

# THE COLLEGE OF OPTOMETRISTS



## HIGHER QUALIFICATIONS INFORMATION PACK

### Contact Lens A

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## The College of Optometrists

<b>Certificate:</b>	Contact Lens Practice A	<b>Module:</b> 1
<b>Module Title:</b>	Ocular anatomy, physiology, pathology, immunology, pharmacology and microbiology	
<b>Module Size:</b>	10 credits	
<b>Assessment:</b>	Modules 1, 2 & 3 of Certificate A are assessed together.	
<b>Pre-requisites:</b>	None	<b>Co-requisites:</b> Modules 2 & 3
<b>Aims and Objectives:</b>		
To acquire the knowledge related to the anterior segment of the eye with special reference to contact lens wear		
<b>Learning Outcomes:</b>		
To understand the effects of a contact lens on the ocular tissues and the effects of contact lenses on eye tissues. To understand the process of infection and inflammation related to contact lens wear.		
<b>Learning Strategies:</b>		
For most optometry graduates this will be an enlargement of their U/G didactic course. It is anticipated that self help from textbooks is adequate.		
<b>Outline Syllabus:</b>		
<b>Anatomy and physiology</b>		
Revision of basic ocular anatomy, physiology and pathology but with enhanced knowledge of:		
<ul style="list-style-type: none"> <li>- Eyelids</li> <li>- Lacrimal apparatus</li> <li>- Cornea</li> <li>- Limbus</li> <li>- Conjunctiva</li> <li>- Corneal, limbal and scleral topography</li> <li>- Corneal metabolism</li> <li>- Corneal transparency</li> <li>- Closed and open eye environments -with and without a CL</li> <li>- Lacrimal fluid and dynamics - with and without a CL</li> <li>- Blinking</li> <li>- Neurology of the anterior segment</li> <li>- Sensitivity and fragility of cornea and conjunctiva</li> <li>- Biocompatibility of contact lenses and the eye tissues</li> </ul>		
<b>Pathology</b>		
Inflammation and infection in the anterior segment.		
Immunology and microbiology in relation to the eye.		
Management of contact lens patients.		
Differential diagnosis of contact lens induced conditions.		
Contamination/spoilage of contact lenses and their effects on ocular tissues.		
<b>Pharmacology and microbiology</b>		
Drugs used in contact lens practice by optometrists and ophthalmologists		

- types (POM and Pharmacy medicines)
- uses
- side effects
- indications and contraindications
- prescription and ordering
- storage and maintenance

The legal position regarding the supply of ophthalmic drugs and responsibilities from their use.

Sterility

Active ingredients of contact lens solutions; actions, side effects

Contact lens care products - types and applications

Toxicity and allergenicity

Cross-contamination/infection in contact lens patients by all types of organisms

Hygiene regimes and their efficacy

### **Indicative Reading:**

#### **BOOKS**

- ANDERSON, J.S. et al A handbook of contact lens management, produced by Vistakon and Synoptik
- BRENNAN, N, and BRUCE, A. A guide to clinical contact lens management. Ciba Vision, 1993
- PHILLIPS, A., and SPEEDWELL,L. Contact lenses, (4th edition). Butterworth-Heinemann, (Oxford) 1997
- RUBEN, M., and GUILLON, M., Contact Lens practice, Chapman and Hall, (London) 1994.
- Douthwaite, W., Contact lens optics, Butterworths, (London)
- DRAEGER, J.,Corneal Sensitivity , Springer-Verlag, (Vienna) 1984
- HAMANO, H., and KAUFMAN, H.E. The physiology of the cornea and contact lens applications, Churchill Livingstone, (New York) 1987
- HAMANO, H., and KAUFMAN, H.E.,Corneal physiology and disposable contact lenses, Butterworth-Heinemann, (Oxford) 1997
- HOM, M.M., Manual of contact lens prescribing and fitting, Butterworth-Heinemann, (Oxford) 1997
- LARKE, J.R. The eye in contact lens wear, Butterworths, (London) 1985
- TOMLINSON, A. Complications of contact lens wear, Mosby (St Louis) 1992
- Texts dealing with drugs and the eye.

#### **JOURNALS**

Anterior eye and contact lenses; previously - J Brit Contact Lens Assoc

Inter Contact Lens Clinic

Contact Lens Spectrum

Optometry & Vision Science ; previously - Am J Optom Physiol Opt

Contact Lens Update

Contact Lens Forum

Optician (especially the first issue of each month)

CLAO J

Clin Expl Optom

Cornea

Current eye research

Can J Optom

Aust J Optom

Contactologia

The main international ophthalmology journals are also useful sources of contact lens related material.

Grading scales by N. Efron (distributed by Hydron) and B.Holden (distributed by Vistakon)

## The College of Optometrists

<b>Certificate:</b>	Contact Lens Practice A	<b>Module:</b> 2
<b>Module Title:</b>	Optics of contact lenses, determination of thickness and sagitta; verification of contact lenses	
<b>Module Size:</b>	10 credits	
<b>Assessment:</b>	Modules 1, 2 & 3 of Certificate A are assessed together.	
<b>Pre-requisites:</b>	None	<b>Co-requisites:</b> Modules 1 & 3
<b>Aims and Objectives:</b>		
<p>To acquire the knowledge related optics of all types of contact lenses in relation to manufacture and fitting of lenses, to be able to determine radial and axial thickness, to be able to verify the dimensions and properties all types of rigid and soft contact lenses</p>		
<b>Learning Outcomes:</b>		
<p>To be able to understand the optics of a contact lens in relation to refractive error and the nature of the eye itself, To be able to determine dimensions and properties of contact lenses from both theoretical and practical aspects.</p>		
<b>Learning Strategies:</b>		
<p>For most optometry graduates this will be an enlargement of their U/G didactic course. At is anticipated that self help from textbooks is adequate.</p>		
<b>Outline Syllabus:</b>		
<p>Radii of curvature of cornea (normal distribution)            Calculation of shape factors of cornea            Refractive indices of cornea, tears, contact lenses            Principles of keratometry            Design of single vision, multifocal, and varifocal contact lenses            The optics of contact lenses on the eye</p> <p>Calculation of CL prescription power</p> <ul style="list-style-type: none"> <li>- Vertex distance in relation to trial lenses and over-refraction</li> <li>- Calculation of tear layer powers with rigid lenses</li> <li>- Calculation of residual astigmatism with rigid and soft lenses</li> <li>- Design of toric optical zones</li> </ul> <p>Calculation of front surface CL cylinder powers when needed to correct ocular, residual or induced astigmatism            The optical differences between CLs and spectacles with special reference to changes in accommodation, convergence, divergence, retinal image size and shape            Changes in soft lens powers with hydration and flexure            Contact lenses in the management of low vision</p> <p>Other computations            Thickness (radial and axial); Sagitta calculations; Power</p> <p>Verification of contact lenses</p>		

Methods of verifying all lens dimensions, properties and parameters  
International Standards relating to test methods  
Tolerances on dimensions  
Terminology  
Methods of classification of CL materials

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<b>Certificate:</b>	Contact Lens Practice A	<b>Module:</b>	3
<b>Module Title:</b>	The development of contact lens designs and materials; contact lens management.		
<b>Module Size:</b>	10 credits		
<b>Assessment:</b>	Modules 1, 2 & 3 of Certificate A are assessed together.		
<b>Pre-requisites:</b>	None	<b>Co-requisites:</b>	Modules 1 & 2

**Aims and Objectives:**

To acquire the knowledge of all types of contact lens design for different modes of use and different functions, to assess the development of materials used for rigid and soft lenses together with their principal properties.

**Learning Outcomes:**

To be familiar with the rationale of lens design. To understand the effects of changing lens parameters. To appreciate the pros and cons of contact lens materials together with indications for use for use.

**Learning Strategies:**

Refresher courses, special lectures, conferences

**Outline Syllabus:**

The uses of contact lenses

- Prescription
- Cosmetic
- Therapeutic
- Sports
- Vocational
- Diagnostic (medical)

Design of rigid & soft contact lenses for daily wear and extended wear

Spherical

- Varifocal
- Toric
- Scleral lenses
- Aspheric
- Cosmetic(prosthetic) lenses
- Multifocal

Historical development of CL designs and materials

General management of contact lens patients

- Principles of good management
- Care regimes and principles of contact lens hygiene
- Aftercare schedules

Indications and contraindications for different types of contact lenses

Psychological considerations

To differentiate the normal from abnormal signs in CL practice  
Patient instruction and information.

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