On behalf of Vision Expo, we sincerely thank you for being with us this year.

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 Education Planning Committee considers content and speakers for future meetings to provide you with the best education possible.

1

ABO Advance Review

Thomas Neff MA, LDO, ABO-AC, NCLE-AC
Thomasneffldo@gmail.com
Presented By:

Visit the Opticon Hub for more information on joining and helping the UOA with there mission to improve Opticianry!

www.Opticians.org

2

Conflict of interest

- The speaker, Thomas Neff MA LDO, ABO-AC, NCLE-AC, has no conflicts of interest to disclose.
- Part of the Speaker Bureau with Mitsui Chemicals

3

ABO Advance Review Domain 5 & 6

Thomas Neff MA, LDO, ABO-AC, NCLE-AC

Presented By:

Scan the QR code to learn about complimentary UOA membership, made possible through an investment by ABO & NCLE to:

- state associations,
- state licensees &
- ABO-NCLE certificants.

4

ABO Advance Test Specifications New for 2024

- 1. Optics
  - 30%
- 2. Ocular Anatomy, Physiology, Pathology, and Refraction
  - 33%
- 3. Ophthalmic Products
  - 10%
- 4. Instrumentation
  - 9%
- 5. Dispensary Protocols and Procedures
  - 10%
- 6. Laws, Regulations, and Standards
  - 8%

5

ABO Masters Program

- The ABO Master in Ophthalmic Optics designation demonstrates to the public and colleagues that an individual has attained a superior level in ophthalmic dispensing.
- Any Optician who is currently Advanced Certified by the American Board of Opticianry for at least one complete three-year renewal cycle and satisfies one of two additional qualifications is eligible to apply for this designation.
- Today 10:30am: Panel discussion: Masters Designation hosted by Cira Collins in the OptiCon Hub

6

ABO Masters Program

Have written two published ABO-approved Advanced Level III articles

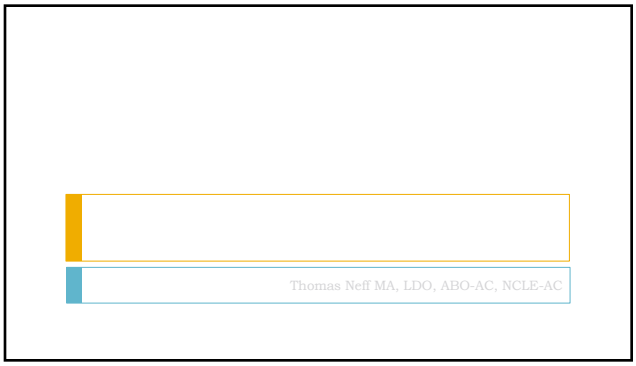
OR

An ABO-approved speaker with two ABO-approved Advanced Level III Courses, or

OR

Have one published ABO-approved Advanced Level III article AND one ABO- approved Advanced Level III Course for which you are the ABO-approved Speaker.

7



8

Domain 5 Tasks

Dispensary Protocols and Procedures: 10%

I. Optical History
II. Fitting
III. Adjusting
IV. Measuring
V. Troubleshooting

9

It takes a Detective to Dispense Exceptional Eyewear

- often referred to as "FORENSIC OPTICIANRY"

10

It takes a Detective to Dispense Exceptional Eyewear

- Assess patient's/customer's expectations
- Describe methods of taking accurate facial, ocular and frame measurements.
- Evaluate patient's complaints regarding performance of correction.
- Apply formulae in the design of lenses.
- Describe the advantages and disadvantages of current lens materials.
- Solve problems associated with differences in new and previous eyewear.

11

Establishing Direction

- Request the prescription
- Analyze the prescription
  - Date
  - Strength
  - Purpose
- Examine patient's present eyewear
- Determine lifestyle and needs

12

Initial Frame Selection

- Select five or six frames based on patient's prescription, objectives, facial features, and color.
- Select a variety of plastic and metal frames
- Do not prejudge!
- Ask patient to judge the appearance, not the fit.

13

Features and Benefits

- Features vs Benefits:
  - Patients don't want features, they want to know how they will benefit them.
  - **A feature** is something you can touch.
    - Example: Titanium, Spring Temple, Polo Design, Silicone Nose Pad.
  - **A benefit** is how it helps the patient.
    - Example: Lightweight, fewer adjustments, save time, more fashionable, safer, sharper vision.

14

Lens Options and Additional Pairs

- Discuss during frame selection, not at the closing.
  - Better yet, in exam chair with Doc…
- Explain features and benefits.
- Relate to their needs.
- Demonstrate!
- Include when pricing eyewear early in the frame selection process, avoid sticker shock.

15

Problem Solving

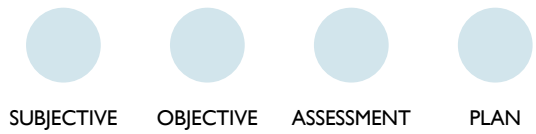
16

Analysis of Vision Errors:

- Subjective Analysis
- Verify and Analyze the New Prescription
- Compare to Previous Pair of Glasses and Observe
- Check Fit of New Glasses
- Observe Fitting Characteristics of Previous Pair
- Vision Problems: Solutions

17

SOAP format



18

Vision Errors: Subjective Analysis

- When did you receive your glasses?
- How many hours per day have you worn your glasses?
- Did you experience this problem with your previous glasses?
- When does the problem occur?

19

Subjective Analysis

- Does the problem subside or become worse as the glasses are worn?
- Where does it occur? (Occupational or recreational setting)
- Have you found a way to solve the problem?

20

Vision: Subjective Analysis

Blurred vision

Double vision

Perception/Discomfort

Reflections

21

Vision Problems: Solutions

ADJUST FRAME:

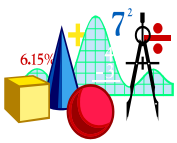
- Pantoscopic tilt
- Vertex distance
- Wrap

22

Vision Problems: Solutions

CHANGE LENS FORM

- Multifocal style
- Frame size
- Base curve
- Aspherics



23

Additional Pairs

- Sunglasses
- Safety Glasses
- Occupational / Recreational lens designs
- Different appearance for different settings.
- Convenience

- SHOEs analogy

24

Measurements: Facial and Frame

- Interpupillary Distance
  - MM Rule
  - Pupilometer
  - Electronic
- Vertex Distance
  - Distometer
  - Electronic
- Pantoscopic Tilt
  - Manual
  - Electronic
- Wrap
  - Manual
  - Electronic

25

Millimeter Rule

26

Pupilometer

CRP, or Corneal Reflex Pupilometer

27

Digital

28

Optical Center Placement

- Optical Center: Those points on the front and back surface of a lens where the curves are parallel
- Optical Axis: A line which connects those two points.
- Horizontal placement determined by monocular P.D.
- Vertical effects prism and aberrations

29

30

Martins Lens Tilt Formula

31

VERTEX COMPENSATION

Effective Power
It is what is felt if the lens when moved farther or closer to the eye

Vertex Compensation
Is what is needed to change the RX to compensate for the movement to and from the eye.

$$Dc = \frac{dD^2}{1000}$$

- **When the lens sit a different distance from where the doctor refracted the patient.**
  - + MOVED AWAY GETS MORE PLUS
  - + MOVED CLOSER GETS MORE MINUS
  - – MINUS MOVED AWAY GETS MORE PLUS
  - – MINUS MOVED CLOSER GETS MORE MINUS

Use the sign it is moving in
Away from eye = add plus / subtract minus
Towards the eye = subtract plus / add minus

32

Vertex Compensation

- A Distometer, millimeter rule, or digital device is used to measure vertex distance.
- If the power in any meridian is > 7.00D, an adjustment to power if the frame is fit at a distance different than the Rx vertex distance

33

Fitting Single Vision Aspherics:

- Pre-adjust the frame.
- Dot centers of pupils, measure height and subtract 1mm for every 2 degrees of tilt or tilt head until pantoscopic tilt is eliminated before dotting pupils.
- Use pupilometer for mono P.D.

34

35

Analysis of Spectacle Errors:

- Comfort
  - Nose, Ears
  - Glasses Slip, Touch Cheeks, Lashes
- Repair
- Vision

36

Comfort Errors

- Frame Selection
- Lens Selection
- Adjustment
- Analysis of Systems and Processes
- Identify Possible Underlying Systemic Factors (Enablers)
- Potential Improvements

37

Repairs

- Patient History
  - Occupational Factors
  - Recreational Factors
- Frame Selection
- Lens Selection
  - Impact Resistance
- Laboratory Work
- Dispensing Instructions

38

Vision

- Exam
- Prescription
- Prescription Interpretation
- Frame Selection
- Lens Selection
- Facial Measurements
- Laboratory Work
- Verification
- Adjustments
- Dispensing Instructions
- Adaptation
- Follow Up Care

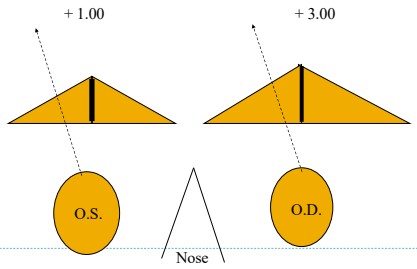
39

Prism

- Measurement
- Patient Problems
  - Base Down
  - Base Up
  - Base In or Out
- Decentration
- Slab Off
- Image Jump

40

SINGLE VISION DISPLACEMENT



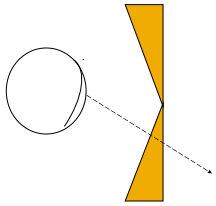
41

Vertical Prism (Imbalance)

- Determine the power in the vertical meridian.
- Determine the power difference between each lens.
- Determine prism at the reading level (usually 10mm) ^ = P x dcm
- If the imbalance is greater than 1.50^ consider slab off, base up least plus or highest minus. Reverse for reverse slab.

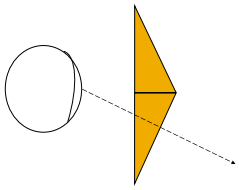
42

Base Direction - Minus Lens



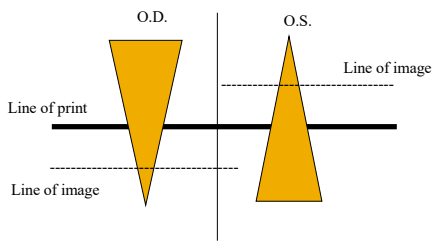
43

Base Directions - Plus Lens



44

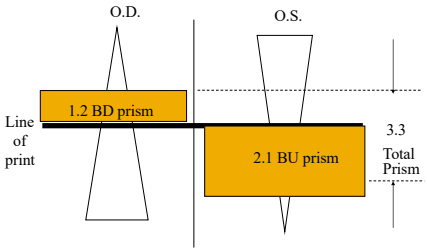
Vertical Imbalance



RESULT: DIFFICULTY READING SPLIT LINE OF PRINT

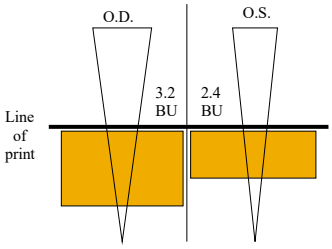
45

Opposite Prisms Compound



46

Similar Prisms Cancel



47

48

Methods of Correcting Vertical Imbalance

- Contact Lenses
- Two Pairs of Glasses
- Adjusting the MRP or Seg Height
- Fresnel Press-On Prism
- Dissimilar Segs
- Compensated "R" Segs
- Slab-Off

49

50

51

Slab-Off Verification

- Place lens clock contact points parallel to the slab line on the distance portion and note reading.
- Place lens clock with one point on the distance portion, one on slab line, and one on lower prism portion.
- Difference in readings indicates the amount of slab-off prism.

52

Evaluating the Need for Correction

- Age
- Amount of Imbalance
- Cause of Imbalance - Onset
- Reading Position

53

54

55

Case Study # 1

30 year old female six months after refractive surgery.

O.D. +3.00 -0.50 x 135 O.S. +2.00 -1.00 x 30

SPH	+3.00	SPH	+2.00
50% CYL	-0.25	75% CYL	-0.75
Total	+2.75	Total	+1.25

Optical Difference = 1.50

Reading Level = 10mm

Vertical Imbalance = P x dcm or 1.50^

56

57

Case Study # 2

45 year old male with an add power prescription for the first time.

O.D. -3.00 -2.00 x 180 O.S. -2.00 -1.00 x 120

ADD: +1.25 O.U.

SPH	-3.00
+100% CYL	-2.00
Total	-5.00

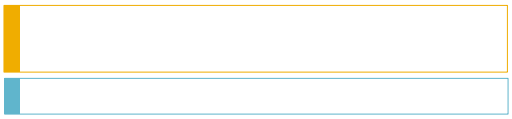
SPH	-2.00
+ 25% CYL	-0.25
Total	-2.25

Difference @090 = 2.75

Reading Level = 10mm

Vertical Imbalance = 2.75Δ

58



59

ANSI Standards

- ANSI Z80.1 Prescription Ophthalmic Lenses
- ANSI Z87.1 Occupational & Safety Eyewear

- Note on ANSI…generally viewed as "voluntary" standards….However,
  - ANSI Z80 may be a STATE requirement for Opticians
  - ANSI Z87 Adopted by OSHA, so is FEDERAL REQUIREMENT.

60

https://thevisioncouncil.org/sites/default/files/ANSI%20Z80%20.1-2015_Quick%20Reference%20_v2.pdf

61

62

63

7. Base Curve Tolerance

- When specified, the base curve shall be supplied within ± 0.75 D.

8. Center Thickness Tolerance

- The center thickness shall be measured at the prism reference point of the convex surface. It shall not deviate from the nominal value by more than ± 0.3mm.

9. Segment Size & Tilt Tolerance for Multifocals

- The segment dimensions (width, depth, and intermediate depth) shall not deviate from the nominal value by more than ± 0.5mm. The difference between the segment dimensions (width, depth, and intermediate depth) in the mounted pair shall not exceed 0.5mm unless specified.
- The segment tilt for each lens shall be within ± 2° as measured from the 180.

10. Segment Vertical Location, Tilt and Fitting Cross Vertical Location

- Multifocals: the segment height for each lens shall be within ± 1.0mm. The difference between the segment height in the mounted pair shall not exceed 1.0mm.
- Progressives: the fitting cross height for each lens shall be within ± 1.0mm. The difference between the fitting cross height in the mounted pair shall not exceed 1.0mm.
- The horizontal axis tilt for each lens shall be within ± 2° using the permanent horizontal reference markings.

64

11. Segment Horizontal Location and Fitting Cross Horizontal Location

- Multifocal lenses: the distance between geometric centers of the segments in the mounted pair shall be within ± 2.5mm of the specified near interpupillary distance. The inset in both lenses shall appear symmetrical and balanced unless monocular insets are specified.
- Progressive addition lenses: the near reference point is set by the lens design. The fitting cross location in progressive lenses shall be within ± 1.0mm of the specified monocular interpupillary distance for that lens.

12. Localized Errors

- Localized power errors or aberrations caused by waves, warpage or internal defects, which are detected by visual inspection, are permissible if no measurable or gross focimeter target element distortion or blur is found when the localized area is examined with a focimeter. Areas outside a 30-mm diameter centered on the reference point, or within 6 mm from the edge, are exempt from this requirement.

13. Prescription Impact-resistant Dress Eyewear Lenses

- All lenses must conform to the impact resistance requirements of Title 21, Code of Federal Regulations, 801.410 (CFR 801.410).

14. Axis of polarization

- If there is a marking on the spectacle lens indication the intended direction of horizontal orientation of polarization, then the actual plan of transmittance shall be at 90 ± 3° from this marking.

65

Laws Governing Opticianry

- Remember that our "RULES" that we have to follow are broken into :

1) **Laws** (passed by lawmakers and signed off on by an executive)

2) **Regulations** (rules and guidelines written to enforce or clarify laws, generally by a specific officer or department, and have the SAME legal standing, and can be enforced, just like "laws")

66

Laws Governing Opticianry

- And these Laws and Regulations can be passed by:

1) Federal Gov

2) State Gov

3) Local Gov

67

Laws Governing Opticianry

- **Federal Laws**
- **Federal Regulations**

- **State Laws**
- **State Regulations**

- **Local Laws and regulation (less applicable normally)**

68

Example of FEDERAL LAW

- Fairness to Contact Lens Consumer Act
  - Must release CL Rx
  - Online can sell, but must verify (1 business day and is filled)
  - ENFORCED by FEDERAL TRADE COMMITTEE (FTC)

69

Example of FEDERAL REGULATION

- FTC
  - EYEGLASS RULE
    - ODs and OMDs must give copy of Rx at conclusion of exam, even if not asked for
    - https://www.ftc.gov/business-guidance/resources/complying-eyeglass-rule
- FDA (food and Drug Agency)
  - Impact resistance standards 1971
    - Batch testing of plastic/resin lenses, individual drop ball testing of Glass Lenses
- OSHA (occupational Safety and Health Administration)
  - Require Eye and Face Protection on worksites when required
    - ADOPTED ANSI Z87 for these purposes

70

Example of State Laws

- ALL states have laws and regulations on Optometrists, Dentists, Medical Doctors, nurses, Etc
- Some states have laws and regulations (ex licensing requirements) for Opticians
  - CT for example adopted ANSI as a STATE law for Opticians
  - FL for example has not adopted ANSI as STATE law for Opticians

71

Other professional Requirements

- In addition to
  - Federal Laws (FCLCA, Federal Law)
  - Federal Regulations (FTC eyeglass rule, FDA impact, OSHA)
  - State laws if indicated
- There are also OTHER requirements:

72

Other professional Requirements

- It is the against the law to sell any lens other than polycarbonate or trivex lenses for children or monocular patients?
- TRUE or FALSE

73

Other professional Requirements

- Actually there is generally no "law" (as far as I am aware).
- There IS, however, a legal concept called **"duty to warn"**
- in CIVIL cases, a professional can be held liable for injuries caused to another, if the practitioner had the opportunity to warn the patient of a hazard and failed to do so.

74

Duty to Warn

- Optician has a duty to investigate what a patients needs are and to recommend the appropriate lens or lenses.
- IN absence of documentation, the practitioner can be held liable AND potentially revocation or action against license
- Many companies, concerned about liability, especially in minors, will set company policies to mandate using ONLY impact resistant lenses for minors, both to satisfy this "duty to warn" and to mitigate any potential liability (prevent lawsuits from injured patient, especially a child)

75

- Back to ANSI

Recall that OSHA controls workplace safety (Eye and Face protection)

- Simply ADOPTED the "voluntary" ANSI Z87 standards to simplify process

76

ANSI Z87

Basic Impact vs High Impact

77

ANSI Z87

Basic Impact	High Impact
Z-87 markings	Z-87-2 markings (all now)
3.0 mm min CT	2.0 mm min for HI mat poly/trivex/tribri
	3.0 mm for all others CR-39, etc

78

ANSI Z87

- Lens Markings:
- Upper temp corner includes:
- Manufacturer's initials
- "+" if Hi Impact Material (Poly, etc)
- Add'l
  - V for Variable
  - S for Special Purpose
  - etc

79

ANSI Z87+

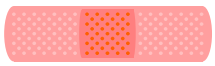
- 1/4" Steel Ball at 150 Feet/Second
- Lens Thickness: 2.0mm.
- Lens Markings: Sandblasted manufacturer's I.D. and "+"
- All Frames, Basic or High Impact must meet High Impact Standards
- Frame Markings: Front - A, DBL, Z87-2 or Z87-2+, Manufacturer's I.D. Temples - Length, Z87-2 or Z87-2+, , Manufacturer's I.D. On one temple

80

81

OSHA: Occupational Safety and Health Administration

- Federal agency charged with regulating safety practices in the work place and in educational settings.
- OSHA has adopted the Z-87.1 standards making them a federal requirement.



82

FDA: Food and Drug Administration

- Began mandating impact resistance of ophthalmic lenses in 1971.
- Plastic and others can be "batch" Tested
- Glass ALL have to be
  - Tempered:
    - Either Heat or Chemically
  - Drop Ball Tested

83

FDA: Food and Drug Administration

- Glass Drop Ball Test:
- Lenses must be capable of passing Drop-Ball Test:
  - 5/8"steel ball,
  - .56oz,
  - Height of 50 inches
  - Safety Glass, 3.0 = 1.0" steel ball
- Records must be keep three years after purchase.

84

FDA: Food and Drug Administration

- Glass drop ball exceptions:
  - Prism Segment Multifocal
  - Slab Off
  - Lenticular Cataract,
  - Iseikonic
  - Depressed segment one-piece multifocal
  - Biconcave
  - Myodisc and minus lenticular
  - Custom laminate
  - Cemented assembly lenses

85

FTC: Federal Trade Commission

- Established to prevent unfair business practices.
- Eyeglasses I and Eyeglasses II investigational studies.
- Doctor must give the patient a copy of their prescription immediately after the exam.

86

End of Review

Questions?

You can contact me I am here to help!
@ Thomasneffldo@gmail.com

87

On behalf of Vision Expo, we sincerely thank you for being with us this year.

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 Education Planning Committee considers content and speakers for future meetings to provide you with the best education possible.

88