

Research round-up

Sports enthusiasts urged to protect themselves

Golf aficionados should consider adequate eye protection before teeing off, not least because visual outcome from surgery is frequently very poor in golf-related eye injuries¹.

Assessing visual outcome and ocular survival after sports-related ocular trauma from playing golf, investigators retrospectively reviewed a case series of seven patients with golf-related eye injuries treated at Austrian hospitals over the last seven years in a multicentre setting. Five men and two women received treatment. The mean age was 46 (range 29 to 63), and three of the patients had blunt close globe trauma, while four suffered from a ruptured globe. Following the injuries, the patients' initial visual acuity ranged from no light perception to 6/12. All of the patients required surgery, with the resulting visual acuity ranging from moving hands to 6/6. Three eyes required enucleation.

According to the study authors, poor surgical outcomes were further complicated by these traumas frequently being accompanied by a high enucleation rate. Among the patients reviewed, it was observed that ruptured globe trauma had a worse prognosis than close blunt trauma. Due to the severe resulting complications of golf-related ocular injuries, eye protection should always be considered and emphasised by practitioners.



A prospective observation study evaluating the severity and sequelae of eye injuries caused by modern sports showed that squash, paintball and motorcross were the most common causes of sports eye injuries. Capao Filipe *et al*² noted that modern sports were responsible for 8.3%

of the 288 total sports eye injuries reported. The most common diagnosis during the follow-up period was retinal breaks, with the majority sustaining a severe injury. Study authors noted that ocular injuries resulting from modern sports were often severe. They argued that adequate instruction of the participants in the games, proper use of eye protectors, and a routine complete ophthalmological examination after an eye trauma should be mandatory.

The American Academy of Paediatrics and the American Academy of Ophthalmology recently issued policy guidelines strongly recommending protective eyewear for all participants in sports in which there is risk of eye injury³. Protective eyewear should be mandatory for athletes who are functionally one-eyed, and for athletes whose ophthalmologists recommend eye protection after eye surgery or trauma.

More than 42,000 sports-related eye injuries occur in the United States each year. More than one-third of the victims are children. Children can incur injuries ranging from abrasions of the cornea and bruises of the lids to internal eye injuries, such as retinal detachments and internal bleeding.

Sports with the highest risk for eye injury, and for which eye protection is

available, include basketball, baseball, hockey, football, lacrosse, fencing, paintball, water polo, racquetball, soccer and downhill skiing. Baseball and basketball were associated with the most eye injuries in athletes aged five to 24 years. In Canada, eye injuries decreased by 90% after certified full-face protectors attached to headgear were made mandatory in organised amateur hockey.

According to the policy statement, protective eyewear lenses should be made of polycarbonate, which is 20 times stronger than typical lenses. Polycarbonate is the most shatter-resistant clear lens material and should be used for all safety eyewear. It can withstand impact from a ball or other projectile travelling at 90 miles per hour. Contact lenses offer no protection, and street wear spectacles are inadequate to protect against any type of eye injury.

Sunlight exposure and ARM

Investigations from the Beaver Dam Eye Study examined the association of sunlight exposure and indicators of sun sensitivity with the 10-year incidence of age-related maculopathy (ARM). The main outcome measure was the incidence and progression of ARM, with ARM status determined by grading stereoscopic colour fundus photographs. The study included persons aged 43 to 86 years at the baseline examination from 1988 to 1990, living in Beaver Dam, Wisconsin, US, of whom 3,684 persons underwent five-year follow-up and 2,764 underwent 10-year follow-up.



The results, published in the May 2004 issue of *Archives of Ophthalmology*⁴, showed that, while controlling for age and sex, participants exposed to the Summer sun for more than five hours a day during their teens, in their 30s, and at the baseline examination were at a higher risk of developing increased retinal pigment (risk ratio [RR], 3.17; 95% confidence interval [CI], 1.24-8.11; $P = .01$) and early ARM (RR, 2.14; 95% CI, 0.99-4.61; $P = .05$) by 10 years than those exposed less than two hours per day during the same periods.

Few significant relationships between environmental exposure to light and the 10-year incidence and progression of ARM were found in the Beaver Dam Eye Study. Consistent with results from the baseline and five-year follow-up examinations, significant associations were found between extended exposure to the Summer sun and the 10-year incidence of early ARM and increased retinal pigment. A protective effect of hat and sunglasses use by participants while in their teens and 30s against the 10-year incidence of soft indistinct drusen and retinal pigment epithelial depigmentation was also found – but only in those who reported the highest amount of sun exposure during the same periods.

There is evidence suggesting that lutein and zeaxanthin, the carotenoids found in a variety of fruits and vegetables, may protect against age-related macular

degeneration (AMD). An intake of dietary supplied nutrients rich in lutein and zeaxanthin appears to be beneficial in protecting retinal tissues, but this is not proven.

According to a recent review of what is regarded as controversial evidence, until scientifically sound knowledge is available, it is recommended that patients judged to be at risk for AMD should alter their diet to more dark green leafy vegetables, and wear UV protective lenses with a hat when outdoors. Future investigations on the role of nutrition, light exposure, genetics, and combinations of verteporfin photodynamic therapy with intravitreal steroid (triamcinolone-acetonide) injections, hold potential for future treatment possibilities⁵.

References

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