Study of all eye injuries in the Glasgow Eye Infirmary & Western Infirmary (n=5071)

- 69.9% of eye Injuries happened at work
- 18.3% during leisure activities or at home
- 2.3% were sustained playing sport.

But the majority of *serious* eye injuries were due to sporting or leisure activities.

PARDHAM ET AL 1995

Carried out a one year study at Bradford Royal Infirmary of 80 (83% male) subjects, 48% of whom were aged between 10 and 19 (*see Fig 4 Pardham et al incidence of eye injuries in different sports*).

Racket sports were the major cause of eye Injuries. Squash & tennis injuries required follow-up and or hospital admission in all cases.

Questionnaires of squash players (n=89) revealed only 9% (n=8) wore eye protectors. 3.4% (n=3) had previous lacerating injuries, 93% claimed to be aware of ocular hazards and all eye protection wearers were non spectacle wearers.

INCIDENCE OF EYE INJURY	
Sport	(%)
Hockey	4
Paintball	4
Badminton	8
Rugby	8
Skating	8
Squash	13
Tennis	13
Cricket	21
Football	25

Fig 4 Pardham et al incidence of eye injuries in different sports

DAVID ET AL 1995 - Awareness Of Risk Of Squash Eye Injuries.

All the squash clubs in the West Midlands were surveyed by postal questionnaire (n=100), 51 clubs responded. None of the clubs has any information warning of potential hazards of eye injuries. 13 clubs had sports shops and only 3 of these sold eye protectors & all stocked the lensless type of eye protector. One supplied impact resistant plastic lenses.

FONG 1994 - An Australian Report

This was a two year study which concluded that sports accounted for 5% of all trauma. The major causes, squash, badminton, football, & cricket accounted for 22% of hospital admissions. 19% of those hospitalised were legally blind, 81% had Hyphaema and 8 subjects had a ruptured globe. None of the players wore eye protectors.

SUMMARY

Sport is an increasing cause of severe eye injuries and many players are unaware of the potential ocular hazards. Information regarding potential ocular injuries in sports should be provided and eye protectors should be supplied whenever possible. Open eye guards are not advised. There is now a British Standard for squash and racket sports - BS 7930 (1998) Eye protectors for racket sports Part 1 - Squash.

REFERENCES

BS 7930 (1988). Specification of eye protectors for racket sports. Part 1 squash

David DB. Shah P. Whittaker V. And Kirkby OR, (1995) Ocular Protection In Squash Clubs -Time For A Change. Eye 9(5), 575 - 7

Desai P. MacEwen CJ. Baines P. and Minassian DC. (1996a) Epidemiology and implications of ocular trauma admitted to hospital in Scotland. J Epidemiol. Community Health 50, (4), 436 -42

Desai P. MacEwen CJ. Baines P. and Minassian DC. (1996b) Incidence of cases of ocular trauma admitted to hospital and incidence of blinding outcome. Br J Ophthalmol 80, 592-6.

Giovinazzo VJ Yannuzzi LA. Sorenson JA. Deirowe DJ. and Cambell EA. (1987). The ocular complications of boxing. Ophthalmol (Rochester) 94, 587-97

Gregory PTS (1986) Sussex eye hospital sports injuries. Br J Ophthalmol 70, 748-50

Jones NP. (1988) One year study of severe eye injuries in sport. Eye 2, 484-7

MacEwen Ci. (1989). Eye injuries a prospective study of 5671 cases Br J Ophthalmology 73, 888-94.

Pardham S. Shacklock P. Weathenll J (1995). Sport-related eye trauma: a survey of the presentation of eye injuries to casualty clinic and the use of protective eye wear. Eye. 9(6) Suppt. 50-3

Fong LP. (1994). Sports related eye injunes. Med J Aust. V160 (12) p 743