For most people in Australia, recreational activities are a regular and growing part of our daily lives. Eye care practitioners have a duty of care to present the best possible options for eyewear that will protect and enhance each patient’s vision while they’re out and about. That means it’s time to change your mindset, the mindset of your staff and your patients – you’re not selling a second pair of glasses, you’re selling an essential piece of sporting kit!

ENQUIRE AND RESEARCH
To ensure you can provide patients with the very best advice on eyewear, it’s essential to ask them about their recreational pursuits. If you operate in an area renowned for a particular activity, such as biking or fishing, it’s a good idea to take the time to understand the relevant visual requirements and physical demands – in doing so, you’ll be in the best position to provide advice on the appropriate eye protection.

It’s not unusual for your average lycra clad, café going cyclist to spend Au$10,000 on a performance bike, for a bait loving fisherman to spend $1,000 on a rod and reel or a race-going yachtie to spend several hundred dollars on a pair of deck shoes (not to mention the spray jacket, leggings etc. etc.). So why wouldn’t they invest a few extra dollars into the appropriate eyewear to both protect their vision and enhance their performance?

Once armed with the information you need, use it during your consultation times. Explain to your cyclist patient the importance of protecting their eyes from dust and flying particles, of accurate glare free vision and of having frames that stay in place on the face... talk to your fishing customers about the value of polarised lenses... and inform tennis players about the dangers of wearing regular eyewear with glass lenses on the court... help them...
understand that protective eyewear must become an integral part of their kit.

**WORKING THROUGH THE OPTIONS**

When it comes to helping your patients choose the best possible eyewear to protect and maximise their vision, there are several design elements for both the lens and frame that need to be considered:

**LIGHT AND COLOUR**

High glare environments can result in one to two lines reduction in visual acuity, so by ensuring adequate protection from glare and intense lighting conditions, you can help maximise your patients’ vision. For example, customise the tint to meet your patients’ needs, keeping in mind that lighter eyes are more sensitive to light and therefore require a darker lens. Consider also the particular activity your customer is involved in – brown lenses – help increase contrast on a green background for sports such as golfing, whereas for target shooters, a yellow tint in low light conditions can enhance targets against a blue background.

The notion of reducing blue light to enhance vision and protect our eyes remains controversial. Some studies have suggested that blue light is phototoxic; while others argue the doses in natural light and from LED’s are far too small to have a damaging effect. More research is required.

The harmful effects of ultraviolet light, however, are well understood and documented. Both short-term discomfort and long-term eye damage, including pterygium and cataract, result from exposure to UV light. To help protect from these diseases, it’s important to choose a lens material and/or coating that eliminates harmful UV rays. It’s also critical to select frames with adequate fit and coverage. A close fitting wraparound frame and lens with UV protection will provide the very best possible defense for your patients’ eyes from UV light.

**IMPACT RESISTANCE**

Increasingly, evidence is showing that the incidence of eye injuries from high-risk sports is reduced by 77 – 84 per cent when mandatory eye protection is worn.1,2,3

Sports identified as medium to high risk include those where there are balls or bats, as well as where there is a risk of a finger in the eye or a collision. Some examples of medium to high-risk sports include cycling, squash, tennis, basketball, lacrosse, field and ice hockey (See Table 1).4,5 Regular dress optical spectacles should not be worn for these activities, as the additional risk carried by the frame and or lens can result in increased risk of facial and ocular trauma.6,7

Instead people who participate in activities associated with a moderate to high risk of acute eye injury should wear a frame and lens capable of withstanding impact energies without cracking or shattering.

<table>
<thead>
<tr>
<th>Sport</th>
<th>Specific Demands</th>
<th>Suggested Solution and Tint</th>
<th>Relevant Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycling</td>
<td>High speed small particles, Dust, water, insects, Road glare, Near (trip meters) and distance critical</td>
<td>Progressive lens design, Photochromic or interchangeable lens, Impact Resistant</td>
<td>AS1067 (with increased impact resistance in accordance with AS/NZS 1337.1)</td>
</tr>
<tr>
<td>Fishing, boating, water sports</td>
<td>High glare, Penetrating eye injury hazard</td>
<td>Polarisied, Photochromic polarised, Floating frame, Impact Resistant</td>
<td>AS1067 (with increased impact resistance in accordance with AS/NZS 1337.1)</td>
</tr>
<tr>
<td>Racquet sports including tennis, squash</td>
<td>Squash – artificial light, Blunt trauma hazard, Tennis – high glare</td>
<td>Polarised for tennis or clear for squash</td>
<td>AS4066 Racquet Sports Eye Protection</td>
</tr>
<tr>
<td>Golf</td>
<td>Eye-hand co-ordination critical, Timing and position, Greens – flat with high glare</td>
<td>UV, AR Coating, Wrap frame, Scorecard, end of club and far distance, Brown or Golf Green tints enhance white on green</td>
<td>AS1067</td>
</tr>
<tr>
<td>Cricket</td>
<td>High glare environment, High impact, High speed ball</td>
<td>UV, AR Coating, Wrap frame, Tints enhance red ball on green surface</td>
<td>AS4499.3 Cricket Face shields</td>
</tr>
<tr>
<td>Driving</td>
<td>High glare environment, Variable light conditions, Colour and warning lights critical</td>
<td>Wide field of view critical, Near (dash) and distance requirements critical, Neutral tints and polarised, NOT Category 4 Sunglasses (NB Marked NOT SUITABLE FOR DRIVING), Photochromic polarised, Ensure patients with colour vision anomalies don’t choose lenses that may further distort colour</td>
<td>AS1067 Sunglasses, AS1609 Motor cycle face shields</td>
</tr>
<tr>
<td>Alpine sports</td>
<td>Increased UV levels due to altitude, Range of light conditions</td>
<td>Photochromic for variable light or interchangeable lenses, Double lens to reduce fogging, Category 4 Lens on very bright days (NB Not For Driving)</td>
<td>AS1067 Sunglasses</td>
</tr>
</tbody>
</table>

Table 1: Sports Eye Protection Guide
Poly carbonate and Trivex are the materials of choice in this regard and they must be housed in a frame that provides lateral protection. Additionally, they must be expertly fitted to ensure adequate lens retention. It is important to remember that a sunglass is not an eye protector but an eye protector can be a sunglass.

Activities identified in Australia with standards that have specific impact resistance requirements include racquet sports (AS4066)³⁵, cricket (AS 4499.3)³⁴ and motorcycle and racing car drivers (AS1609).³³ Internationally, standards exist for eye protection for snow skiing goggles, field hockey, lacrosse and ice hockey.³³⁻³⁵

In the United States there are moves toward mandatory use of sports eye protection in several high-risk sports including lacrosse and hockey.

It's worth noting that amblyopic patients, or those at increased risk due to previous surgery or eye disease, are of particular concern when it comes to participating in sports with moderate to high risks of eye injury. This group of patients requires eye protection when and wherever hazards exist and should be counselled against participating in high risk sports such as mixed martial arts where adequate eye protection is not available.

Children also face a greater risk of eye injury when participating in sport because of their facial morphology, i.e. their eyes are more prominent. The disproportionate rate of children with eye injuries that require hospitalisation should be enough to encourage all eye care professionals to provide eye protection for every child that participates in medium to high risk sports – regardless of visual acuity.

**CUSTOMISING THE BEST OPTION**

By combining knowledge of your customers’ sport with a customised fitting system that attempts to replicate their head position while participating in that sport, you can optimise your patient’s vision (see table 1).

Assessing the fitting parameters in the actual position of wear, taking into account the vertex distance, frame and lens curvature and other relevant considerations, will help to ensure the patient is wearing the very best prescription to maximise their vision.

Space permitting, consider establishing a dispensing area dedicated to sporting pursuits. In doing so you will visually position yourself as a sports specialist and clearly differentiate your practice from the competition.

Encourage patients to bring any key elements of their sporting activities along with them to the consultation. For example, if your cyclists bring their helmets, you’ll be able to more easily find the best fitting frames to comfortably accommodate the shape of their helmets. Additionally, cyclists could bring along their trip computers to help you understand their near visual requirements when riding. And golfers could bring in their favourite number one wood to simulate head position while playing.

**CHOOSING THE FRAME**

Thanks to state-of-the-art technology and concentrated research, new frame materials and manufacturing methods are evolving, facilitating the production of more performance oriented frames. Double injection molding of frames to incorporate rubber components, for example, delivers a molded fit to the wearer’s head, and in doing so, increases security and comfort. Lateral protection has been incorporated into frame designs to ensure maximum protection without compromising style.

Already we are seeing electronic devices, including MP3 players and wearable computers, integrated into spectacles. Once the fancy of sci-fi movies, this technology is moving closer to reality with the Google Glass wearable computers due for consumer release within the next few months.

Combining material and design innovations for consumer products provides exciting opportunities. However great care must still be exercised to ensure that your patients’ visual and safety demands are also considered.

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References: