

Eyelights

The Newsletter of **GLAUCOMA NZ**
TO SAVE SIGHT

Glaucoma Week 7th-13th August 'Don't Lose Sight of Your Family'

Are you aware that when a close family relative has glaucoma a person's risk of developing glaucoma is ten times greater than normal?

If you have glaucoma this has important implications for your children, your brothers and sisters, and perhaps your cousins and nieces and nephews. Have you talked to them about your glaucoma? Do they understand that damage to eyesight caused by glaucoma is not necessarily noticeable at first and cannot be reversed, but that with correct treatment loss of sight can be prevented?

Are you sure that your family members, especially those approaching 40 or older, are having regular eye examinations?

The week commencing August 7th is a special one. That's the week within the Save our Sight month of August in which the focus falls particularly on glaucoma. Glaucoma NZ is launching a special awareness campaign at this time based on the theme 'Don't Lose Sight of your Family.'

Members of the public are invited to pick up our free postcards from optometrists and eye clinics around the country and send them to their loved ones reminding them to have their eyes examined. The cards will also be available from some pharmacies.

Enclosed are two postcards. Please collect more from your eye clinic, optometrist, or pharmacy. Post each one

to someone special today - a relative or friend. In doing so you'll be spreading the word that glaucoma is a health issue everyone should be aware of, and possibly intervening to prevent unnecessary sight loss in someone you love.



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Glaucoma NZ's Neighbours

New Zealand National Eye Bank

The National Eye Bank was established in 1987 to provide donated corneas and sclera for transplantation throughout New Zealand. Approximately 250 people per year of all ages require a corneal transplant when their sight fails due to corneal disorders, infections or trauma, and many more require sclera for reconstructive procedures. This precious tissue is generously donated after people die - the ultimate 'gift of sight'.

The staff of three occupy a suite of offices and laboratories in the University of Auckland Department of Ophthalmology, and provide a 24 hour, 365 day service to discuss donation with next-of-kin, acquire tissue, and perform a multitude of testing and quality control procedures to ensure tissue is safe and effective when transplanted. Tissues are distributed to 45 surgeons in 15 centres throughout New Zealand.

Many more people are suitable for eye donation than for any other type of organ or tissue. Donors are accepted from ages 10 - 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.

Over a 15 year period, more than 2,500 donors have provided more than 4000 corneas. On average, 7 corneas are sent out for transplant each week of the year, to people of all ages. Eye Bank Manager, Louise Moffatt, says "Recipients are always profoundly grateful for their renewed sight and quality of life."

The Eye Bank is a charitable trust.

For more information about eye donation please contact the National Eye Bank:

Phone (09) 3737 537

or email eyebank@auckland.ac.nz



NZ National Eye Bank Staff.

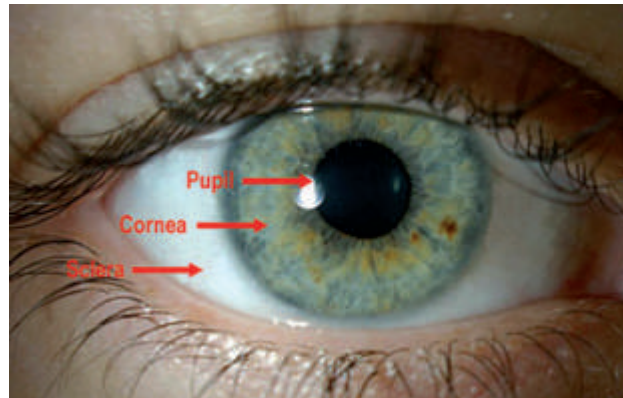
Left to right: Nigel Brookes (Technical Officer), Louise Moffatt (Manager), Helen Twohill (Coordinator)

The Cornea: Clear window of the eye

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, the cornea 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. Thus, instead of getting nutrition from blood vessels, the cornea receives its nourishment from aqueous humour that fills the chamber behind the cornea and also from the tears.

What is the function of the cornea?

- The cornea functions like a window that focuses light entering the eye onto the retina. The cornea contributes approximately two-thirds of the total focussing power of the eye.
- The cornea has a protective role, helping to shield the rest of the eye from germs, dust, and other harmful matter.



The Cornea and Intraocular Pressure (IOP)

Since it was noted in the 16th century that certain forms of blindness were associated with a firm eye, eye specialists have been exploring different ways to measure intraocular pressure. Goldmann applanation tonometry, the current gold standard for measuring intraocular pressure in eye clinics today, was introduced in the 1950s by Goldmann and Schmidt and is based on the Imbert-Flick Law.

At this time Goldmann and Schmidt recognised that theoretically corneal thickness might influence applanation tonometry readings, and that their design assumptions for the tonometer were based on a central corneal thickness of 500 μ m. However they believed that variations in corneal thickness rarely occurred in the absence of corneal disease. As optical and laser ultrasonic pachymeters have come into widespread use for measuring corneal thickness we now know that central corneal thickness actually varies greatly among the general population, to a degree that affects the accuracy of applanation tonometry in daily practice.

In 1975, Ehlers conducted a study in which he inserted a special device that could measure intraocular pressure into the anterior chamber of normal eyes at the time of cataract surgery. This allowed him to measure the true intraocular pressure and correlate their

corneal thickness with errors in Goldmann applanation tonometry. He found that Goldmann applanation tonometry most accurately reflected true intraocular pressure when central corneal thickness was 520 μ m. Any deviation in the central corneal thickness from this value resulted in either an under or over estimation in intraocular pressure and the possible misclassification of patients with normal tension glaucoma and ocular hypertension. Accordingly it has now been suggested that measurement of corneal thickness is necessary for the accurate interpretation of applanation tonometry.

In recent years it has also been noted that the refractive changes achieved through laser refractive surgery, dependent on reshaping the anterior surface of the cornea by the ablation of corneal tissue, results in a reduction of corneal thickness and therefore the potential for applanation tonometric readings to be lower than the true intraocular pressure.

To conclude, in cases where other clinical findings do not seem to correlate with the measured intraocular pressure, the measurement of central corneal thickness is of value in helping to prevent the erroneous labelling of normal patients as “ocular hypertensive” and primary open angle patients as “normal tension glaucoma”.

Primary Open Angle Glaucoma- Questions and Answers

In the previous issue of Eyalights we published an overview of different types of glaucoma. This time we focus on Primary Open Angle Glaucoma.

Is Primary Open Angle Glaucoma rare?

No, Primary Open Angle is actually the most common form of glaucoma. It accounts for 60% - 70% of all glaucomas.

What exactly is it?

Primary Open Angle Glaucoma is a disease in which the optic nerve is damaged, usually due to excessive pressure within the eye. Pressure builds up because the eye's drainage canals have become blocked over time or the tissues around the drainage canals have hardened.

How does it get its name?

Unlike some of the other glaucomas, the angle where the entrances to the drainage canals are located is unobstructed or "open," and the entrances are usually working correctly. The problem is occurring beyond there, in the drainage canals themselves. This is a bit like the clogging that can occur in the pipe below a kitchen sink even though there's no problem with the plughole.

The image on the right shows a reduced visual field due to glaucoma



What are the symptoms?

There are usually no noticeable symptoms in the early stages. This type of glaucoma develops slowly, and even though vision is gradually being lost this fact may go unnoticed. Blind spots usually first affect the side vision, and people may mistakenly think they are becoming clumsy by bumping into things, when in fact their peripheral vision has diminished.

What kinds of treatment are available?

Treatments are aimed at reducing intraocular eye pressure to avert further damage to the optic nerve. Primary Open Angle Glaucoma usually responds well to medication delivered in the form of eye drops, especially if diagnosed early.

Are there side effects from treatment?

Side effects are possible with all drugs, including glaucoma eye drops. The drug can get into your system by draining through your nose. (See the 'Punctal Occlusion' the last issue of Eyalights for tips on how to avoid this.) Communicate clearly with your eye doctor about any symptoms or changes which are causing concern.



What if the drops prescribed aren't effective in lowering my intraocular pressure?

There are several families of drugs available and various types within those. Your eye specialist has many options, and will persist until he or she finds the best treatment for you. It is very important that you use your drops exactly as directed and do not skip using them. The drops only work when used. The best chance of achieving good results depends on faithful compliance with treatment instructions and honest communication with your doctor.

Is surgery likely to be a good option?

Sometimes when medication is not proving effective in lowering intraocular pressure surgical procedures such as laser trabeculectomy are considered.

When weighing up options your ophthalmologist will be constantly balancing the benefit to you against the risk, over a lifetime of treatment.

How long must I continue treatment?

You will need to continue treatment and monitoring for the rest of your life.

In our family we tend to get diagnosed late in life. Is there a connection between age and Primary Open Angle Glaucoma?

Yes, Primary Open Angle Glaucoma becomes more likely as we age. This is one reason it is recommended that people over 40 have regular eye examinations. However, Primary Open angle glaucoma is not restricted to middle-aged or elderly people. It also occurs in other age groups.

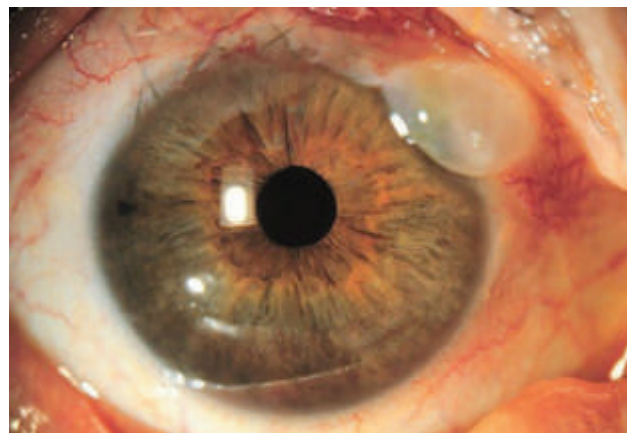
Scarring - a culprit in Glaucoma surgery failure

Glaucoma filtration surgery, also known as "Trabeculectomy", involves the formation of a trap-door between the anterior chamber of the eye, where aqueous fluid circulates, and the subconjunctival space just outside the eye-ball. Pressure within the eye gently pushes the aqueous out and a "drainage bleb" results as the aqueous fluid collects on the external aspect of the globe. Eventually this is absorbed by the blood vessels of the eye.

In an ideal world this alternate path of aqueous drainage should last indefinitely, but there is often an excessive inflammatory response at the drainage site. This causes deposition of scar tissue between the conjunctiva and the sclera (eye-ball wall) causing the two layers to stick together. The sub-conjunctival space is lost and the trap door created by the surgery becomes ineffective.

There are a number of factors that predispose to an excessive scarring response which are taken into account when deciding to proceed with a trabeculectomy. There are also agents

available to modulate the scarring response, such as Mitomycin C and 5-Fluorouracil, which when used during surgery increase the chance of bleb survival. However these agents can be associated with significant side effects and are therefore used cautiously. There has been a lot of interest recently in developing an effective, less toxic anti-scarring agent. Several research groups around the world have proposed interesting ideas, but all are in the early stages of development.



Bleb after Trabeculectomy

The Expanding Role of the Optometrist in Glaucoma

The optometrist's role in eye care has always been in the realm of detection of eye disease and eye sight defects along with prescribing of glasses and contact lenses. Optometrists are a key member of the eye care sector. They provide "primary care" –the first point of call for eye care. Someone who wants their eyes examined is most likely to go to an optometrist first. For people with undiagnosed glaucoma a visit to the optometrist's is most likely to detect the early signs of glaucoma.

So how do optometrists examine for glaucoma? It is done as part of any comprehensive eye examination. Firstly the optometrist will take a comprehensive history to find risk factors for glaucoma including family and general health. Secondly the optometrist will view the optic nerve head. This is called ophthalmoscopy. In glaucoma there are characteristic changes to the appearance of the optic nerve head, and the optometrist will be looking for these changes. Thirdly the optometrist will measure the intra-ocular pressure of the eye

to determine if it is high, different between the two eyes or significantly different from the previous pressure reading.

As part of a screening for glaucoma there maybe a test of your peripheral or side vision (visual field) to determine if there is any change to the sensitivity of that part of the optic nerve. Glaucoma causes characteristic changes to the visual fields that the optometrist will be looking for. The optometrist can also look at the anterior chamber angle, called gonioscopy, to detect abnormalities that make glaucoma more likely.

With all this information the optometrist will decide if you have a risk for glaucoma and will discuss this risk with you. When risk factors are present, closer monitoring of your eye health is indicated. Glaucoma NZ is actively involved in education programs for optometrists about risk factors for glaucoma. If appropriate your optometrist may recommend you see an ophthalmologist for further assessment and treatment.

On Your Bike for Glaucoma NZ!

The Eye Specialists in Whangarei are laying down the gauntlet and challenging other eye health professionals to take part in November's **Lake Taupo Cycle Challenge**.

It is hoped that ophthalmologists, optometrists and members of the public will enter individually or in teams of four, riding for Glaucoma NZ in friendly rivalry, and above all else, for fun.



Cycling as part of a relay team means you only have to cycle 40kms each!

With entrants arranging sponsorship for their efforts Glaucoma NZ will end up the winner, benefiting from the funds raised.

Would you or your family be keen to form a team?

The event takes place on November 25th. Check out the Lake Taupo Cycle Challenge website for details: www.cyclechallenge.org.nz, and contact Glaucoma NZ for sponsorship forms later this year. Watch our website www.glaucoma.org.nz for further details.

August is Save Our Sight Month

Save our Sight is an eye health awareness campaign led by the NZ Association of Optometrists which aims to reduce vision loss from preventable causes such as eye injury accidents, macular degeneration, glaucoma and other eye diseases.



This year **Save our Sight** is promoting **vision for life**. From childhood to old age, vision is important and people need to act to protect themselves against eye injury and disease.

Around the world Baby Boomers are redefining what "old age" looks like and when it begins. For most of the ¼ million New Zealand Boomers who will celebrate their 60th birthday in 2006, it's just the beginning of another productive, active, and satisfying decade.

An active lifestyle is a healthy lifestyle but how will that pan out if you cannot see?

People who do not see well are less likely to cope with living independently. They rate their quality of life lower than people who do see well.

People with poor vision also have higher rates of depression, more falls and fractures, increased need for community and/or family support and need institutionalized care at an earlier age.

Put bluntly, poor eyesight is bad for you.

In **Save our Sight** 2006, the **Glaucoma NZ** postcard campaign will highlight the message "Don't lose sight of your family" featuring grandparents and grandchildren who like to see each other.

Postcards can be sent to family members urging them to have their eyes examined.

The **NZ Association of Optometrists** will put the focus on the importance of children's vision during **Children's Eye Care Week** by providing eye examinations free of charge to around 600 needy children. Children will also receive glasses free of charge if they are needed courtesy of participating wholesalers.

Eye safety will be an important message going out to householders receiving a mailer from PlaceMakers in August. Every year in New Zealand 17,000 people damage their eyes using power tools (welders, grinders, and drills), hand tools (hammers and saws) or garden tools (lawn mowers, hedge trimmers).

The **Save our Sight** message is to take care of your eyes. Have routine eye checks and always use protective eyewear for all those DIY jobs in your house and garden.

Contact Us with Your Questions & Comments

Heather Hyland is Glaucoma NZ's Administrative Manager and Editor of Eyelights. She would love to hear from you.

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YES, I would like to help

I would like to become a member of Glaucoma NZ at no cost

I would like to donate \$_____

I enclose my cheque for \$_____ made payable to Glaucoma NZ,
or please debit my

Visa Amex Mastercard Name on Card _____

Card No ____/____/____/____ Expiry ____/____ Signature _____

Address _____

_____ Phone No _____

Donations of \$5.00 or more are tax deductible

I am interested in becoming a volunteer for Glaucoma NZ

I would like information on leaving a bequest for Glaucoma NZ

Forthcoming Meetings

August 12	Auckland 10am ICANZ Conference Centre, 27-33 Ohinerau St, Greenlane
August 26	North Shore 10am Fairway Lodge, Argus Place, Glenfield
September 30	Christchurch 10am Christchurch Boys High School
October 28	Wellington 10am Venue TBA

Moving House?

Don't forget to include Glaucoma NZ when you are doing your change of address cards. Remember, we have no way of knowing your new address if you don't tell us!

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