Why Contacts? NCLE Level I - 1 hour



Andrew S. Bruce, LDO, ABOM, NCLE-AC

Contact: asbopticianry@gmail.com Website: www.asbopticianry.com

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Vision Expo Has Gone Green!

We have eliminated all paper session evaluation forms. Please be sure to complete your electronic session evaluations online when you login to request your CE Letter for each course you attended! Your feedback is important to us as our Conference Advisory Board considers content and speakers for future meetings to provide you with the best education possible.



Financial Disclosure Statement

Andrew Bruce . . .

- Has received honorariums from:
 - **VSP** Optics
 - Mitsui Chemicals
 - Kaiser Permanente Vision Essentials
- Is on the CLSA Board of Directors and serves as technical education advisor
- He has served on the Dispensing Optician Examination Committee for the Washington State Department of Health
- All relevant relationships have been mitigated
- Has NO financial interest in any product presented in this course

Outline/Objectives

- Present an overview of refractive errors and conditions, together with their influence on vision
- Discuss methods of correction with an emphasis on eyeglasses and contact lenses
- Examine a few optical phenomenon common to ophthalmic lenses
- Explore the benefits contact lenses provide, how they can enhance your patient's quality of life.

Basic Terminology

Download "CL Terminology Handout: Expo West 2022" from *links* at . . .

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Refractive Errors and Conditions

- Emmetropia
- Myopia
- Hyperopia
- Astigmatism



- Anisometropia/Antimetropia
- Aniseikonia.

Emmetropia



- Absence of refractive errors
- 'Perfect vision'.





- Poor distance vision, good near
- Myopia determines relaxed point of focus
- Influenced by increased axial length and/or steep cornea
- Corrected by a minus lens.

Hyperopia



- Distance and near vision poor
- Hyperopic eye has no relaxed point of focus
- Influenced by reduced axial length and/or flat cornea
- Corrected by a plus lens.

Astigmatism



Light rays focused in two different planes, relative to the retina



- Typically, corneal and/or lenticular
- Corrected with a cylinder lens.

Anisometropia vs. Antimetropia

Anisometropia

- "A condition of unequal refractive state for the two eyes"
- Clinically significant >1D spherical equivalent power difference
- Both eyes are either myopic or hyperopic

Antimetropia

- "Mixed anisometropia"
- Clinically significant >1D spherical equivalent power difference
- One eye is myopic, the other hyperopic.

Aniseikonia

"A relative difference in size and/or shape of the ocular images formed by the two eyes."



Axial Related Aniseikonia

Disparity in axial length between each eye results in axial related aniseikonia.



Methods of Correction







Glasses

Contact Lenses Refractive Surgery

Optical Phenomenon with Ophthalmic Lenses

- Magnification
- Prismatic effects
- Optical aberrations



• Field of view / field of fixation.

Magnification and Its Effects



- Plus lens = *positive* magnification
- Minus lens = *negative* magnification or minification
- All lenses result in magnification
- Ophthalmic lenses magnify more than contacts.

Minimizing Magnification Effects

Influential Variables

- Dioptric power
- Vertex distance
- Base curve
- Center thickness
- Lens material

Best solution: contact lenses.

Induced Prism and Its Effects







- Distortion
- Headaches
- Pulling Sensation
- Eye Fatigue
- Eye Strain
- Diplopia
- Vertical Imbalance.

Minimizing Prismatic Effects

- Accurate fitting measurements (PD, OC, POW)
- Verification for accuracy, prior to dispense
- Horizontal OC modification for wrap eyewear > 6°
- Maintain patient viewing through the OC

Best solution: contact lenses.

Optical Aberrations

Optical systems are subject to peripheral errors in focusing . . .

- Chromatic aberration
- Spherical aberration
- Oblique astigmatism
- Distortion.

Chromatic Aberration



Spherical Aberration



Minimizing Effects of Optical Aberrations

- Premium lens designs with high quality optics
- Lens materials with high abbe values
- Aspheric lens designs
- Since aberrations affect peripheral rays, and increase with larger lenses, minimize lens size
- Minimize the patient's use of lens periphery

Best solution: contact lenses.





Field of View: Area of useful vision that can be obtained with the eye held stationary

Field of Fixation: Area of object space within which direct foveal vision can be obtained by moving the eye with the head held stationary. Maximizing Field of View / Field of Fixation

- Reduce vertex distance to a minimum (keyhole effect)
- Eyeglass frame with large lens (A, B, and ED)
- Align frame wrap with natural contour of face shape

Best solution: contact lenses.

And, The Winner Is . . .

Clearly, to minimize the effects of magnification, induced prism, and o_{P} ical aberrations, the best

eyewear solution is . . .



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The Contact Lens.



Best Suited for Contacts

- High refractive errors
- Aphakes



- Anisometropia / antimetropia
- Astigmats with > 0.50D cylinder.

Therapeutic Utilization



- Myopia control
- Bandage contact lens
- Ocular drug delivery system

To Take Away . . . Why Contacts?

- Minimize effects of lens magnification, induced prism, and optical aberrations
- Provide patients expanded field of view and fixation
- Best solution for managing aniseikonia, delivering
 improved depth perception and eye-hand coordination
- Obvious cosmetic benefits
- Convenient for sports/outdoor activities
- Many modalities available to meet every need

Primary Reason: to enhance your patient's lifestyle needs and visual demands, increasing their satisfaction.



Andrew S. Bruce

Thank You!

Speaker Contact Information

www.asbopticianry.com Email: asbopticianry@gmail.com

For questions about CE credits Email: inquiry@visionexpo.com Phone: (800) 811-7151