



G.T. HARVEY & PARTNERS

OPTOMETRISTS

Your Vision, Our Focus

Focus on Vision

January 2019 - Winter Newsletter

Happy New Year!

I hope you had a lovely Christmas and wish you a happy and healthy 2019!

2018 was a very busy year for us as a practice. The highlight for me, not only as a practice owner but also as a proud Dad, was Jenny passing her professional exams. This means not only have I stopped working 6 days a week but we now have almost double the appointments available, so you should be able to get an appointment more easily and at a time that suits you.

On the clinical front the introduction in September of the Optos Optomap wide angle camera, has enhanced the level of clinical care we can now offer. This has already allowed both Jenny and myself to detect conditions much earlier than we have been able to do previously.

In 2018 we introduced several new frame ranges which have proved very popular, particularly **Salt** and **Eyospace**. In addition to this we have extended the **Silhouette**, **Tom Davies**, **Face à Face** and **Etnia** collections.

We had several firsts in 2018: we have our first 2 trunk shows – One showcasing the **“Danish Design Group”** collections which include **Face à Face**, **Pro Design** and **WOOW**, the other exhibiting **“Silhouette”**. These shows were very popular and I must congratulate Sarah Douglas in winning a gorgeous pair of **WOOW sunspecs** at the Danish Design show and Mrs. P. Cairns in winning a stunning pair of **Silhouette rimless varifocals** at the Silhouette show.

Late 2018 saw two of our sponsored **Guide Dogs** graduate and join their new owners as full time working dogs. We now have 2 new dogs to sponsor and hopefully they will succeed in their training over the next couple of years – ‘Pupdates’ to follow. I would like to thank all of you who have recommended friends and relatives to visit us for an

examination in 2018. As many of you know for each new recommended patient we see, we make a small donation to Guide Dogs. Through your kind recommendations this year we have donated a **total of £1,010 to Guide Dogs**.

As promised our **“Glasshouse Experience Competition”** winner can be announced as – **Mr P. Waggott** – Congratulations on winning our **“Recommend a Friend”** Competition, simply by recommending a new patient to us he has won an overnight stay at the prestigious Glass House Hotel in Edinburgh! Thank you to all of you who recommended friends and family to visit us last year, it is through your help that we develop and grow as a practice.

So to 2019! I always feel that the start of the New Year is a very exciting time with the opportunity to develop ideas into reality. In early 2019 we will be developing our **Minor Eye Conditions Clinic**. This means that if you have a red or sore eye problem, we will be able to see you in practice rather than you having to go to see your GP or attending the hospital.

We plan to introduce further new and exciting frame ranges, as well as extending the collections that we already have. To facilitate this we will be expanding our upstairs dispensing suite to enable us to offer you even more choice.

Spring 2019 will see us hosting our first **Sun Spectacle Show**. More details about this will follow soon.

As always, if you have any suggestions on how we can improve your **“Eyecare Experience”** then please email me at: enquiries@gtharvey.co.uk

And finally, **“Thank You”** for your continued support throughout 2018, Jenny and I look forward to seeing you sometime this year.

Best wishes,
Stuart, Jenny & The Team.

Lifestyle & Eyes

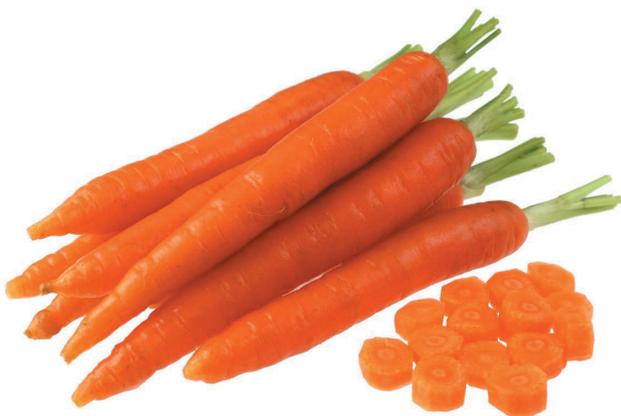
Lifestyle and Eyes: New Year Resolutions

Your eyes are affected by your lifestyle and overall health. We want to ensure that all of our patients can make informed decisions regarding their lifestyle choices, to ensure their vision is the best it can be. The start of a new year is the perfect time to take the following issues into consideration when you are thinking about New Year Resolutions:

SMOKING

There is good evidence to show that smoking can cause sight loss. Most of the 4000 active compounds in tobacco are toxic and potentially damaging to the eyes. Smokers are up to four times more likely to develop AMD (age related macular degeneration), than non-smokers. Smokers are also more likely to develop cataracts. Stopping smoking is the best thing you can do for the health of your eyes as well as your overall health.

NUTRITION



Eating a wide variety of fruit and vegetables, especially dark green leaves, is good for you generally but also particularly good for your eyes. This is because the lutein found in these types of food is found to help prevent AMD. If you are at risk of or currently have AMD, you should consider taking a supplement if you know you do not eat enough dark green leafy vegetables.

OBESITY

Maintaining a healthy weight is not only good for your general health, but it is also good for your eyes. People who are overweight are more likely to develop diabetes, which can in turn affect your eyes. People with a healthy weight are less likely to develop high blood pressure, which is another condition which can adversely affect the eyes.

DIABETES

People with diabetes are more likely to develop cataracts, glaucoma and diabetic retinopathy. Diabetic retinopathy is when the small blood vessels in the retina leak blood and fluid into the retina. This may not affect your vision in the early stages but can lead to sight loss if left untreated. A full eye examination will check whether or not diabetic retinopathy is present and will also check for other diseases such as cataracts and glaucoma.

HIGH BLOOD PRESSURE AND HIGH CHOLESTEROL

Hypertension (high blood pressure) and high cholesterol increase your risk of having a stroke. They also increase your risk of having a blood vessel at the back of your eye bleed or become blocked.

SUNSHINE



Exposure to ultraviolet (UV) light has been linked to certain eye conditions such as cataracts and AMD. If you spend lots of time outdoors you should protect your eyes from the sun. You can do this by wearing well fitting sunglasses from a reputable supplier, which carry the CE mark.

How Optical Illusions Work

If you thought Vision had everything to do with your eyes you'd be wrong.

An **Optical Illusion** is your eyes playing tricks on your brain. Optical illusions demonstrate how your eyes and brain work together to enable you to see.

We don't fully understand what happens in our brains when we see different optical illusions, but since the 19th century, scientists and artists have been learning more about this disconnect between reality and perception and what it tells us about the brain.

You live in a three-dimensional world so your brain gets clues about depth, shading, lighting and position to help you interpret what you see. However, when you look at two-dimensional images your brain can be fooled because it doesn't receive the same clues.

For example, the brain can easily flip between two different views of an object to turn something that's two-dimensional on a piece of paper into an object that we perceive as being 3-D. But how?

It's complicated!

Each nerve cell or neuron in the brain is responsible for a specific detail in the pattern of the retinal image - which we eventually see.

But even with all our knowledge of the different parts of the brain that deal with colour, form, motion and texture, scientists still don't really have a sense of how all the messages come together to produce our overall perception of an object.

Using MRI scans, scientists can analyse what is happening in our brains when we look at illusions. They've learned that neurons can actually compete with one another to see light and dark spots. The winning neurons influence the message your brain gets and therefore what you end up perceiving: i.e. Seeing.

It's actually amazing how easily your eyes and brain can be tricked! This causes you to see things which aren't there, see completely stable things appear to move and can cause confusion about the size of an object or its distance from you.

The lens of the eyeball focuses light back onto the retina, where photoreceptive rods and cones are affected by the wavelength of the light - remember your school biology? - Information about the light entering the eye travels through the optic nerve, where it is then interpreted by the brain. The brain is responsible for taking raw data about

light wavelengths and untangling the patterns, using memory in order to make sense of the images that the brain ultimately "sees."

While you definitely can't **see** without your eyes, **nothing** would make sense without input from the brain.

Our eyes transmit a tremendous amount of information back to the brain, and it requires too much brain power to process all of it.

Optical Illusions work when your brain takes a shortcut and this fools your eyes.

It takes your eyes and brain about one tenth of a second to see, transmit and process an image. Your brain uses lots of tools to compile images so quickly. It notices surrounding contrasts, defines borders and even guesses, (based on experience) what should be there.

Usually these techniques work well but every now and again they fail.

An example of this is the **figure-ground** illusion. When you look at the world in front of you it is impossible to see everything at once, so you focus on a main object. This becomes the **figure** and everything around it becomes the **ground**.

A figure-ground illusion is an image in which it is unclear what is figure and what is ground, so your brain switches back and forth trying to make sense of it.

The most well know example of this type of illusion is the **Rubin vase**; in which you see either two faces in black or a vase in white.

What does all this have to do with your eye health?

Well, we're illustrating an important point. When it comes to protecting your precious gift of sight, things may not always be as they seem. **Sometimes it's easy to miss early signs of declining vision and eye disease.** For example, one of your eyes may be compensating for the other and you don't even realise it. It's important to catch vision problems early so that we can help keep your eyes healthy.

Optical illusions are everywhere. In fact, once we've seen the "trick" in an illusion, it's nearly impossible to un-see it!

The Mystery of Bird Navigation

One of the longest running mysteries is, exactly how do birds navigate?

About 50 animal species, ranging from birds and mammals to reptiles and insects, use Earth's magnetic field for navigation.

Yet Earth's magnetic field is very weak.

For forty years scientists have known that birds can somehow sense the magnetic field of the Earth and navigate by it. But they've been unable to figure out how, until recent studies identified that birds can actually visualise the magnetosphere because of a protein in their eyes that lets them **"see"** the Earth's magnetic field as an overlay on their normal field of view.

German researchers studied European Robins, while Swedish scientists examined Zebra Finches to confirm a theory that birds must contain a certain molecular protein in their eyes or brains that responds to the magnetic field.

This protein allows them to orientate themselves by something called **Magnetoreception**; a sense which allows an organism to detect a magnetic field to perceive direction, altitude or location.



Both plants and animals are known to exhibit Photo-receptive cells but this is the first time magnetoreception has been discovered in birds.

Both studies focused on **Cry4**, an eye protein and part of a class of proteins known as **Cryptochromes**.

Cry4 is clustered in the area in the bird's retina which receives a lot of light, which makes sense for light dependant magnetoreception.

Although Cryptochrome levels in the body vary at different times of the day, and these usually take care of the biological clock, **Cry4** was discovered to be the specific protein which helps the bird's magnetic sense to function.

We know that birds can only sense magnetic fields if certain wavelengths of light are available and can only navigate when blue light is available. Scientists discovered that the Cry4 protein was found to shift or separate when hit by blue light – including that given off by the Earth's magnetic fields - making it magnetically sensitive and thus the birds were able to detect variations in the magnetic field. Crucially this protein is continually produced, therefore maintaining a constant level throughout the day and in different lighting conditions.

What this means in practise is that the bird **"sees"** light or dark shadings as it turns its head, creating patterns equal to a visual compass. This information is then passed to the region of their brain, called "Cluster N", which helps the bird determine which way is north. Interestingly, if cluster N is destroyed, the birds lose their ability to sense which way is north, despite still being able to "see" the magnetic compass.

A lot of research remains to be done in order to map in detail how animals discover and use the Earth's magnetic field. What is clear is that it involves chemical reactions that interact with magnetic fields.

Accordingly this knowledge may be of use when developing new navigation and GPS systems for us, as well as helping us understand our impact on how animals live and navigate their world. Perhaps in time we can design systems which minimize our unintended impact on them.

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