

Understanding your

**Eyes:
Cataracts,
Glaucoma and
Macular
Degeneration**

Mr Robert Walters

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IMPORTANT

This book is intended not as a substitute for personal medical advice but as a supplement to that advice for the patient who wishes to understand more about his or her condition.

Before taking any form of treatment
YOU SHOULD ALWAYS CONSULT YOUR MEDICAL
PRACTITIONER.

In particular (without limit) you should note that advances in medical science occur rapidly and some information about drugs and treatment contained in this booklet may very soon be out of date.

Contents

Introduction	1
Your eyes and how they work	10
Common sight problems	23
Cataracts	34
Cataract surgery	44
Glaucoma	70
Surgery for open-angle glaucoma	88
Macular degeneration	98
Registration as blind or partially sighted	117
Useful addresses	123
Index	136
Your pages	147

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Introduction

Some deterioration is normal

As you get older, it's natural for your eyesight to deteriorate slightly and for you to need reading glasses or stronger distance glasses, depending on your eyesight. However, there are also some specific eye conditions that can affect older people and it is important for you to be aware of these.

Conditions of which you should be aware

Cataracts, glaucoma and macular degeneration are the most common causes of poor sight in the UK. Each one predominantly affects people of middle age and beyond, and if detected early there is a better chance of preventing serious loss of sight.

Many people with visual difficulties in later life are unnecessarily frightened that they are going to experience progressive visual loss that will curtail their lifestyle or threaten their independence.

This book will provide you with comprehensive and simple explanations of common eye conditions and of their causes and treatments. It is intended to

supplement information and advice given to you by your doctor, optometrist (optician) and hospital eye specialist (ophthalmologist). If you think that you have an eye problem, you should seek professional help.

Cataracts

This condition is a clouding of the lens of the eye (see page 34) and results in deterioration of vision.

Cataracts are estimated to affect over a million people in the UK alone. They can be treated surgically; cataract surgery is in fact by far the most common operation performed in British eye units, with more than 300,000 operations every year.

Cataract surgery has been carried out for thousands of years and it is known that the ancient Egyptians commonly performed operations using a technique called couching. This involved introducing a sharp implement, such as a thorn, into the eye in order to dislocate a mature cataractous lens away from the visual axis or to pierce it so that it is mostly reabsorbed. This procedure remained the principal form of treatment for cataracts until the late nineteenth century.

Lens replacement

Over the last 50 years, astonishing advances have been made, the most notable of which has been the introduction of a surgical procedure called intraocular lens implantation, which permanently replaces the cataractous lens with a lens implant. Patients no longer need to wear the thick glasses previously necessary after surgery. Indeed, after their operation, many do not need any glasses for everyday distance vision.

The pioneering work with intraocular lens implantation was carried out by a British eye surgeon,

Mr Harold Ridley, in London in 1949 using shaped Perspex. This remarkable advance followed the observation of the RAF pilots during World War II who suffered perforating eye injuries from the shattered Perspex canopies of their planes. Mr Ridley noted that the Perspex inside the eye did not cause any inflammation because it was inert.

He reasoned that, if Perspex could be made into a lens shape, it could be implanted in the eye to restore the sight of those whose natural lens had been removed because of a cataract. Perspex intraocular lens implants are still used today, although other materials, such as acrylic, are also used. Harold Ridley was knighted, in recognition of his contribution, in 1999 shortly before he died.

Recent advances in surgical technique

Until the late 1970s, everyone undergoing cataract surgery had to stay in hospital for five days or longer. The surgery carried such great risks that it was considered only if the cataract was causing severe visual loss.

These days, technical innovations such as microscopic surgery, advanced materials and instrument design, and surgery using small incisions mean that most cataract operations are carried out as day-case procedures and the chances of success are very high. People no longer have to wait until their vision is severely impaired to have a cataract operation but can proceed to surgery when their symptoms are beginning to affect aspects of their everyday life, such as driving or reading.

Glaucoma

The term 'glaucoma' (see page 70) covers a variety of

conditions characterised by high pressure within the eye and a gradual loss of the peripheral (side) field of vision. It is estimated that there are 300,000 people in the UK with varying degrees of glaucoma, although most forms do not occur until after the age of 40 years and there are no symptoms until the late stages.

Most optometrists in the UK carry out a comprehensive screening programme for glaucoma as part of the routine eye examination. If you are over the age of 40, your optometrist will measure your eye pressure using a simple procedure.

If the pressure is higher than normal, he or she can refer you to your doctor to be considered for a consultation with a hospital eye specialist (ophthalmologist). The condition can be treated and, if diagnosed early on, there is a good chance of preventing serious visual loss.

Macular degeneration

This is a condition that usually affects only people older than 60 years, and thus is known as 'age-related' macular degeneration (see page 100). There are other forms of the disease that affect younger people, but these are rare and beyond the scope of this book. Macular degeneration can cause difficulties with your central (reading) vision because of changes in the most sensitive part of your retina called the macula.

Age-related macular degeneration is surprisingly common; it is estimated that 10 per cent of people aged between 65 and 75 are affected to some degree, rising to 30 per cent of those older than 75.

Wearing stronger glasses and using other visual aids can help many of those with the disease. Even in the worst form of the disease, where the central vision is severely impaired, the peripheral (side) vision is not

usually affected so you can still see your way around. People who have age-related macular degeneration gain great comfort from the knowledge that they will never go blind or lose their sight completely from this condition. There has been a recent advance in the treatment of one type of macular degeneration (the wet variety) and this is described later.

Links between the eye conditions

Although cataracts, glaucoma and macular degeneration are not interrelated they can coexist because they are all conditions that affect people as they get older. If you have macular degeneration and cataracts, then removal of the cataracts can still lead to an improvement in vision, although the degree of improvement depends on the severity of the macular degenerative changes and the cataracts.

Usually the cataractous lens has to interfere significantly with vision before removal would be recommended for patients with severe macular degeneration. Your optometrist may also be able to help with advice on this issue, but a consultation with and examination by the hospital eye specialist (ophthalmologist) will provide definitive advice.

Glaucoma and macular degeneration, although not strictly interrelated, are both more common in people who are short-sighted (myopes) and therefore it is particularly important that these people visit their optometrists every one to two years for a check-up.

What are the responsibilities of the different eye professionals?

Ophthalmologist (ophthalmic surgeon)

An ophthalmologist is a qualified doctor of medicine

who has undergone considerable further postgraduate hospital training in the diagnosis and treatment (both medical and surgical) of eye disease.

This training to consultant level takes approximately 10 years after obtaining the basic medical degree. All hospital consultants have obtained specialist postgraduate qualifications including a Fellowship of the Royal College of Ophthalmologists in the UK or its equivalent from Scotland or overseas. To practise as consultants suitably qualified doctors have to be on the 'specialist register' with the General Medical Council.

Many of the older ophthalmologists will also have qualified as fellows of the Royal College of Surgeons of England, Edinburgh or Glasgow as this was the usual qualification obtained before the formation of the College of Ophthalmologists (later given the 'Royal' prefix) in 1986.

Optometrist

This term was introduced in the 1980s to distinguish between more highly qualified opticians and dispensing opticians (see below). An optometrist has obtained a professional degree in optometry and is trained in refraction, dispensing of glasses and the diagnosis of basic eye diseases.

They do not carry out surgery or prescribe medications other than simple eye lubricants. An optometrist will carry out eye examinations at the high-street optician. They are represented by the College of Optometrists and the regulatory and disciplinary body of optometrists (and dispensing opticians) is the General Optical Council of the UK. There are about 11,000 optometrists in the UK.

Dispensing optician

A dispensing optician is qualified to dispense glasses but not to carry out the refraction tests necessary to determine the power of the lenses within them. Dispensing opticians are not as highly qualified as optometrists but make a significant contribution to optometric practice. There are about 8,600 dispensing opticians in the UK.

Nurse practitioners

Increasing numbers of specially qualified higher-grade nurses are employed in hospital eye departments in the UK. These are termed 'nurse practitioners' and usually have a specialist nursing qualification in ophthalmology (Diploma in Ophthalmic Nursing).

These nurses make up an important part of the ophthalmic service and have many roles. For example, ophthalmic casualty nurses treat simple eye conditions such as corneal abrasions, glaucoma nurses measure intraocular pressures and carry out field tests, and treatment nurses are involved in minor operations such as removing lid cysts.

Orthoptists

This is one of the professions allied to medicine (PAMs) and orthoptists are qualified in the study and treatment of eye movement conditions such as squints. Although these make up the bulk of their work, in many departments they also carry out glaucoma screening, visual field testing and sometimes ophthalmic photography. There are approximately 1,000 qualified orthoptists in the UK.

Hospital eye department doctors

Within the hospital the leading ophthalmologists are the consultants. However, you will not always be seen by him or her; you may be seen by one of the other staff. These are divided into the training-grade staff, who are training to become consultant ophthalmologists, and non-consultant ophthalmic medical staff.

All non-consultant and training-grade doctors are under the supervision of the consultants who carry the ultimate clinical responsibility for patients under their care.

The hospital eye service is usually provided by a combination of consultants, doctors undergoing postgraduate training and non-consultant grades, often in association with nurse practitioners, orthoptists and occasionally optometrists.

KEY POINTS

- Cataracts are common in elderly people but vision can easily be restored with cataract surgery, which nowadays is a straightforward and safe procedure
- Glaucoma is a silent condition that causes a gradual loss of peripheral vision. Your optometrist/optician will screen you for glaucoma when you have an eye test so that sight-saving treatment can be commenced early
- Macular degeneration causes central or visual loss but never causes blindness

Your eyes and how they work

Eyes are very complex organs

Vision is truly the king of all the senses. Your eyes are among the most highly specialised and sensitive organs of your body. The eye, optic nerve and brain work together to produce an image. To enable you to see, light rays must pass through the cornea (the front of the eye), pupil (the black hole) and lens to be focused on your retina (at the back of your eye – see page 19). An electrical signal is generated in the retina and passed along the optic nerve to specialist parts of the brain where the image is interpreted.

Protection for your eyes

The eyes are roughly spherical and they sit in the bony eye sockets of the orbits. The eyeballs are cushioned with a layer of fat and held in place by a series of muscles, which also allow movement (see page 13). Only a small part of the eye is visible; the rest of the sphere is within the skull. The visible part of your eyes

is further protected by your eyelids, which provide thick protective coats and lashes that help to prevent foreign bodies such as dirt and dust entering your eye.

Eyes are lubricated with tears

The eyelids keep the eyes lubricated by spreading a special liquid (tears) over the surface of your eyes at regular intervals. The film of tears is produced in the lacrimal glands, which lie just above your eyeballs in the outer upper part of your eye sockets. Tears prevent your eyes from drying out and protect them from infections.

Tears help protect the eyes

Tears are produced by the lacrimal glands. They prevent the eyes from drying out and protect them from infection, and drain away through the nose.

