

The Eyes Have It

It seems that I've written more about vision and shooting than anything else, but there also seems to be a constant need to get the word out over and over. So - if you've read my articles on this subject in other media, skip on. But, if you are not sure how to see your sights as clearly as possible under any light conditions, the following explanation may help.

In order to get the correct sight picture at any given time you must be able to **CONTROL** the *power* of your shooting lens and the *depth of field*. In other words, you must be able to *change* these elements. Why? Because your eyes change from day to day, the sight radius of the pistols are different - one from another, and the light you experience from range to range (or minute to minute outdoors) changes. All of these things require you to make an adaptation if you want to get the best possible sight picture.

The only shooting system that I know of that makes this relatively easy is the "Champion" system. This system uses clip-on lenses that can be quickly and easily put over the basic lens (usually a prescription lens to get your vision to "normal" or zero) to add power when needed. Then there is an adjustable iris or diaphragm that goes between the eye and the lens to allow changes in depth of field. With this system you *are* in control. Remember, there is *no one* lens that is right for all shooting conditions! And that is where the trouble and misunderstanding comes in.

I finally had to purchase a lensometer - a microscope like device to read the "sphere" (power), "cylinder" (shape of lens to correct for astigmatism), and "axis" (angle of rotation of the cylinder) of prescription lenses. I had to do this to unravel the problems I was having with my own shooting glasses and to understand the problems clients were having with theirs. It turns out that a lot of eye care people, even if they are shooters, tend to make the wrong lenses! And, your lenses are practically **NEVER** what the prescription calls for (even if the prescription happens to be correct - which it may not be). We just had a client come by who had some expensive lenses made for his shooting glasses. The instructions were to add +.25 and +.50 diopters sphere to his prescription - resulting in two lenses to be used for pistol shooting. Unfortunately, the optician or the optometrist goofed and the lenses were made with -.25 and -.50 differences. The poor shooter couldn't figure out why things weren't better. This type of thing happens quite often. For this reason, we advise you to not bother the poor eye care person with your needs for shooting, but understand what is to be done, get the right equipment (Champion glasses), and take over the job yourself.

The eye, when relaxed, focuses out about 1.5 meters from your face. The front sight is inside of that distance. Therefore, you want to use a lens that brings that relaxed focus **IN** - ideally *at* the front sight. Some shooters take their gun to the obliging eye doctor's office and he "fits" a lens that does that. That is fine, if you are going to shoot in a relatively dark doctor's office! But, you still can't change! The proper way to do this is with low powered **PLUS** lenses. Plus lenses bring the focus in, minus lenses move the focus out. Generally, we recommend you start with two clip-on lenses: +.25 and +.50 diopter

(diopter is one meter change in focal length). These take care of most situations. Here the rule is: "The stronger the light, the stronger the lens". So, in bright light you will need to add the +.50 instead of the +.25. Why? Depth of field.

Depth of field means over how long a distance things are things in focus. In bright light, your natural pupil closes down and you get the "pinhole camera" effect: everything for quite a ways out is in focus. This means the pistol shooter's no-no: the *target* will be in focus! We all know that you don't want that, so it takes an added power lens to "fuzz" it up again. Now what about low light? Well, when your natural pupil opens up everything gets "fuzzy" - most importantly, the front sight! And that is where the adjustable iris comes in: you close it until you get the sights sharp and leave the target "fuzzy".

By now, you see that this is not a straight forward situation of "get a lens for my shooting glasses" and forget about it. And, above I've alluded to problems normally beyond our ken: quality control of the whole process. There is the possible error in the refractive process (the determining of your prescription), the prescribing process (getting the additional power backwards), and the lens making process itself. God help you to get the lens you *really* need to get to "zero" or 20/20! But you can have each step checked so that you get as close as possible - just don't trust anybody. Be a pain in the butt and have each person in the chain show you the lens is exactly what it should be. Then you take over and set up your glasses for the conditions of "right now".

Good seeing/shooting.

Don

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