

# Eyelights



The Newsletter of Glaucoma NZ  
Volume 7 | Issue 2 | July 2010

## Inside:

July Awareness Month

Headaches & Glaucoma

Too Much Pressure

New Zealand National  
Eye Bank

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## To Drive or Not to Drive

You have some glaucoma side vision loss and find driving is becoming increasingly difficult. Your family suggests you consider giving up driving altogether, but you still want to run errands and do your grocery shopping.

### Factors to consider when assessing your ability to drive

The decision to give up driving is difficult to contemplate. We all value the independence driving gives us and want to keep it as long as possible. However, it is important to know when you need to stop or when you require help, for the safety of yourself and others on the road.



Great relief usually accompanies the decision to give up driving. Not only relatives, doctors and friends of the driver are relieved but more particularly the driver himself is happy, now the decision has been made. It is extraordinary how stressful driving has become. It's not just the general lack of patience and respect on the roads but the cars are light, powerful and automatic, and all capable of accelerations that were far from universal twenty years ago.

### Some warning signals to consider

- 1. Side vision loss** – losing your side vision may make it more difficult to see and react in time to avoid obstacles on the road, like other vehicles and pedestrians.
- 2. Sensitivity to lights** – do your eyes take longer to adjust to bright sunlight or from the glare of car headlights at night?
- 3. Blurred vision** – this can make it harder to distinguish clear images and to see movement, such as passing cars or someone crossing the road.
- 4. Crashes or “near misses”** – even those with normal vision can have accidents. If you are involved in accidents where you are clearly at fault or you experience near misses because you don't notice obstacles on the road, you should question your ability to be a safe driver.

Continued over page...

### Factors assessed to determine fitness to drive

A pass in the eye examination is only part of the medical fitness required of drivers. The standard license requirement is for at least 6/12 vision in one eye or 6/18 with both eyes; the visual field requirements are for 140 degrees of horizontal binocular field and no patches of vision loss are allowed within that. This may be measured by an “Esterman” visual field test. Most visual field tests only measure the response to stationary target lights within the visual field. The ability to detect motion in the visual field is degraded first by glaucoma and is not tested by the current driving visual field tests.

Determined patients will shop around for a “sign off” on the fitness to drive. But if you are truly concerned that you may be below the required standard it is recommended you see either your optometrist or ophthalmologist and have a vision test and a formal binocular visual field test. The “Esterman” binocular test is a field test where both eyes are open and instead of faint lights as targets very bright lights are used. This means that the driving visual field test is easier to do than the standard glaucoma visual field test. Passing the test should give you a lot of confidence in carrying out your driving tasks. Failing the test will also give you the information you seek but obviously with different implications.

### Safety on the road must be your main concern

There are several things you can do if you are concerned you may not be driving safely.

1. Ask a family member or friend to drive with you and ask them to give you an honest evaluation.
2. Talk to your eye specialist.
3. Have a driving evaluation from a certified driving specialist.
4. Be prepared to consider the advice these people give you.

Remember, you share the road with other people and while you want to be able to travel around your community – safety must be your main concern.

## For New Readers

To those of you who have joined Glaucoma NZ since the last issue of Eyelights, we welcome you!

**For your information here are some basic facts about glaucoma:**

There are different types of glaucoma, but they all involve damage to the optic nerve, which is at the back of the eye.

Glaucoma is not curable. If you have glaucoma it must be monitored for the rest of your life.

Current treatments for glaucoma all aim to lower eye pressure.

Medication in eye drops can have side effects on other parts of your body. Tell your eye specialist.

People of all ages can get glaucoma.

A family history of glaucoma means you are at much greater risk of developing glaucoma.

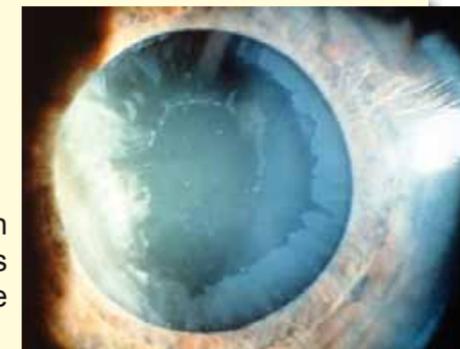
If you have glaucoma tell your relatives, especially those close relatives like sisters, brothers and adult children. They have an increased risk of developing glaucoma so advise them to have an eye examination.

Glaucoma NZ is a registered charitable trust which receives no government funding. It relies solely on donations, sponsorship, grants and fundraising. All the information available to you from Glaucoma NZ is free.

## Pseudoexfoliation Syndrome PXF (or Exfoliation Syndrome)

### What is it?

In PXF, flaky white material clogs the trabecular meshwork, which is the gutter that drains fluid away from the eye. Because this prevents fluid from draining properly, there is a build up of pressure inside the eye, sometimes to very high levels.



### Who gets it?

With most glaucoma, no cause can be identified. However, of the few types of glaucoma in which a cause can be identified, PXF is the most common cause. It is estimated that PXF accounts for about 25% of all glaucoma, or about 16 million affected people world-wide. PXF is found in every race and ethnic group in the world, but is more common in people of Scandinavian descent.

### How does it affect my eye?

- Glaucoma: About 25% of people with PXF have elevated pressures or glaucoma. However, not everyone with PXF will go on to develop glaucoma. PXF can often be detected before glaucoma develops. Sometimes both eyes are not affected to the same degree. Glaucoma resulting from PXF usually is more severe, with pressures being higher, than many other types of glaucoma. So it is especially crucial that people with PXF be monitored closely and regularly by a professional so that glaucoma can be picked up at the earliest stage if it develops.
- Cataract Surgery: Eyes with PXF are brittle which makes the chances of complications greater than eyes without PXF. Your doctor will endeavour to minimise these risks.

### Are there special treatment considerations for PXF?

Eye drops: your doctor will decide the drop that will best suit you.

Laser treatment: A special type of laser treatment (argon laser trabeculoplasty) is often very successful in patients with PXF. Sometimes laser treatment is used in combination with other treatments.

## Make the most of your visits to your eye specialist



- Write out your questions ahead of time and bring them with you. Researching online can also be helpful in preparing a more extensive list of questions.
- Consider bringing a family member or friend with you. It can be helpful to have another person hear what is said and maybe ask some additional questions. It is also important to have someone else with you if you have your eyes dilated. There can be side effects with dilation which may cause you to experience glare, sensitivity to light, and some blurring of your near vision, and could affect your ability to drive.
- Take notes during your appointment to make sure you fully understand what you are hearing, and ask for clarification, if necessary.
- Don't be afraid to ask questions, or ask about where you can find more information.
- Be forthcoming and persistent about issues that you are concerned about. Trust your instincts.

## Reader's Story

### A family history

by Olivia Fernandes



As I look back on previous Eyalights issues where members share their stories I feel that I can relate to them in one way or another. I aim to achieve the same objective. I am a student and this story is from a student's perspective. Reading Eyalights has helped me gain a better understanding of glaucoma.

Without further ado, I would like to introduce myself. I am Olivia Fernandes, I am seventeen years of age and attend Mount Roskill Grammar School. I was diagnosed with glaucoma on 29 September 2009 at The University of Auckland Optometry Clinic where I had gone for an eye check because I had headaches and occasional blurry vision. I went to the clinic with my mother expecting maybe a change in the 'number' of my glasses to improve my vision, but alas it did not turn out that way.

After much testing and deliberation, I was told that I have juvenile open angle glaucoma. I was shocked. My emotions got the better of me. The intra-ocular pressure was 65mm/Hg in my left eye along with 95% vision loss (checked using visual field testing) and a severely damaged optic nerve. The intra-ocular pressure in my right eye was 30 mm/Hg but thankfully no vision loss had occurred at that time and the severity in the right eye was mild.

The optometrist patiently tried her best to explain to us the significance and severity of the glaucoma. My mother and I, overwhelmed, by the seriousness of the situation, froze. The optometrist seeing the blank looks on our faces instructed the student optometrist who had tested me to call an ophthalmologist and make an urgent appointment.

As soon as I reached home I rushed and told my father. Slightly shocked he decided the best course of action was to go on the internet and research glaucoma. Whilst researching,

he remembered that his sister (my aunt) has glaucoma. His sister also remembered that her grandmother (my great grandmother) had complained of gradual vision loss and eventually became blind. Her aunt (her father's sister) also had gradual vision loss making her partially blind. [To a biologist the inheritance of this condition is said to be recessive]. After a rather lengthy phone call to India, he came across the Glaucoma New Zealand website. Here we learned that damage to the optic nerve was "irreversible, and the absence of pain or real symptoms was normal".

My first visit to the ophthalmologist was daunting; I could feel my heart racing and the blood going through my veins. After a brief explanation of what the doctor was going to do, an orange dye-like substance (known as sodium fluorescein) which felt strange, was inserted in both my eyes with an eye drop [also known as Fluress]. I could not help but say to myself, "what did I do to deserve a seat in front of this rather expensive, bulky machine" (the slit lamp bio microscope) which got closer and closer to my eye. Still in a state of shock, boggled with questions in my head and unable to muster the courage to verbalise them, I went back to school and turned to the school nurse (who happens to have glaucoma). I then met with one of the careers' counsellors in the school who also had been recently diagnosed with glaucoma and could relate to my fears. Talking has helped in breaking down a lot of barriers and I would encourage others in my situation to do the same.

On a positive note, having glaucoma has allowed me to explore a new career path in an area which I feel passionate about and would not have envisaged for my future. I would like to be a glaucoma researcher.

I had surgery on my left eye in November, and my pressure stabilised to 14mm/Hg. As far as medication goes, I take eye drops and tablets. My drops used to sting initially, but I keep in mind the benefits they have on my eyes.

I continue life as normally as I can - during exams and other assessments the strain is intense and I am thankful the school assists me in providing a reader and a writer at these times. My friends have also gained awareness of this disease and always ask "how's your eyes?"

I am now more vigilant and aware of my limitations and would like to take this opportunity to thank my optometrist and ophthalmologist who regularly check and monitor my eyes as this disease progresses.

Last but not the least I would like to

acknowledge and thank glaucoma researchers in New Zealand and all over the world. Please keep up the good work.

## Readers Story Contributions

If you would like to share your glaucoma story with readers, we would love to hear from you. Please email, post or fax your story to Glaucoma NZ, attention Eyalights Editor.



## Headaches and Glaucoma: What is the connection?

There are some unique conditions in which glaucoma is associated with headaches. The first and most important is **acute angle closure crisis**. This is when there is a narrowing of the pathway that drains fluid out of the eye.

People with such narrow angles are at risk of sudden closure of the drainage apparatus of the eye. This results in a severe headache. It may be associated with halos around lights, blurred vision, and even nausea and vomiting. The eye is often bloodshot and the pupil may not move normally. There is a risk of sudden and permanent blindness from this type of glaucoma if medical treatment is not sought. People at higher risk of this are those who are far-sighted, older ages, women and Asian descent.

Another headache that can be associated with glaucoma is in **pigment dispersion**. Pigment dispersion occurs typically in young male myopes (near-sighted). In pigment

dispersion, the unique shape of the iris results in rubbing on the structures behind it and a release of pigment. This pigment is carried away in the convection currents of the fluid of the eye and can lodge in the drainage system. Exercise may result in a sudden release of pigment causing a transient increase in the pressure in the eye and an associated headache. If you have pigment dispersion and get headaches after you exercise you should discuss this with your eye doctor.

Finally, there is thought to be a link between migraines and 'normal' pressure glaucoma. The link was considered to be vasospasm in origin. That is, people thought migraines were caused by abnormal circulation of blood to the brain and that glaucoma was also caused by this mechanism. Some studies suggested that patients with migraines were at higher risk for developing normal pressure glaucoma.

Presently, the final verdict is unknown.

## July is Glaucoma Awareness Month

To help raise awareness of glaucoma and prevent more unnecessary blindness, Glaucoma NZ is holding a nationwide Awareness Appeal in July.

The purpose of the Appeal is to highlight the risks associated with glaucoma, importance of early detection, ongoing management and treatment, as well as raising vital funds to enable Glaucoma NZ to continue to extend its free nationwide education and research initiatives.

Watch out for our donation boxes containing specially designed lens cleaning cloths and pens for a donation of \$3.00 each at participating optometrists, ophthalmologists, pharmacies and ASB Branches around the country. For a list of participants visit [www.glaucoma.org.nz](http://www.glaucoma.org.nz). Lens cloths and pens are also available directly from Glaucoma NZ.

Glaucoma is a significant health issue. An estimated 68,000 New Zealanders over the age of 40 already have glaucoma, and as the population ages and people continue to live longer, more people face the possibility of this devastating disease.

50% of people with glaucoma in New Zealand don't know they have it, as it slowly steals their vision. Most people experience no symptoms until it is too late to repair the damage that has been progressively getting

worse over a long period of time.

Early detection of glaucoma is the key to preventing blindness and we urge everyone to be vigilant about their eye health and follow the '45 plus 5 Rule'. From the age of 45 have an eye examination for glaucoma every 5 years, and then every 3 years from the age of 60.

It is also really important for people to know if glaucoma runs in their family, because if it does, your risk increases ten-fold. Talk to your relatives - ask older family members if they can recall anybody taking eye drops because these may well have been for glaucoma.



*Left: Glaucoma NZ's donation box, cloths & pens.*

*Right page: Glaucoma NZ's new Awareness poster*

### Appeal Sponsors – Thank You!



# GLAUCOMA CREEPS UP ON YOU



**Avoid unnecessary blindness  
Have your eyes examined**

## Too Much Pressure: Now and the future

We are told that glaucoma is a disease in which the optic nerve is damaged, leading to progressive, irreversible loss of vision. It is often, but not always, associated with increased pressure of the fluid in the eye.

So it stands to reason that any test for glaucoma, which all of us over 45 are advised to have, should include a thorough examination of the optic nerve, or more precisely the head of the optic nerve, known as the optic disk as well as measurement of the intraocular pressure (IOP). But that is where the trouble starts: although it is possible to have glaucoma even with "normal" pressure, the majority of people with the disease do have an elevated IOP. So it would be unwise for any clinician to exclude a diagnosis of glaucoma without having measured the IOP.

However, measuring eye pressure is not as simple as one may think. First, there is a normal fluctuation of IOP during the day which is just part of the normal bodily rhythm. So when you have your IOP checked it is just a 'snap shot' of what your pressures are doing through the course of the day.

Most IOP measurement or tonometry, as it is known, is performed using the applanation technique. This usually consists of a device that touches the cornea while a blue light causes orange fluorescein dye put in the eye to glow green.

However, there are hand held instruments available that as their name suggests, do not need to be mounted on a slit lamp. They vary in their accuracy and any suspicious readings may need to be repeated, but they can be helpful in detecting raised or normal pressure in most cases.

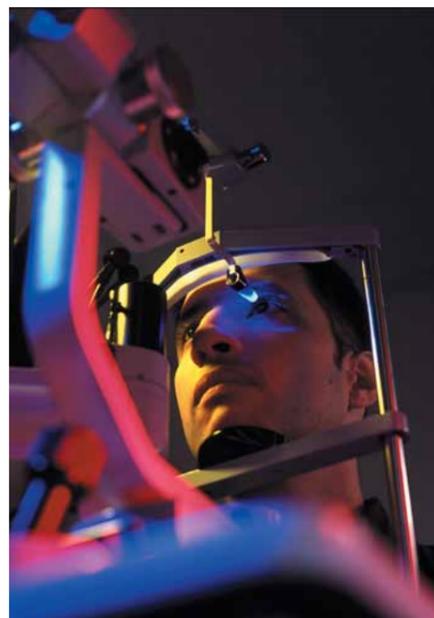
Some instruments do not require touching the cornea such as non-contact or air-puff tonometry, which relies on deforming the cornea with a short burst of air and measuring the amount of deformation electronically. Many of you will know well the somewhat dramatic effect of a sudden puff of air being directed at the eye.

Another non-contact instrument is the transpalpebral tonometer, which bounces a small probe off your cornea through the upper eyelid. It is reasonably accurate and probably not a bad technique for measuring children's pressure, but not widely used.

Suffice it to say these devices vary considerably in their accuracy. Research is now directed at developing implantable intraocular devices that will allow continuous IOP measurement through an entire day. With modern micro-fabrication techniques, it may be possible to include an IOP sensor in an intraocular lens at the time of cataract surgery.

Another promising location for an IOP sensor is within the sclera, the white part of the eye. This is also being investigated in the laboratory. Finally, researchers are working on special contact lenses with grain gauges and wireless transmission to a receiver and then to the glaucoma doctor.

Although it is still unclear how we will be measuring IOP in the future, it is likely that it will involve new technologies which allow us to gain more information about what is happening to IOP throughout the course of a day.



## Out and About RANZCO Branch Meeting

Glaucoma NZ's Helen Mawn (Executive Manager) and Ginny Harwood (Education & Promotions Executive) as pictured left to right recently attended The Royal Australia and New Zealand College of Ophthalmologists (RANZCO) Meeting held in Wellington in May. In addition to the ophthalmologists' meeting there were concurrent sessions for ophthalmic nurses, orthoptists and practice managers. Around 300 attended.



The theme for this year's meeting was "21st Century Ophthalmology – from the lab to the clinic" with an emphasis on new treatment and diagnostic technologies which have either entered clinical use or will do so in the future. On the subject of glaucoma there were presentations on the study of cell death and the development of new treatment approaches using stem cells, gene therapy and other techniques. Emphasis was also on identifying the problem before any damage occurs.

This was a great opportunity for GNZ to showcase information and resources available to this audience at their stand along with presentations to ophthalmologists and eye nurses.

## Pharmaceutical Society Symposia

The Pharmaceutical Society provides three education symposia annually for pharmacists around NZ and this year for the first time have included a session on glaucoma. GNZ has provided three ophthalmologists to speak on this important topic, covering risks, detection and treatment. GNZ also have a stand with resources available to pharmacists – in particular the eye drop card – and to raise awareness of our organisation. Over 400 pharmacists are expected to attend.

## Public Meetings 2010

Five cities have already been visited in 2010 with Glaucoma NZ's free Public Meeting Programme. Meetings have been held in Whakatane, Taupo, West Auckland, Wanganui and Rotorua. These meetings are extremely popular and informative so plan to attend when there is one in your area.

### Upcoming Meetings:

#### 24<sup>th</sup> July – Auckland Central – 10am

Alexandra Park Function Centre, Greenlane Rd West, Greenlane

#### 31<sup>st</sup> July – Pukekohe – 10am

Rata Lounge, Counties Inn, 17 Paerata Road

#### 7<sup>th</sup> August – Hamilton – 10am

Kingsgate Hotel, 100 Garnett Avenue

#### 28<sup>th</sup> August – Dunedin – 10am

Mercure Dunedin, 310 Princess Street

#### 11<sup>th</sup> September – Lower Hutt – 10am

The Angus Inn Hotel, Cnr Cornwall Street & Waterloo Road

#### 9<sup>th</sup> October – Tauranga – 10am

Armitage Hotel, 9 Willow Street

Future meetings are being planned – visit [www.glaucoma.org.nz](http://www.glaucoma.org.nz) for details. Glaucoma NZ members will receive personal invitations.

These meetings are open to any member of the public wanting to know more about glaucoma.

## Suggested ways you could help Glaucoma NZ help you:

- Continuing your most welcome and appreciated donations.
- Arrange a community fundraising event in your area.
- Contact us to arrange for a glaucoma educator to speak at your club/organisation or workplace.
- Purchase an Entertainment Book.
- Suggest to your work colleagues that they hold a special day or event to support our charity.
- Think of us when preparing or updating your Will.
- Tell everyone about Glaucoma NZ and its services.



## Public Mail Box

### Can I be an eye donor if I have glaucoma?

Yes, you can. Many more people are suitable for eye donation than for any other type of organ or tissue. Donors are accepted from ages 10 to 85 years, and poor eyesight due to long or short-sight, cataract or glaucoma does not preclude donation, since only corneal disorders would result in unsuitable tissue. Occasionally severe or acute forms of glaucoma can damage the delicate cornea, but each case is different so don't assume your eyes are not 'good enough' to benefit someone else.

### When drops are used by my eye specialist during an eye examination – what are they and what do they do? Do they have any side effects?

For routine examinations an eye specialist uses two types of eye drops. Firstly, local anaesthetic is applied so eye pressure can be measured. This is done with a strain gauge called a Goldman tonometer, which is brought against the surface of the cornea. The cornea, as well as being the shiny front window of the eye, is also the most sensitive tissue in the body richly imbued with nerve fibres. It would not be possible to use the tonometer if the cornea was not rendered insensitive by local anaesthetic drops.

The local anaesthetic drops sting briefly, work very quickly to make the cornea numb and wear off over about 15 minutes. The anaesthetic has no side effects except the eye will not feel injury for the time it is numb.

The other eye drop is a dilating drop used to enlarge the size of the pupil. This permits the eye specialist to get a very good view of the inside of the eye, the lens and the retina. Dilating drops are not used as frequently as the local anaesthetic but are very important for accurate diagnosis. Unfortunately they take a long time to wear off (2 - 4 hours) and during this time the vision is poor for reading. Generally driving vision is not affected but in some cases (1 in 10) these drops may impair driving vision.

In some patients with small eyes and less space around the drainage angle, dilating drops may cause increased intraocular pressure and even glaucoma. Sometimes a specialist will opt not to use the dilating drops because of that risk. The risk of glaucoma after dilating drops is multiplied if a drop to make the pupil shrink is used "to reverse the blurring". This is why such drops are never used.

### I have glaucoma, and when I drive at night, I really have a tough time with the glare from oncoming headlights. Do you know of any ways to reduce this glare?

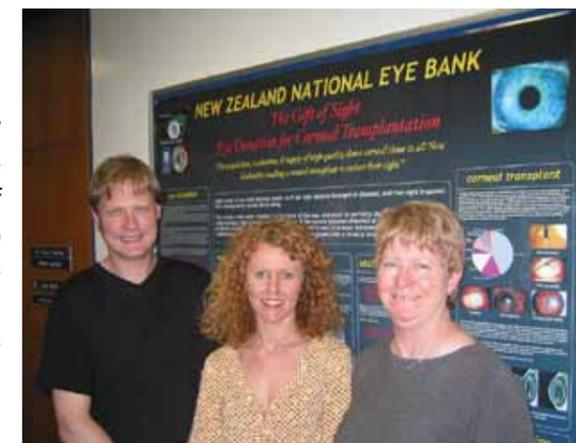
Glare can be caused by glaucoma but may also be due to cataract or other opacities that are in the ocular light path. Discuss this with your eye specialist. Dark glasses are a great way of reducing glare but not a good idea to use at night. If you are having trouble seeing at night, do not drive at night. Stay safe by adjusting your schedule so that you do most of your travel during the day. If you must go out at night, ask a friend or family member to be the driver.

## Moving House?

Don't forget to advise Glaucoma NZ of your new address.

## New Zealand National Eye Bank

The New Zealand National Eye Bank (NZNEB), established in 1989, is a charitable organisation responsible for the supply of donated corneas and other tissues required for transplantation within New Zealand. It is an independent unit located within the Department of Ophthalmology at the University of Auckland, with a staff of three as pictured left to right, Nigel Brookes (Technical Officer), Louise Moffatt (Manager), Helen Twohill (co-ordinator). They provide a 24 hour, 365 day service to coordinate eye donations from hospitals and the community. This involves screening of potential donors, discussing donation with families and obtaining consent, processing, storage and evaluation of tissue before distribution for transplantation.



Each year, an average of 240 corneas are transplanted, restoring vision to people of all ages with corneal disorders and diseases. In addition, sclera is used for reconstruction after ocular trauma or glaucoma treatment, and amniotic membrane is utilised as a 'living bandage' for ocular surface disorders. The NZNEB maintains the New Zealand Corneal Transplant Registry, which tracks patient characteristics and outcome for all transplants.

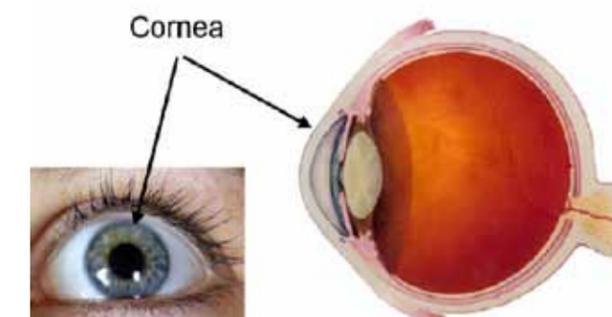
Other parts of the eye, such as lens and retina cannot be transplanted but are valuable for research into the causes of common eye disorders. These eye tissues are provided from eye bank donors where consent is also given for research.

A number of projects are underway in the New Zealand National Eye Centre which aim to understand what causes eye disorders such as glaucoma, cataract, corneal and retinal disease, with the goal of developing effective treatments and possibly avoiding the need for surgery in the future.

## The Cornea – essential to good vision

The cornea is the clear, dome-shaped surface at the front of the eye that transmits and focuses light. The cornea is a highly organised structure of cells and proteins and, unlike most tissues in the body, contains no blood vessels. The cornea must remain transparent to transmit light properly, and the presence of even the tiniest blood vessel can interfere with this process. So instead of getting nutrition from blood vessels, the cornea receives its nourishment from the tears and aqueous humour that fills the chamber behind it.

The cornea acts as a physical barrier shielding the inside of the eye from germs, dust and other harmful material. It also



filters out some of the most damaging ultraviolet rays in sunlight. Without this protection, the crystalline lens and the retina would be highly susceptible to injury from UV radiation.

Please send feedback and suggestions for Eyelights to the Editor.  
Questions for the Public Mailbox are welcomed.

## July Annual Awareness Appeal

**PLEASE** join us in our mission to eliminate blindness from glaucoma in New Zealand. An estimated 68,000 New Zealanders over the age of 40 currently have glaucoma. 50% of these people don't actually know they have it. The continuation and expansion of our nationwide awareness, education and research initiatives are vital in reducing these statistics.

Public Meetings, Workplace and Community Seminars, Information Resources, 0800 Advisory Service, Eyelights Publication, Health Professionals Continuing Education Programme, Research and Advocacy.

We have reached thousands of New Zealanders with our programmes but there is still much to be done to achieve our goal of eliminating blindness from glaucoma.

We cannot do it alone – we continue to need your help.

Please help us invest in a future without blindness from glaucoma.

 **THANK YOU** for your generosity – every donation counts!

**YES!** I would like to make a donation.

\$200    \$100    \$50    \$20    \$\_\_\_\_\_ (other)

Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ Postcode \_\_\_\_\_

Phone No \_\_\_\_\_ Email \_\_\_\_\_

I enclose my cheque made payable to Glaucoma NZ

Please debit my credit card    Visa    Mastercard

Name on Card \_\_\_\_\_

Card No \_\_\_\_\_

Expiry Date \_\_\_\_ / \_\_\_\_   Signature \_\_\_\_\_

**YES!** I would like to make an extra gift of \$10 and receive 3 of Glaucoma NZ's special promotional Lens Cleaning Cloths  or Pens

Donations of \$5.00 or more are tax deductible and will be received.

**YES!** I would like to receive more information about:

Donating on a regular basis by Automatic Payment

Leaving a bequest in my Will to Glaucoma NZ

I have already included Glaucoma NZ in my Will

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