CERTIFIED PARAOPTOMETRIC REVIEW COURSE PART 2

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FINANCIAL DISCLOSURES

- Eyevance Pharmaceuticals

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Ophthalmic Optics and Dispensing

Contact Lenses

Professional Issues

TOPICS TO BE DISCUSSED

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OPHTHALMIC OPTICS AND DISPENSING

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COMMISSION ON PARAOPTOMETRIC CERTIFICATION

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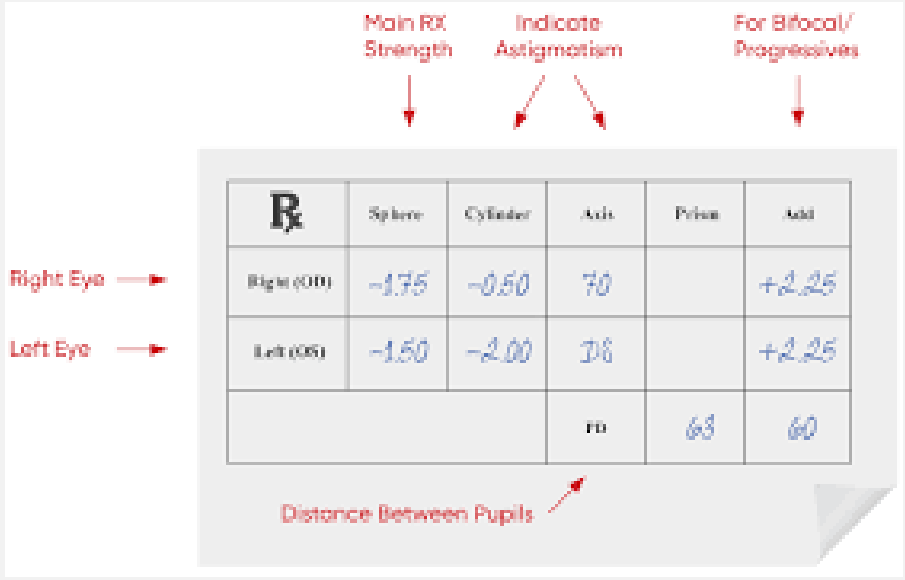

OPHTHALMIC OPTICS AND DISPENSING

Meet with sales representative

Order eyewear

Understand components of eyeglass and contact lens prescription

- Glasses: Single Vision, Bifocal, Progressive, Trifocal
- Contact Lenses: Base Curve, Diameter, Length of Wear

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OPHTHALMIC PRESCRIPTION

- Light travels at 186,000 miles/second in air
  - Fastest in air vs. glass/water/etc.
- When light enters medium such as glass or water at any other angle than 90 degrees, light is refracted or bent
  - Amount on ophthalmic lens refract or bend light can determine its power
- **Diopter (D)-** unit of measure for lens
  - One diopter lens will focus light at one meter
  - Two diopter lens will focus at ½ meter

OPHTHALMIC PRESCRIPTION

- Plus (Convex) Lenses- thick in center and thin on edge, magnified objects
  - Light passing through these lenses will converge
  - Corrects hyperopia and presbyopia
- Minus (Concave) Lenses- thin in center and thick on edge, minimize objects
  - Lights passing through these lenses will diverge
  - Corrects myopia

OPHTHALMIC PRESCRIPTION

- Spherical- all rays of light deviate in same direction
  - 1st number listed on Rx
- Cylindrical- rays of light deviate in more than one direction
  - 2nd number listed on Rx and represents astigmatism
- Axis- where cylinder is positioned
  - Can be from 1 to 180 degrees

- **1.00 prism diopter deviates light 1 centimeter at 1 meter**

OPHTHALMIC PRESCRIPTION

- Examples:
  - -2.00 +1.00 x 180
  - +3.00 -1.00 x 180
  - -1.00sph

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OPHTHALMIC PRESCRIPTION

- Add Power- additional plus power people need to view things at near and arm's length
  - Done by using multi-focals
- Prism- used to correct patient's eyes not aligned correctly
  - Wedge-shaped that deviates or bends light
  - Apex- top of prism, base- bottom of prism
  - Light bent toward base

- **1 prism diopter bends a ray of light 1 centimeter for every 1 meter of distance**

TYPES OF LENSES

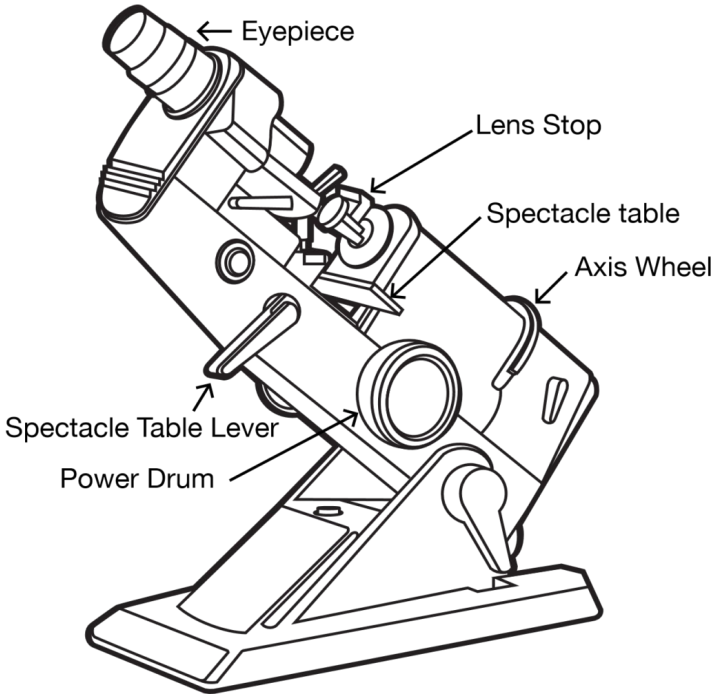
- **Single Vision-** corrects vision at one distance
  - Spherical Lenses- same power in all meridians
    - Examples: -1.00sph or +3.00sph
  - Planocylindrical Lenses- no power in one meridian and power in other meridian 90 degrees away
    - Examples: plano -2.00 x090 or plano -1.00x180
  - Aspherical Lenses- works well for spherical lenses, wider field of view for wearer, thinner lens profile

TYPES OF LENSES

- **Multi-focal Lenses**- single lens designed with multiple powers to be used at different distances, corrects presbyopia
  - Bifocal Lenses- lens has power for viewing at two distances (distance and near)
  - Trifocal Lenses- lens has power for viewing at three distances (distance, intermediate, and near)
  - Progressive Lenses- lens has gradual change in power of lens with distance at top and near at bottom
    - No lines

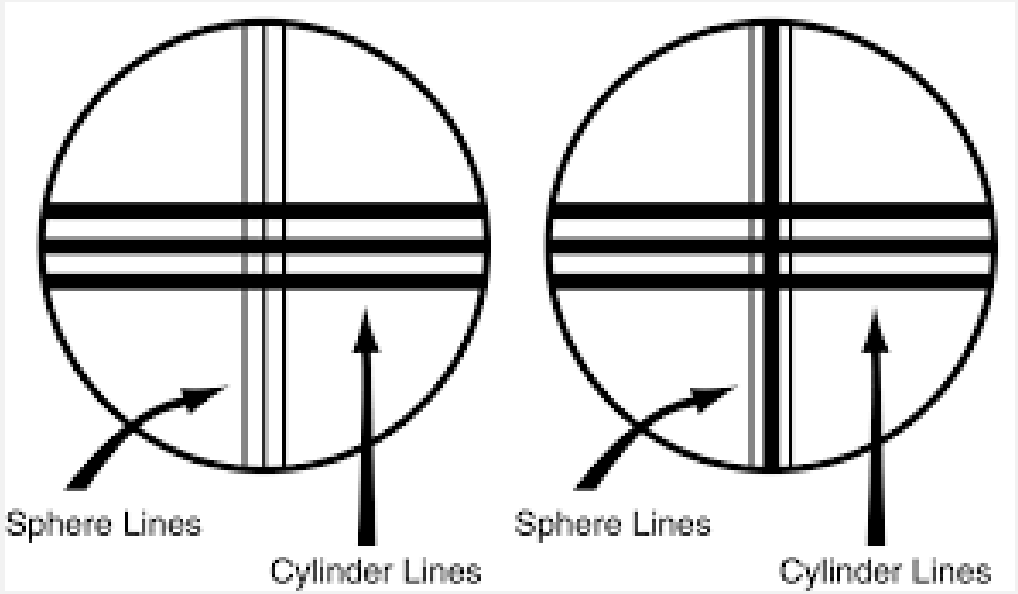
LENSOMETRY

- Set-Up:
  - Power wheel set at zero; examiner focuses eyepiece
  - Check right lens first
  - Place glasses in lensometer with ocular surface away from you
    - Lens held in place by lens holder and held level on lens table
  - Center lens by moving it so image of lensometer target is aligned with center of eyepiece reticle



LENSOMETRY

- Determine which set of lines is for sphere and cylinder



- If lines don't come into focus at the same time, then there is a cylinder component

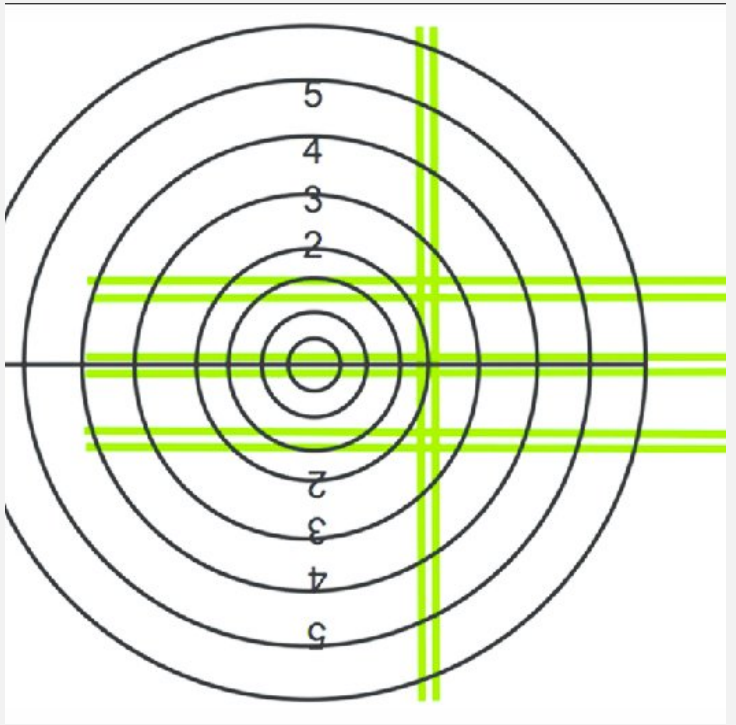
LENSOMETRY

- **Spherical Power-** start with enough plus power to blur lensometer target and then rotate power wheel until spherical line in focus
- At same time, rotate the axis wheel so spherical lines are continuous
- Document spherical portion of prescription from power wheel

- **Cylindrical Power-** continue rotating power wheel until cylindrical lines are in focus
- Amount of Cylindrical Power= difference between power when spherical portion of target is in focus and cylindrical portion of target is in focus
- Document axis of cylinder from axis wheel
- Dot optical center of lens while on lensometer

LENSOMETRY

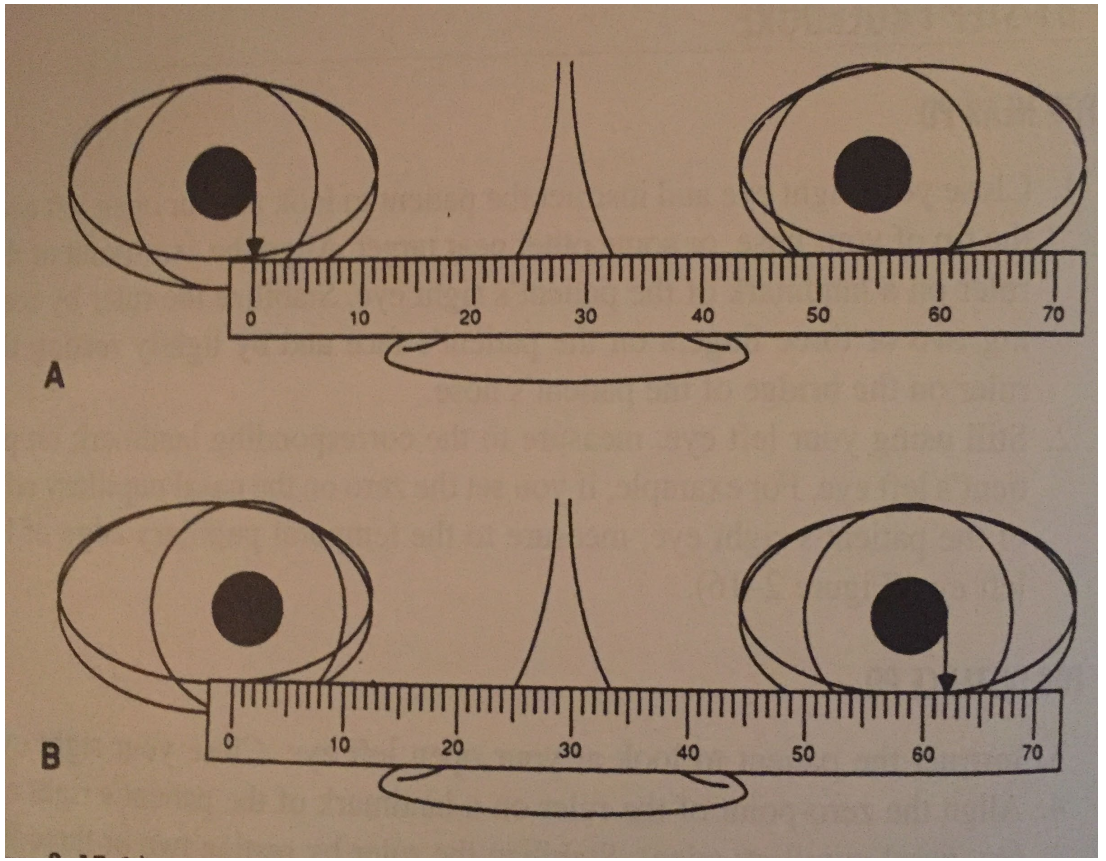
- Multifocal Lenses
  - Turn glasses around so ocular surface faces you
  - Recheck one meridian in carrier and compare power in this meridian to power in same meridian through near portion
    - Difference between two is the add
- Prism
  - May not be able to center lens in reticle
  - Dot lens at location of patient's line of sight and place this location in center in reticle
  - Read amount of prism using prism scale in lensometer



INTERPUPILLARY DISTANCE MEASUREMENT

- Distance in millimeters between entrance pupils of two eyes
- Distance PD:
  - Examiner closes right eye and instructs patient to look at your open left eye/tip of nose/near target
  - Align zero-point of ruler on a landmark on patient's right eye
  - Still using your left eye, measure to corresponding landmark on patient's left eye

INTERPUPILLARY DISTANCE MEASUREMENT



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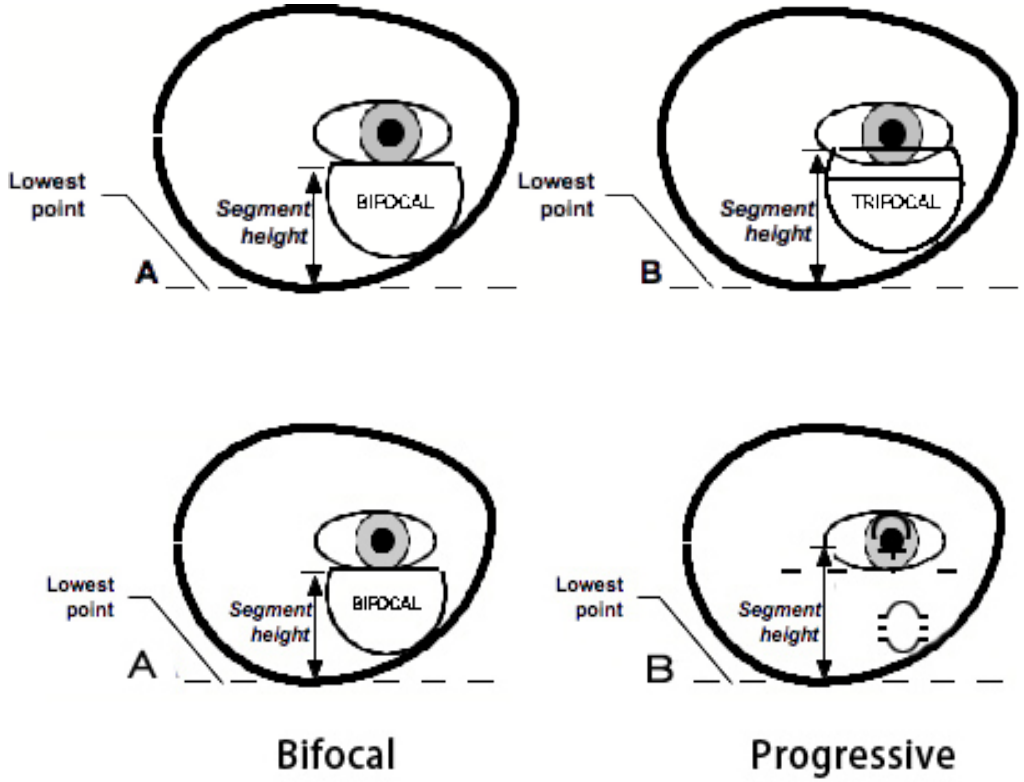
SEG HEIGHT MEASUREMENT



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OPHTHALMIC OPTICS AND DISPENSING

- Educate and Assist Patient in Selecting Eyewear
  - Frame Selection
  - Specialty Eyewear
  - Lens Material
  - Lens Coatings
  - Blue Light Protection

LENS MATERIALS

Glass- hardest surface, easy to break, *scratch resistant*

Plastic (CR-39)- thicker than glass, lightweight, less scratch resistant, easily tinted

Polycarbonate- harder to break, *safety lens for children, athletes, and monocular patients*; less scratch resistant, thinner

Trivex Material- mid-index lenses, less scratch resistant, safety lens for children, athletes, and monocular patients; free from distortions and aberrations

Hi-Index- *thinnest*, less scratch resistant

LENS COATINGS

Scratch-Resistance- coating made from resin

Anti-reflective coating– eliminate internal lens reflections, reduce glare at night, good for computer, more visibility of wearer's eyes

Ultraviolet coating– filters out UV light

Mirror coating– reflect some of the light striking lens, increases density of lens

Sports coating– improves contrast sensitivity, reduces glare

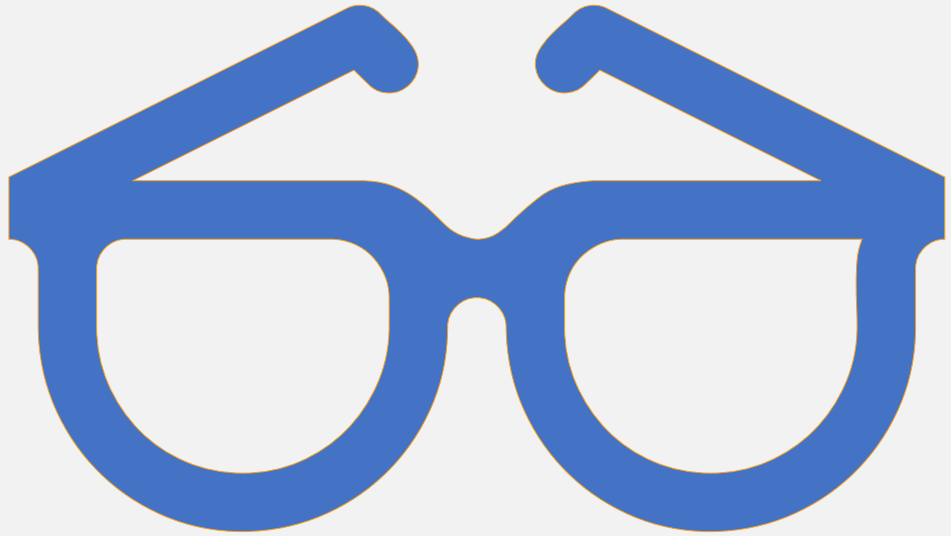
Blue light protection– block or filter blue light given off digital screens, glare protection, reduce damage to retina

FRAME MATERIALS

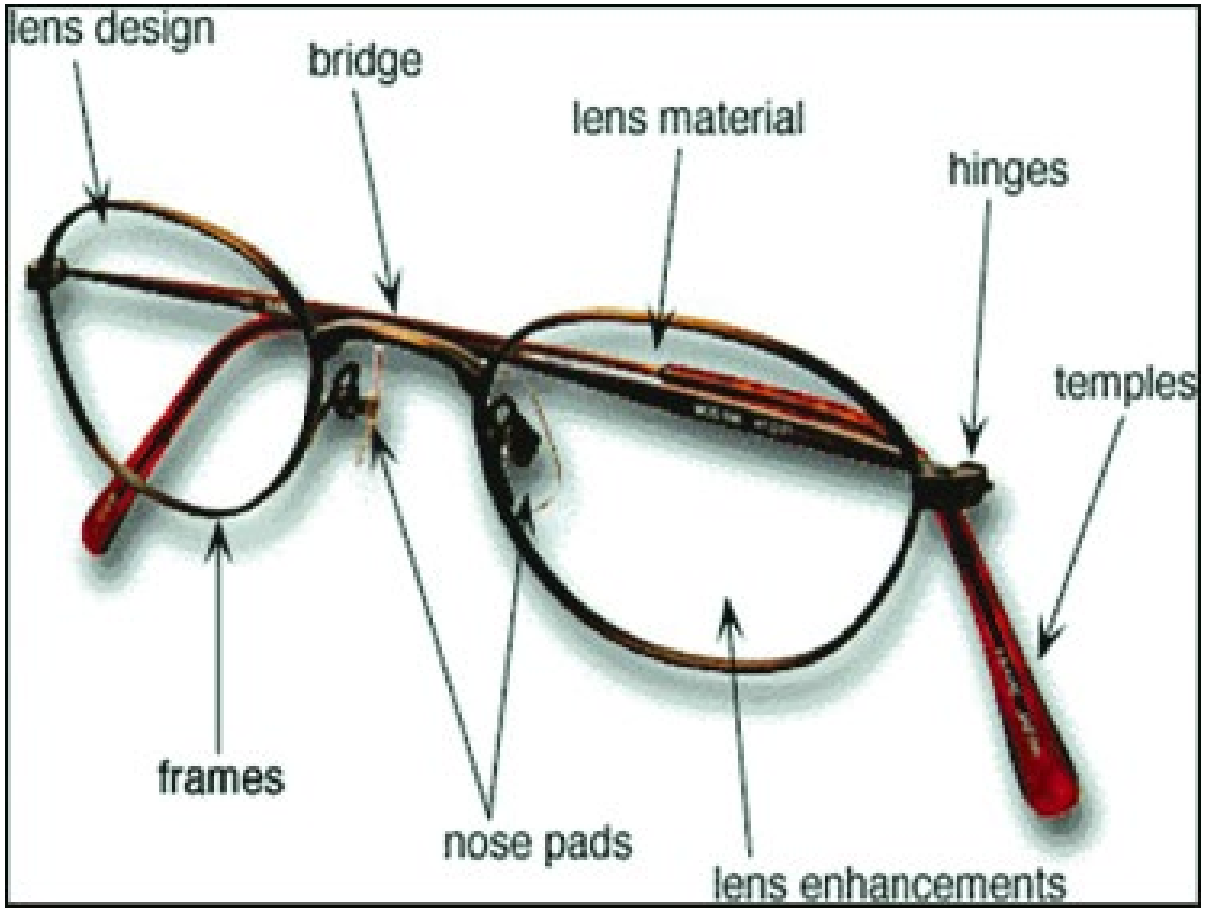
- Plastic- made of rugged polymers
  - Need heat to make material more pliable and able to bend
- Metal- front and temples are metal
  - Need pliers to adjust
  - Held in place by eye wire that is tightened with screw
- Titanium-based alloy
  - Example - Flexon
  - Lightweight, hypoallergenic, corrosion resistant
  - Memory metal, so bendable and will return to original shape
  - Difficult to adjust

FRAME SELECTION

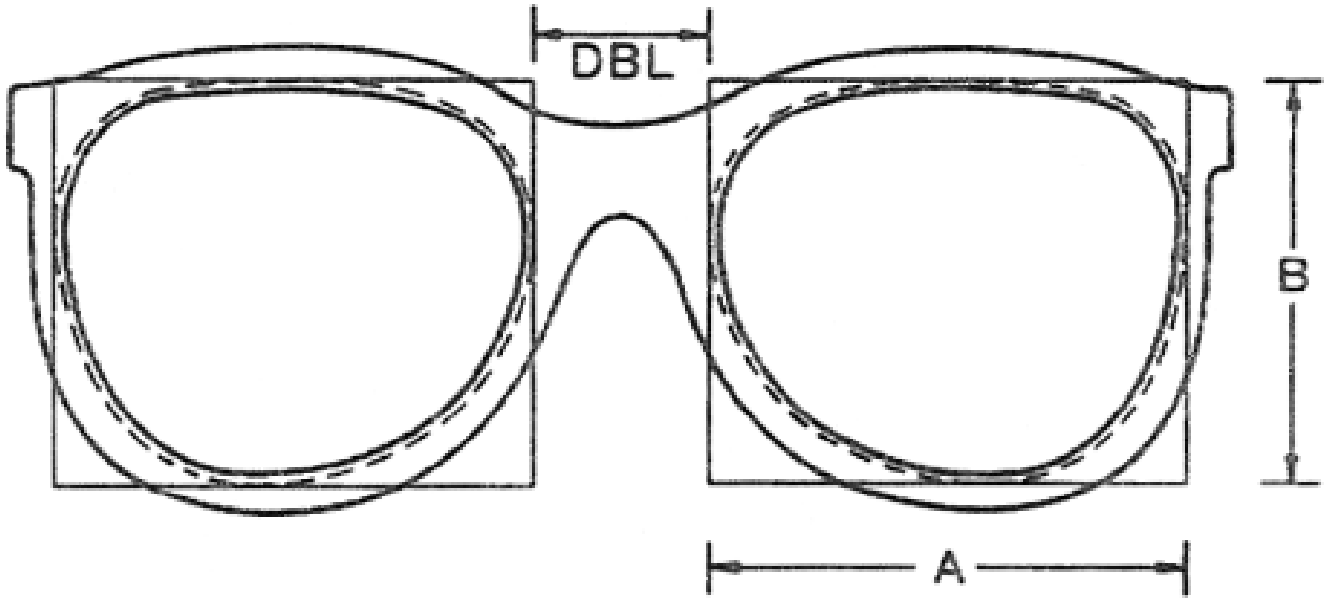
- Width of frame = width of patient's face
- Longer face = greater vertical depth of frame
- Bridge of frame should rest flat on side of nose
  - Distributes weight
- Temples should be able to bend around patient's ears to help shape fit of frames to contour of head



OPHTHALMIC DISPENSING



OPHTHALMIC DISPENSING



BASIC ADJUSTMENTS DEFINITIONS

Fitting Triangle - pressure points between frame and view of patient's head

- Goal is to equalize pressure of frame over bridge and widest part of head on each side of the ears

Frame Height - can adjust nosepads to raise or lower frame

Vertex Distance- distance from back of lens to cornea, should be equal distance from each eye

BASIC ADJUSTMENTS DEFINITIONS

Face Form- how frame front follows contour of face

- Frame protrudes at nose and farther back near temples

Pantoscopic Tilt- refers to angle of temple of frame makes with the frame front

- Bottom of frame closer to cheeks than top, which is closer to eyebrows

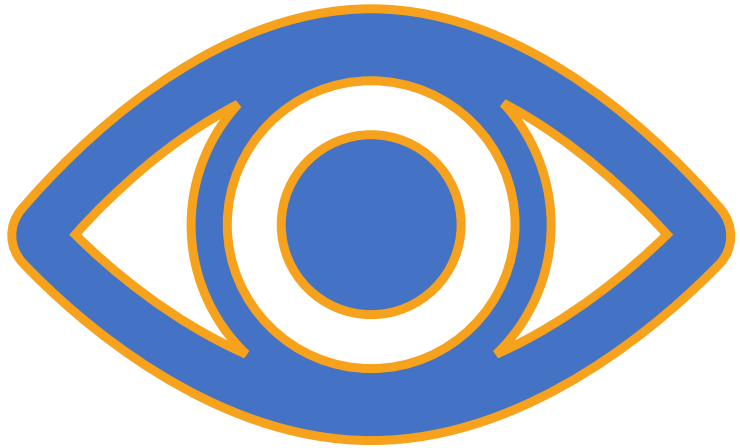
Temple Adjustment- temples bend around ears at 45 degree angle, flat against skull

ADJUSTMENT TOOLS

CONTACT LENSES

MAINTAIN/ORDER/INVENTORY CONTACT LENSES

- Refill trial lenses
  - Running list of trials, scan barcode and get ordered automatically
  - Check weekly to see what needs to be reordered
  - Visit from contact lens representative
- Ordered from third-party vendor that has access to all brands



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EDUCATING PATIENTS ABOUT LENS OPTIONS AND FEES

- Fees for Contact Lens Fitting
  - New vs. old wearer
  - Type of lens being fit (multifocal, custom lens, spherical)
- Contact Lens Options
  - Wear length
  - Wear time
  - Underlying medical conditions
  - Hygiene
  - Spherical vs. toric
  - Multifocal, monovision

DETERMINE/VERIFY CONTACT LENS MEASUREMENTS

- Need updated glasses Rx in order to select trial contact lenses
  - Single vision lenses match glasses Rx
    - If Rx >/= -4.00DS, refer to vertex calculator/conversion chart
  - Toric lenses
    - < -0.75DC then use spherical equivalent
    - >/= -0.75DC then use toric lens
      - Most only come in -0.50DC, so round to closest astigmatic correction
      - Axis powers usually come in increments of 10 degrees
  - Custom lenses
    - Multiple base curves
    - Horizontal visible iris diameter (HVID): use to select appropriate diameter for patients, ~1mm larger than HVID in soft lenses to cover both sides of limbus
    - Use keratometry measurements for gas permeable lenses

EXAMPLE

Prescription A: -2.50 -0.75 x004

Prescription B: -2.50 -1.00 x177

Starting Contact Lens Prescription: -2.50 -0.75 x180

EVALUATING GAS PERMEABLE CONTACT LENSES

- Centered horizontally on cornea
- Lid attachment (may decenter superiorly)
  - Smaller than size of cornea
- Move with each blink to allow tear exchange
  - Ask patient if vision is stable

EVALUATING GAS PERMEABLE CONTACT LENSES

- Fluorescein strips are used to assess tear film and assess how large lacrimal lake is underneath lens
  - **Central** clearance (yellow) = well-fitting lens
  - Too much clearance (deep yellow) = air bubbles, poor-fitting lens
  - Touch (dark spot) = poor-fitting lens
  - **Mid-Periphery** stabilizes lens on eye
    - Some corneal touch (dark spot)
  - **Periphery/Edges of Lens**
    - Some clearance (yellow)
    - Too much clearance= edges appear to lift off of cornea

EVALUATING SOFT CONTACT LENSES

Lens position

Cover entire cornea with 0.5-1.00mm coverage past limbus in all quadrants

Some movement with blink

Stable Vision

Possible rotation of toric lens

SELECTING PROPER CARE SYSTEM FOR CONTACT LENSES

- Prevents infection and improves comfort of lenses
- Multipurpose cleaners–most common, standard cases
- Hydrogen Peroxide-special case with cage and deactivator at bottom of case, hydrogen peroxide neutralizes over ~6 hours
- Cleaning and Conditioner Solution for Gas Permeable contact lenses
  - Clean lenses by rubbing in hand with cleaning solution --> rinse with saline solution → store in standard contact lens case with conditioning solution

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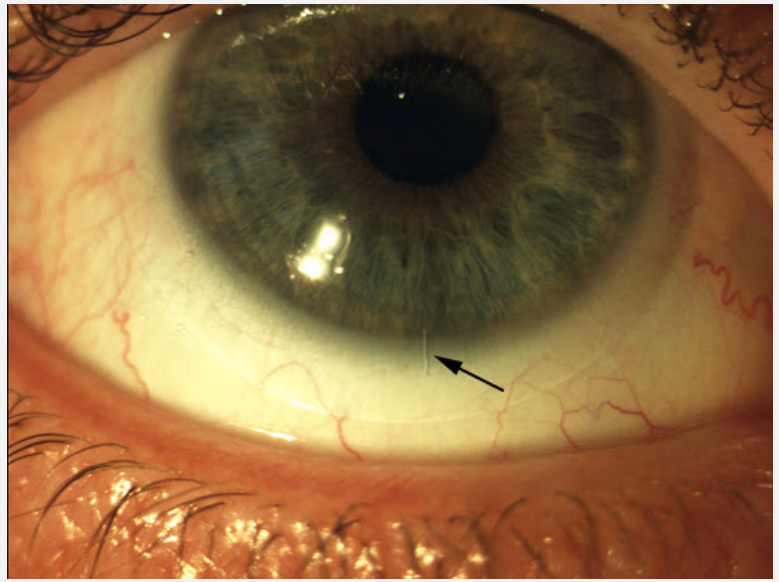
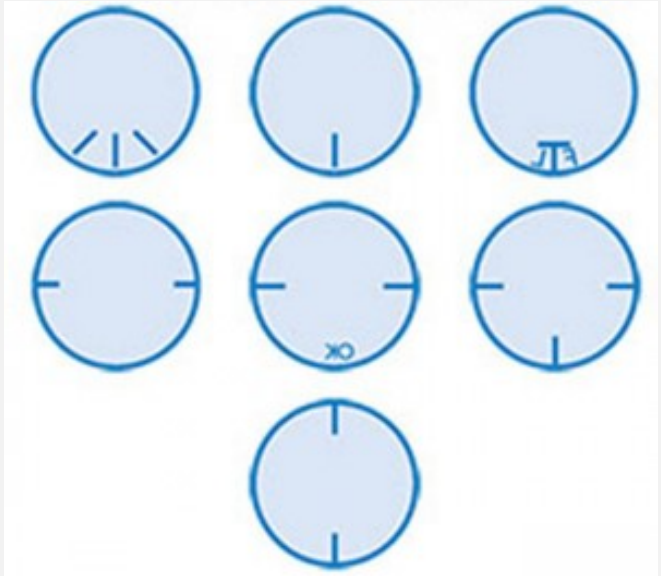
PERFORM PROGRESS CHECKS ON PATIENTS

- Ensure proper lens fit
- Check vision
- Review contact lens techniques
- Insertion and removal
- Proper cleaning
- Replacement schedule

TROUBLESHOOT PROBLEMS

- Comfort Issues
  - Moves a lot or not centered = discomfort or feeling edge of lens
  - Too tight = red, irritated eye
  - Too dry/loose = lens may fall out
    - Ways to improve dryness = switch cleaning solutions, contact lens materials, switch modalities, rewetting drops





TROUBLESHOOT PROBLEMS

- Vision Issues
  - Over-refraction
    - Start with spherical power first
  - Toric Lens rotation
  - Fluctuation in vision may be due to dryness

PROFESSIONAL ISSUES

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FRONT DESK

- Maintain a neat, orderly, up-to-date office
- Welcome/greet arriving patients
- Screen patients
- Resolve patient complaints and concerns
- Direct patient flow

FRONT DESK

- Perform telephone triage
- Document incoming calls appropriately
  - Calls from patients, vendors, other healthcare providers
- Manage patient appointments
  - Confirm, schedule
- Maintain filing systems
- Present fees and information to patients
- File insurance claims

TELEPHONE AND TRIAGE

Speak clearly, answer in timely manner

Identify office and say your name

Triage Questions:

- What kind of problem?
- When did it happen?
- Does it affect vision?
- Is it getting worse?
- Does anything make it better?

Emergency- evaluated immediately

Urgent-within next 24-48 hours

Routine- to be seen at next appointment

Appointment Times

- Comprehensive- 30 to 45 min
- Follow-up Visit- 15 to 20 min

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BUSINESS SKILLS

- Assist with practice communication
  - Office newsletter, patient correspondence, staff meetings
- Coordinate external advertising or marketing
- Prepare internal reports
- Use new software

BUSINESS SKILLS

- Handle employee payroll
- Negotiate equipment maintenance contracts/agreements
- Maintain and update office manuals
  - Office procedures and policies
- Manage employee schedules
  - Office hours scheduling, staff meetings, vacation time

PRACTICE MANAGEMENT

Maintain examination rooms	- Keep rooms stocked and sanitized
Purchase ophthalmic supplies	- Examination equipment
Take office supply inventory	- Paper, pens, staples, ink
Perform staff training	- One-on-one, in-house education, credentialing

PRACTICE MANAGEMENT-MEANINGFUL USE

- Medicare and Medicaid program that awards incentives for using certified electronic health records (EHRs) to improve patient care
- Core Objectives:
  - Must meet all 15
    - Includes demographics, changes in vital signs, smoking status, active medication and allergy list, clinical summaries of each visit, drug-to-drug and drug-allergy interaction
- Menu Objectives
  - Must meet 5/10
    - Includes drug formulary checks, one public health objective, generate lists of patients by specific conditions, medication reconciliation, summary of care record for transitions of care

PRACTICE MANAGEMENT- MACRA/MIPS

- Medicare Access and CHIP Reauthorization Act (MACRA)- pay-for-performance program that focuses on quality, value, and accountability
  - Focuses on giving better care instead of service
- Merit-Based Incentive Payment System (MIPS)- program that determines Medicare payment adjustments
  - Based on four performance categories: quality, resource use, clinical practice activities, meaningful use of EHR
  - May receive payment onus, payment penalty, or no payment adjustment

PRACTICE MANAGEMENT-PQRS

- Physician Quality Reporting System (PQRS)- federal quality-reporting program that uses a combination of bonuses and penalties to encourage participation in Medicare
  - Replaced by MIPS

PRACTICE MANAGEMENT

- Contact insurance companies regarding participation
- Comply with infection control procedures
- Maintain diagnostic listings and fee schedule
- Comply with federal regulations
  - Health Insurance Portability and Accountability Act- protects sensitive patient health information from being disclosed without patient's consent or knowledge
  - Occupational Safety and Health Administration (OSHA)- regulates workplace safety and health

PRACTICE MANAGEMENT- ELECTRONIC HEALTH RECORDS

- Electronic Health Records- allow doctors to keep track of health information for patients, able to access when office is closed
  - Able to share with other specialists
  - E-prescribe medications directly to patient's pharmacy
  - Increased privacy and security
  - Reduced paperwork
  - Reduce unnecessary tests
- Personal Health Records- you control what information goes into it
  - Keep track of doctors visits and your health priorities
  - May be linked to electronic health records

PRACTICE MANAGEMENT- MEDICAL CODING

- Billing and Coding:
  - 1) select insurance panels and credential for them
  - 2) set exam fees
  - 3) learn how to submit claims
  - 4) know proper optometry billing and coding procedures

PRACTICE MANAGEMENT- CPT CODES

- CPT Code 92004:
  - Medical exam and evaluation with initiation of diagnostic treatment program, comprehensive new patient, one or more visits
  - 92022- intermediate
- CPT Code 92014:
  - Medical exam and evaluation with initiation of diagnostic treatment program, comprehensive established patient, one or more visits
  - 92102- intermediate

PRACTICE MANAGEMENT- MEDICAL CODING

- Evaluation and Management (E/M) Codes- typically used for patients with medical complaint i.e. diabetes, allergy, glaucoma
  - 992XX
  - Different levels, but depends on length of time spent with patient and complexity of care
- Procedure Codes
- Codes for each Condition Diagnosed
- Modifiers- help describe service and get paid properly
  - Example: -E1 left lower lid, -51 multiple procedures during same session

PRACTICE MANAGEMENT- CARDIOPULMONARY RESUSCITATION (CPR)

- Staff Training
- Lifesaving procedure that is done when someone stops breathing or heartbeat has stopped
- Importance Steps: Call 911, Check for Pulse (Make Sure They are Conscious), Provide Rescue Breaths, Provide Compression
- Compression Depth:
  - Adult- 2 inches
  - Child (usually 1 to onset of puberty)- ½ inch
- Compression Ratio:
  - 2 rescue breaths per 30 compresses

PRACTICE MANAGEMENT-CPR

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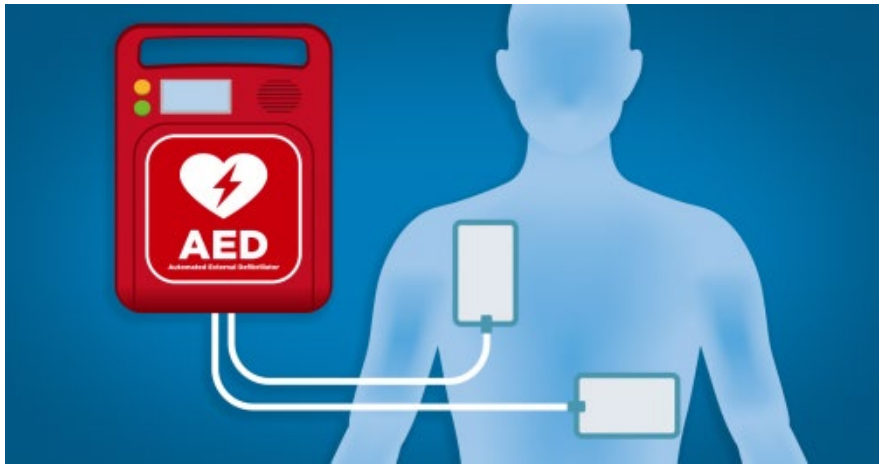

PRACTICE MANAGEMENT- AUTOMATED EXTERNAL DEFIBRILLATOR

Medical device that analyzes heart rhythm and delivers shock or defibrillation to help proper heart rhythm

Restarts patient's heart when experiencing cardiac arrest

Usually done after CPR

Do not do when water is present

Do not touch patient while performing

QUESTIONS/COMMENTS?

Good luck and thank you!!

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