

# Olympic dreams and the role of sports eyewear

**Liam Kite** discusses optical appliances suitable for specific sports and how to dispense them. **Module C19012**, one general CET point for optometrists and DOS

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**B**ill Shankly once famously said that 'football is not a matter of life or death – it's more important than that' and this typifies the approach to sporting success in the UK psyche. In the excitement that surrounds London and the 2012 Olympics, thoughts turn to the inevitable demand for sporting equipment that will follow, as armchair sportsmen suddenly decide that they can be in the next Olympics. There will also be parents who believe that their offspring can be the next Tom Daley or Paula Radcliffe.

As optometric professionals are we ready for the demand that this could, and should, place on our skills to match the correct eyewear to the individual sporting activity? It is of paramount importance that we remember that we are not selling a second pair, or spare pair, of spectacles, but that we are dispensing a piece of essential sporting equipment. Sport is becoming more than just a pastime, and we need to ensure that we move with the demand for high-quality sporting options.

So how do we prepare to tackle this inevitable demand for services? What do we need to look for in the product catalogues? Where do we need to market the appliances that we have available to us?

The first thing to do is to remind ourselves of the lenses and filters that are available, and equally importantly, why we need the filters. Looking at individual demands of sports will give a starting position. It must be remembered that there is no single perfect solution for each dispensing problem – more a series of options and the key is to find the most appropriate for each individual set of circumstances. The vast majority of patients requiring specialist sporting options will want a compromise, often trying to make one pair of spectacles do multiple tasks. The more serious a patient takes their sporting pastimes the more they



**Mountain bike enthusiasts are often prepared to pay premium prices for prescription eyewear**

are likely to accept that they need a specialist ocular device.

There are therefore three aspects, as with any dispensing, that need to be taken into account:

- The filters and treatments
- The lens
- The housing.

Before a filter can be advised, it is necessary to know what visual demands are to be encountered. As always, communication is the key and only by discussing fully with the individual can a specific filter be advised. Once we have the filters we then can consider

safety aspects such as impact resistance, durability and anti-scratch options. When this is done we can look at the housing. Many manufacturers are now offering frames that are specifically designed for sport, with the wraparound style becoming increasingly popular. This has necessitated the development of high base curves to allow for the wrap, and freeform lens technology to ensure the maximum visual comfort on areas away from the paraxial zone of the lenses. Particularly in sport the peripheral visual quality is just as important as the paraxial zone.

## Cycling

An important factor with competitive cycling is to have a frame and lens combination that is aerodynamic. With modern technology used for everything from the bicycle to the helmet, it would be a shame to ruin the benefits by fitting a frame that adds drag to the cyclist.

If the cyclist is a road cyclist then a good quality polariser to eliminate troublesome road reflections is ideal. If this can be achieved in conjunction with a light reactive element then this is very beneficial, but it goes without saying that this should be a safety lens also. The lens of choice for me would be the Rudy Project Photochromic Laser Racing Red, although it will not go totally clear when not activated, it will add contrast enhancing properties to the light reactive element.

If the lens is for use predominantly in the UK, then an orange filter works well in the often overcast conditions. If the Racing Red lens is used, it stands to reason that one would 'keep it in the family' and use the Rudy Project Rydon frame that has a wrap lens to aid with the aerodynamics, as well as giving peripheral protection from glare and UV.

Cycling is not just on the road and often serious track cyclists wear wrap sports glasses with clear lenses to give all round aerodynamic stability and stop the eyes from watering. For the



spectacle wearing amateurs, a frame such as the Adidas Adilibria with a glazeable insert (which is rimless) that uses polycarbonate for the shield and SPX for the frame should be useful. It has a 9.00D base curve for the shield which gives a good wraparound, and the whole of the front is a single piece of polycarbonate, which makes the air flow smoother. It is available with a contrast enhancer, which should be light orange, as though for use in overcast conditions.

Mountain biking puts greatly differing demands on the housing. When discussing with patients about sporting needs it is often worth asking how much they spend on their equipment; a good quality mountain bike could cost around £3,000, so protective prescription eyewear is comparatively good value for money.

The Adidas Elevation Climacool frame is an excellent choice as it has skull grips which can be boosted by a sports strap. Cushioning along the brow ensures a comfortable but firm fit, and the ventilated slots allow for air circulation to prevent misting of the lenses. The prescription is achieved by a glazeable insert. The shield is polycarbonate for lightweight UV protection and the lenses can be of varying types.

Probably the best filter for off-road mountain-biking is the LST Contrast Gold Gradient, which is excellent at green contrasting in low to medium lighting levels. It has 87 per cent blue filtration and a LTF of 80 per cent. As the frame has a quick and easy method of switching the shield, I would suggest that the LST Bright be used as a second option for use in fog/misty conditions and diffuse lighting, along with a clear shield that allows for UV protection but no other filtration.

## Golf

The issue with eyewear choice for golf is that of contrast, and with so many shades of green and so much variation in lighting levels, this can be quite difficult to balance. The majority of sports frames from Adidas and Rudy Project have interchangeable lenses, as do the Jawbone, Flak Jacket and Split Jacket by Oakley. This will allow for different illumination levels, although some patients may not feel happy with the DIY nature of swapping lenses over. The lenses will normally be brown/red in colour (labelled as copper by some manufacturers, eg Shamir), with orange/yellow lenses used specifically for low light and brown/orange used for bright conditions. Some lens



Rex Features

**Golfers require a lens that enhances the contrast between many shades of green**

manufacturers have suggested that grey is useful, but as the majority of grey lenses are neutral density filters, the advantage of the contrast enhancing is lost. The need for UV and impact protection can easily be achieved by the use of lightweight polycarbonate or Trivex lenses. With Trivex having the higher Abbé value, and contrast being important it would be my first choice lens. The Rudy Project Golf 100 lens balances the relative brightness of the golf ball with the surrounding brightness, along with suppression of the blue and augmentation of the green areas of the spectrum. It has a luminous transmission factor of 25 per cent which was chosen due to the relative poor reflectance properties of the

**Choice of filter colour will depend on the light conditions**



Rex Features

grass. However, in overcast low light conditions this lens may be considered too dark. If used in conjunction with a lighter lens in an interchangeable mount then it would be ideal. The first choice frame for me would be the Adidas Retegeo. A frame manufactured from SPX is lightweight and has some flexibility, and has sprung-loaded hinges and adjustable nose pads.

## Shooting

This will depend heavily on the type of shooting. If outdoors, then the need for UV protection is obvious, but we must supply this at the same time as supplying good contrast enhancement. Clay pigeon shooters are best served with a blue filter that has been chromatically engineered to enhance the clay against the blue background. Some professional associations do not allow contrast enhancers so a good quality neutral density filter will work well at reducing glare without affecting contrast.

For outdoor shooting a polarising filter may help, and the level of the tint will be dependent on the ambient lighting levels. Ranging from brown/amber in very bright conditions down to a pure yellow for low lighting, a contrast enhancer will remove the blue end of the spectrum. In cloudy overcast conditions, an orange filter will give the best results. The housing is a different matter. For stationary shooting, the 'knoblock' shooting frame or the Winner Tradition (Norville) will be ideal. The lens aperture is available in diameters of 25, 32 or 42mm, and is glazeable with any type of lens.

For mobile shooting, skeet or clay pigeon, then a wraparound frame is ideal. Again this can either be a frame with a glazeable insert or a frame with wrap technology. My choice here would be the Oakley M frame. It must be noted that this is not a true wrap lens – the central zone houses the full prescription. However, it does allow for great peripheral glare and UV protection which makes the whole package highly sought after. Polycarbonate (or Oakley's Plutonite) lenses are a must, and as discussed earlier, a range of filters are available depending on the lighting conditions.

The Oakley HD Polarised effect moves away from the traditional lamination production technique, which can sometimes cause a hazy appearance, and replaces it with an injection-moulding fusion technique. Couple this with the anti-reflection benefits of HD and a high performance lens is achieved.



## Snooker

Snooker is often disregarded as a sport needing specialist ocular considerations, but it should be clear that the optical centres should sit high in the frame, and that the side angle should be such that the frame sits nearer at the brow than at the cheek. The Norville Snooker 1 is ideal as it has a vertical lens aperture up to 57mm with a backwards tilt to accommodate the head position. Contrast enhancers are not required for this sport and therefore the main issue is troublesome reflections that the user will notice due to the different fitting of the frame. It is advisable to fit these rimless frames with polycarbonate with a multilayered anti-reflection coating.

## Cricket

Trials of different filters indicated that while playing with a red cricket ball, the LST Trail Silver and LST Vario lenses from Adidas outperformed other lenses and were preferred overall by the England Lions Team. The reasons for this included the fact that the ball stood out from the background better and the lenses performed well in a variety of light conditions. Both lenses reduce blue and green light to promote the red end of the spectrum and hence make the ball stand out from the grass and sky background. The Adidas T-Sight frame is ideal and was used by the GB team in Beijing. Once again it is a lightweight flexible SPX frame, with a polycarbonate shield and a glazeable insert. This frame is quite adaptable and can be used for cycling and golf also, which would appeal to the multi-disciplined sports enthusiast.

## Racquet sports

Tennis, squash and badminton are sports that can quite easily be forgotten. Squash and badminton are both indoor sports, and as a result the need for UV protection is minor. However, particularly for squash, impact resistance is essential as both players are in the same playing area and the squash ball often can reach speeds of 150-170mph (it is worth noting that the squash ball is approximately the same size as an eyeball). Therefore Trivex or polycarbonate is essential.

For the serious squash competitors the Leader Zoom goggle is a good choice as it complies with BS7930:1998, but for the less competitive then the Wiley X PT-3 is a good option. It has a full wrap design, a safety strap for added security and an adjustable bridge. The shield is polycarbonate, and conforms to EN166, and has a glazeable insert. Although it is available with two tints,

## MULTIPLE-CHOICE QUESTIONS - take part at [opticianonline.net](http://opticianonline.net)

**1** Which of the following may be enhanced for a golfer wearing 'copper' lenses?

- A Acuity
- B Contrast
- C Motion perception
- D Field of vision

**2** Which of the following materials is most appropriate for a golfer's spectacle lenses?

- A Glass
- B CR39
- C Polycarbonate
- D Trivex

**3** Which colour filter is most appropriate for clay pigeon shooting?

- A Red
- B Orange
- C Brown
- D Blue

**4** Which of the following benefits needs to be considered when dispensing spectacles for cycle racing?

- A Good aerodynamics
- B Good peripheral glare control
- C Impact resistance
- D All of the above

**5** For cycling in overcast conditions, what colour filter might be most appropriate?

- A Red
- B Orange
- C Brown
- D Blue

**6** With which sport is BS7930:1998 concerned?

- A Rugby
- B Cycling
- C Squash
- D Shooting

Successful participation in this module counts as one credit towards the GOC CET scheme administered by Vantage and one towards the Association of Optometrists Ireland's scheme. **The deadline for responses is May 24 2012**



**Tennis players look for impact and UV protection**

a light yellow and a grey, for indoor use in a sports arena this is not really necessary and the clear option should be taken. The Wiley X PT-3 is also suitable for badminton.

Tennis has almost as many frame and lens options as all other sports combined. I would suggest that the need for impact and UV protection are both served with a polycarbonate shield. A contrast enhance is a good idea, but, particularly in the UK, as lighting levels can be low, nothing too dark should be used. A baseball style cap is

excellent at shielding the eyes if worn in conjunction with eyewear. The lens I would choose would be modulator amber and polarised, to enhance contrast while reducing glare. The Nike Impel Swift frame is excellent as it has a ventilated bridge to help reduce misting of the lenses, coupled with spring loaded hinges to give a secure grip. Shamir wrap technology allows the prescription to be glazed into the shield so there is no need for a separate prescription insert.

## Other sports

There are many sports that have not been included here, but nonetheless need consideration. Track and field with a need for glare protection and contrast enhancing would be well served by the Rudy Project Photochromic Laser Racing Red. Mountain climbers and altitude sports would be well served with the Bollé 100 Dark with a 5 per cent transmission amber lens. Anglers could wear the Bollé Polarised Inland Gold or the Offshore Blue. The list is endless. Always remember that for a patient (or customer) to purchase they need to be aware of the options available. ●

● **Liam Kite** is senior lecturer and pathway leader for ophthalmic dispensing, Department of Vision and Hearing Sciences, Anglia Ruskin University