VISION FOR THE FUTURE

In this second installment of our three-part Persistence of Vision series, ***Ed Lyons*** looks at the options available should we wish to enhance our vision, whether we choose glasses, contact lenses, laser treatment or other forms of surgery

Shooting is one of the most visually intensive sports out there. Typically, we see the clay come off the trap arm in three phases: a blur as it is under power and simply moving too quickly for our eyes to resolve, a streak where it can appear to have a 'comet tail', and then (hopefully) a clear, distinct target.

As discussed in the last issue, having sharp, acute vision can only help our shooting as we will acquire targets faster and more accurately, and a more relaxed visual system will aid concentration and reduce mental fatigue. It is worth remembering that 20/20 vision isn't all that great – it simply means that someone can see a target at 20 feet that has been designed to be seen at that distance. For those who are serious about improving their performance, we need to explore how to improve on this. So, what are our options and the pros and cons of each method of correction?

Shooting glasses

Glasses can slip, fog up and be generally irritating but they are mandatory when competing in registered shoots. Fortunately, the better brands tackle many of the aforementioned issues, and a well-fitting set can be comfortable, easy to maintain and enable a quick change of lenses. Pilla, Randolph Engineering, Decot and Castellani, to name but a few, have a comprehensive range of styles for various forms of shooting and there are tint filtrations to suit pretty much everyone.

If we have to wear glasses, we might as well try to gain an advantage from them. A well-chosen set of colours can really assist in target acquisition by providing definition to the edges of the intended target. While this could be an article all by itself, tint selection is very much down to the individual and what works for one is not necessarily the best choice for another. Some people's visual systems work really well with orange, red, yellow and clear lenses; others, like myself, need cooler colours with a denser tint in order for their eyes to feel comfortable. What is important in all cases is to enhance the target and separate it from the background under varying light conditions.

In my experience, three lenses are enough for most clay and game shooters, with one for poor light, one for bright light and one for 'general conditions'. However, it's not uncommon for clients to visit me with 20 lenses or more! There can be a fine balance between having the confidence in your kit to deal with every light condition and background you may face and becoming a fiddler, which can take you out of the zone.

Inserts can occasionally steam up in cold conditions and may get greasy when changing the outer coloured lens

Although they have significant advantages, prescription lenses can be an expensive option

For those that wear corrective spectacles, most designs will allow prescription lens technology, either in the form of direct glazing or as an insert that clips into the rear of the frame. With inserts, some shooters can become aware of reflections due to looking through the four lens surfaces (the front and back of each lens). This can be partially overcome by adding a high quality anti-reflection coating to the insert lens and using an anti-fog wipe on cold days. However, it is worth noting that cheap AR coats can scratch and degrade quickly.

The alternative to inserts is to glaze the entire lens, and the vast majority of prescription levels and colours can be dealt with now – even bifocals to assist with scoring and reading. Naturally, this option will be more expensive as the entire lens must be replaced if and when the prescription shifts or the outer lens becomes damaged, whereas re-glazing an insert will be less costly.

The two most important factors to consider when buying prescription shooting glasses are the centration measurements and the lens quality. When we have the gun to the shoulder, our visual point is often much higher up in the frame than in our regular glasses, so the 'sweet spot' of the lens should be slightly elevated. It is also imperative that our pupil distance has been accurately taken, as errors here can lead to distortion and, in some cases, double vision. It's always baffling when someone is happy to spend £500 or more on tinted outer shields but balks at £100 for a quality prescription lens, when it's this part that actually helps them to see.

Accidents can and do happen, so a good set of shooting glasses can save your sight as well as enhance your score. The image below is a picture of my mum's glasses after she was struck by a piece of clay on station 7 when finishing a round of Skeet. It's a sobering reminder that if she had been only wearing her contact lenses, she would very likely have lost her vision.

Contact lenses

Contact lenses have developed hugely over the last few years and the advent of new materials, prescriptions and cleaning solutions mean that the majority of individuals who may need glasses can be successfully fitted with lenses. Contacts, when fitted well, can be stable and comfortable and can enhance our peripheral vision by up to 15 per cent compared with prescription glasses alone. However, poorly fitted or maintained lenses can lead to gritty eyes, inconsistent vision and, critically, sight-threatening infections such as microbial keratitis. It is therefore of paramount importance to attend for regular lens checks. Rigid Gas Permeables (RGPs) are without doubt the best lenses around – they are small, hard lenses that last for approximately one year, although I did have a client who was wearing some vintage hard lenses from 1987 that he kept on his bedside table at night!

RGPs are produced bespoke to fit the exact shape of the cornea and give unparalleled clarity of vision – there are almost limitless prescription options that can be made. They are arguably the safest lenses out there too, with studies showing less incidence of inflammation and infection compared to softs.

Unfortunately there is an adaptation period and they can be uncomfortable for the first few weeks as the eyes adapt. People are becoming significantly less patient and it is for this reason, coupled with the care needed to clean and maintain them, that I fit only one client in 1,000 with these particular lenses. The majority choose the easy option of softs. A pair of RGPs can cost £200 to £500 so can be costly to replace if a lens gets broken or lost, although

The protective aspect of shooting glasses can sometimes have its value dramatically proven

There are many options available should you choose laser eye treatment

there are insurance packages that can help to cover the cost.

Monthly and Fortnightly Soft and Toric lenses are popular for ease of use and adaptation. These sorts of lenses go from around £5 to £30 per month. Silicone hydrogel lenses transformed lens wear as they became more comfortable, and even those with relatively dry eyes can now wear lenses to some degree as they retain more moisture, resist deposits and are more breathable than older designs.

There are many other materials available and most prescriptions are covered, although there can be compromises for those with astigmatism (an irregularly shaped cornea or lens). In order to correct the astigmatism, a lens has to sit in exactly the right position. This can work well when the head is in primary gaze, looking straight forward, but once the cheek is on the stock and a more irregular head position is used, the lens can rotate.

Such lens rotations cause distortion of round, fast-moving objects, so it is very problematic for clay shooters. If the other eye has a clearer picture, this can also induce an eye dominance issue as the off-eye tries to help out. This was an issue we dealt with when Kath Bright came to see me. We felt any soft lens design was always likely to move, so opted to go into a set of full prescription shooting glasses. As anyone who has seen Kath shoot will know, it seems to have worked out pretty well. Daily disposables are probably now the most common – these lenses should be worn once and then discarded. They are thin, breathable, comfortable and will hardly ever get dirty so they certainly can't be beaten for convenience.

Laser treatment and clear lens exchange

Surgical options for visual correction are now more affordable and more widely available than ever, so let's take a look at the most common procedures on offer. Laser eye surgery involves the precise reshaping of the cornea, the transparent window that covers the coloured part of the eye. For eye treatment to be as permanent as possible, it must take place beneath the thin, protective outer layer. This layer is moved aside using either a microkeratome (tiny blade) or 'laser knife' in order to let the laser do its reshaping work. It is worth noting, however, that if the patient's eyes tended to change before surgery, they may need another procedure afterwards to tackle the new prescription.

Two related laser eye surgery procedures are LASIK and LASEK. With LASIK, a flap is created in the outer window of the eye known as the cornea. The flap is lifted, the laser is applied to the inner layers of the cornea and the flap is replaced. In contrast, with LASEK the laser is applied to the surface of the cornea to correct the prescription. As a result, those with thinner corneas are typically advised to undergo LASEK. Other patients for whom LASEK is often recommended include those with irregular corneal shape – that pesky astigmatism again! There have always been concerns about LASIK because of its tendency to induce aberrations including starbursts, ghosting, halos, double vision and a number of other post-operative complications.

A more advanced (and expensive) method is Wavefront. Wavefront guided treatment replaces the 'one treatment fits all' model with a procedure that is tailored to the precise optics of the eye. While standard laser eye surgery (without Wavefront guidance) gives very high-quality results for the majority of patients, many people's eyes are not 'standard'.

The goal is to achieve a more optically perfect eye. In older patients, however, dispersion and scatter from microscopic particles play a major role and may outweigh any Wavefront benefit. Therefore, patients expecting so-called 'super vision' from such procedures may be disappointed. Still, surgeons claim patients are generally more satisfied with this technique than with previous methods, and touch up work can be done later to correct any residual errors.

Laser surgery is now much better than in its early days and far fewer people have problems post-surgery. But for the small proportion of people that do experience side effects, these can be very severe. For those who are unsuitable for laser surgery, or have other complications arising from surgery for eye floaters, clear lens exchange is another option. This is exactly the same procedure as having a cataract operation, where the human lens is dissolved, removed and replaced with a synthetic implant. While not always as predictable, it is a commonly performed operation and the results are often excellent.

Occasionally, a refractive surgeon may try to do their client a favour by making an adjustment to the correction that allows them to read without glasses – this generally applies only to the over 45s who will be going into presbyopia. For shooting, avoid this at all costs and request to get both eyes treated for distance only. Monovision (one eye distance, one eye reading) and varifocal implants will compromise distance vision and can again cause eye dominance problems. I have had two clients already this year who ended up with their shooting eye set for reading, and the off eye for distance, with predictably confusing results. If I were to ditch my trusty RGP lenses, Wavefront Laser is the procedure I would go for but I would find the most experienced and expensive surgeon going. After all, we only have one pair of eyes, and it makes sense to look after them. ◉