

NCLE Advanced Contact Lens Review  
Domain III - Patient Instruction  
and Delivery Procedures (17%)  
Domain V - Administrative Procedures  
(9%)



Developed by the National Federation of  
Opticianry Schools – NFOS  
Professor Robert J. Russo  
Time: 5:00 PM - 6:00 PM

## Contact Lens Application and Removal Technique

### Importance of Patient Management

- Besides the proper fitting of any contact lens, lens success is based on:
  - Initial Training
  - Proper Hygiene
  - Proper use of Solutions
  - Proper techniques for inserting and removing contact lenses
  - Proper cleaning and disinfection
  - Importance of follow-up

### Soft Lenses

- Explain to patients that their contact lenses are found in multipacks
- Explain that each multipack contains six lenses that are individually packaged to maintain sterility
- Each Multipack should be labeled as *Right* and *Left*
- Use non-stick labels and avoid marking boxes
- Contact Lens companies will not credit multipacks that are marked

### Lens Packaging

- Instruct patients that prior to opening an individual lens package, shake the lens package to see if the contact lens is floating in the solution
- Patients should peel back the foil to reveal the lens
- Have the patient remove or pour the contact lens in the palm of their hand and rinse prior to inserting the lens in their eye
- Prior to insertion, have the patient check the lens for surface defects, nicks, or tears
- If the lens is damaged, instruct the patient to use another lens
- Remind patients that sometimes lenses maybe damaged or missing from lens packages

### Handling the Lenses

Patient should be instructed to verify that the contact lens is not inverted or turned inside

### Taco Test

### Inserting Soft Lenses

- One Hand Placement Technique
- Two-Finger Placement Technique

### After Insertion

- Is the contact lens centered? If not

- Have the patient close their eyelids and gently massage the lens into place through the closed eyelids or
- Have patient gently manipulate the off-centered lens onto to the cornea, using finger pressure on the edge of the upper or lower lid
- Never use fingernails to manipulate the lens in place

### **Removing a Soft Contact Lens Technique**

- Two Finger Method
- One Hand Method

\*Besides the Contact Lens Fitting, Aftercare is probably the most important part of contact lens fitting success

Write down all instructions

Have the patient stick with what you recommend

Demonstrate proper cleaning techniques

Demonstrate proper disinfection procedures

### **Chemical Disinfection**

MPS – Multi-purpose solution – requires rubbing, rinsing and soaking to achieve disinfection

MPDS – Multi-purpose-disinfecting solution- must achieve a higher kill rate of bacteria and fungi during the labeled soak time without rubbing or rinsing

### **Peroxide Systems**

3% peroxide with surfactant cleaners

It has no rub approval

Uses AO Disc neutralizer

Disc has to be changed every three months or 100 uses

Minimum of 6 hours

### **Follow-Up of Soft Contact Lens Patients**

- Besides the proper fitting of any contact lens, lens success is based on:
  - Initial Training
  - Proper Hygiene
  - Proper use of Solutions
  - Proper techniques for inserting and removing contact lenses
  - Proper cleaning and disinfection
  - Wearing History and overwear
  - Importance of follow-up

### **First Return Follow-Up Visit**

- Compliment patients on their newly developed abilities (Inserting, Removing and aftercare)
- Are they wearing their lenses for at least 8 hours

- Ask questions to encourage the patient to talk instead of asking the usual questions – “Do you clean your lenses every night?”
- Review lens care instructions – Have the patients explain to you what they are doing!
- Use your skills of observation
  - How much solution have they used?
  - Has the patient switched to a different solution?

### Lubricants vs. Artificial Tears

- Lubricant – a solution to make more slippery or smooth and maximize comfort while a contact lens is in the eye.
- Artificial Tears - solution to supplement the loss of tear formation.

### Soft Lens Vision Problems and Assessment

- Fuzzy or Blurry Vision
  - Uncorrected cylinder power – Residual Astigmatism
  - Spherical Equivalent or thick soft lens
  - $-3.00 - 1.00 \times 180$   $\frac{1}{2}$  the cylinder power added to the sphere
  - New CL Rx = -3.50
  - Fit Toric Soft Lens
  - $-3.00 - .75 \times 180$  or  $-2.75 - 1.00 \times 180$
  - Most patients will tolerate up to .75 diopters of uncorrected astigmatism
- Debris on Lens
  - Review cleaning procedures or replace lens
- Lens Switched
  - Verify power and Switch
  - Usually through Over-Refraction
    - Ex. O.D.  $-3.00$
    - O.S.  $-2.50$
  - Patient comes in complaining of reduced Visual acuity
  - Assume  $-3.00$  is in left eye and  $-2.50$  is in right eye
  - O/R would reveal  $+0.50$  in O.S. and  $-0.50$  in O.D.
- Uncomfortable Vision
  - Verify change in accommodation or convergence at near point
  - For patients that are pre-presbyopic (36 – 40) for Myopic prescriptions reduce CL Rx from  $-0.50$  to  $-0.75$  diopters
  - For Hyperopes increase CL Rx from  $+0.50$  to  $+0.75$
  - College students or post-graduate students should be under-corrected for near vision comfort.
  - Recommend the use of eyeglasses for long periods of reading instead of using their contact lenses

## **Objective Symptoms**

### **Ocular Redness**

Conjunctivitis

Mechanical Irritation

Allergy

Dirty Lens – Poor cleaning

Incompatible Lens Solutions

Poor Blinking – Use of Lubricant?

Ask about Work Environment

### **Rigid Gas Permeable Lenses**

- Techniques for RGP Lens Insertion and Removal are slightly different
- Solutions should not be interchanged with Soft Lens Solutions unless FDA approved
- RGP Lens Fitting is different than Soft Lens Fitting because all RGP lenses are custom fitted to the patient

### **Preparing to Insert an RGP Lens**

- Always wash and rinse your hands thoroughly before handling your lenses. Clearer soaps are better since they contain less lanolin which can smear the contact lens surface. Avoid liquid soaps which often contain moisturisers that coat lenses. Dry your hands with a lint-free cloth to reduce the chance of trapped dust under the lens.
- All traces of soap, perfumes, hair sprays, creams and lotions should be removed from your hands and around the eyes.
- Keep your nails trimmed and clean.
- Insert lenses before applying make-up and when using hairspray, close your eyes.
- Examine the lens before insertion for damage, scratches, nicks or chips, and only wear the lenses for the recommended time.
- Avoid levering or scraping lenses off flat surface with your fingernails or sharp pointed objects.

### **Lens Insertion**

- Remove the lens from the storage case by gently putting your finger into the lens, it should stick to your finger and lift out. Wiping it out will scratch the lens.
- If needed, add one or two drops of fresh solution to the inside surface of the lens.
- Balance the lens on the tip of your forefinger.
- Pull the lower lid down with the middle finger of the same hand.
- Hold the upper lid firmly from above with the middle finger of the other hand. Make sure the finger is placed just where the eyelid meets the eyelashes.
- Now that the eye is wide open, place the lens on the cornea.
- Release the lower lid and then the upper lid and blink.
- If the lens is not properly centered on the cornea, gently manipulate by using the eyelids.

## Recentring

- Occasionally, a lens may be displaced onto the conjunctiva, (white of the eye) when inserting, or with sudden eye movements or excessive tear flow.
- Move the lens with the eyelids until it is adjacent to the cornea.

It is often easiest to re-center the lens from directly below the cornea by pushing it upwards with the bottom lid

1. Lens Removal - DMV
2. Blink Removal

## Cleaning and Disinfecting

- Place the lens on the palm of your hand.
- Apply 1 or 2 drops of your specified cleaning solution on the lens.
- Rub gently with a back and forth motion for about 10 seconds. Make sure both sides of the lens are cleaned.
- Rinse off THOROUGHLY with conditioning solution. You may need to rinse and rub more than once to ensure the entire cleaner is removed.
- Rinse hands with water to remove any cleaner. Insufficient rinsing will mean that the contact lens may sting on insertion the next time.
- Place lenses in storage case ready for sterilization and rewetting.

## Points to Remember

- Have patient adhere to the wearing schedule
- Patients should be told not to touch the tips of nozzles of solution bottles and replace caps after use
- Solution bottles that have a red tip should not be used in the eye
- Store solutions in cool places
- Always use fresh solution and do not top off solution in case
- Replace contact lens cases every three months
- Follow-up Appointments are important to maintain successful lens wear

## Follow-Up of RGP Contact Lens Patients

Review their Lens Care System

1. Ask them what solutions they are using?  
Are they using the same brand you recommended?
2. Ask them to demonstrate how they are cleaning their lenses  
Rub and Rinse or just placing the contact lenses in solution at night?
3. Wearing History  
- How many hours a day are they wearing their lenses?

- Are they overwearing their contact lenses?
- Comfort – Initial vs. End of day comfort
- Any redness, pain, light sensitivity or discharge?
- Before committing to a diagnosis, continue with visual acuity assessment and slit lamp evaluation of lenses

### Visual Acuity Assessment

- When a patient blinks, the vision should be clear and crisp before and after the blink
- During the initial fitting, variable vision is to be expected until the contact lens settles in

### Lens Flexure

New GP lenses are thinner  
 If vision fluctuates, either  
 Flatten base curve first or  
 Increase CT by .02 - .04

Depending on corneal  
 toricity sometimes new GP  
 lens materials will bend on the  
 eye after blinking

### Fluorescein Pattern Evaluation

- Follow-Up Procedure for GP Lenses involves an additional step over Soft Lens Fitting
  - Pre-fitting and Evaluation
    - Subjective and Objective Symptoms
  - Visual Acuity
  - **Fluorescein Evaluation and Staining**
  - Post Keratometer readings  
 Next Follow-up

### Fluorescein Evaluation with a Wratten Filter

#### Post “K” within Tolerance

- After removal, post “K” readings should be within .50 - .75 D of the flattest corneal meridian.
- “K” reading should not exceed 1.00 D of flattening or steepening.

### Basic Fluorescein Staining

Stippling  
 Punctate Staining  
 Abrasion  
 3&9 O'clock Staining Peripheral Staining  
 Dimple Veil

Arc Stain  
Poor Edge Design Stain  
With-the-Rule Fluorescein Pattern  
42.00@180/45.00@90  
Foreign Body or Linear Stain  
Crazing

### **Pediatric Contact Lens Insertion and Removal**

- The patient should be evaluated 24 hours after the lens is dispensed
- 1 week
- 2 weeks (Lenses are removed for disinfection)
- 1 month ( 2 weeks later)
- The babies will sleep with their lenses for 2 weeks
- After 2 weeks the lens is removed overnight for cleaning and disinfection and then reinserted for another 2 weeks
- 3 month intervals for the first year  
6 months after first year
  
- Parents are advised to return immediately if there is redness or discharge
- Parents should use a lubricant in the morning and and night before bedtime
- Give written instructions to parents on what to look for
- Parents should check the lens every morning to make sure the lens has not dislodged or is off center
- Before teaching the parents about Insertion and removal, make sure you are satisfied with the fit! (2 weeks to 1 month?)

### **Insertion Procedure**

- Make sure you have enough time
- Make sure their hands are clean
- Select a location where you can find the lens if it drops
- Recommend a infant seat or car seat to hold the baby  
For very young infants try inserting the lens when asleep

### **After Insertion**

- Check the lens position in the baby's eye
- Have parents learn where the edge of the contact lens is compared to the edge of the iris  
When a lens is well centered, they will see an extra "dome" over the pupil where the middle of the contact is

### **Removal Procedure**

- Getting ready to take a contact lens out is like getting ready to put them in
- Solution, Case, Tissues
- Penlight to look for lens in the eye
- Someone for moral support or to help hold the baby



- Use two index fingers at top and bottom of lid, squeeze down and the lens will pop out

## Patching

- Patching or “Occluding”, allows the muscles of the weaker eye to be used or the baby’s brain needs to practice using the weaker eye
- The baby will need to follow a patching program until they are visually mature
- Patching is part of the child’s long term care
- Parents need to be consistent and persistent

## Hybrid Lenses

Prior to insertion hybrid lenses are filled with saline to prevent air bubbles under the lens  
 Three Insertion methods: Two finger insertion, Tripod insertion method, DMV inserter


### Removal

With one finger method, the lens is squeezed at the 5 o’clock and 7 o’clock position of the soft skirt


## Scleral Lens Application

**SCLERAL LENS APPLICATION AND REMOVAL**


**HANDLING TIPS**



Always have clean hands when handling your scleral lenses




Position your head parallel to a mirror, or bend over and look straight down




If you notice bubbles, remove and reapply the lens

**#1 LENS HOLDER METHOD**


**APPLYING LENSES**



Lightly squeeze lens holder to create a suction. Center lens and overfill the bowl with preservative free saline solution.




Separate lids. Holding your eye wide open apply the lens to the center of your eye.




Check to ensure the lens is centered and there are no bubbles.


**REMOVING LENSES**



Wet the small lens holder with preservative free saline solution.




Touch the lens holder to the lens lower edge (not the lens center).




Tilt the lens holder up and out to gently remove.

**#2 FINGER(S) METHOD**


**APPLYING LENSES**



Center lens on the thumb, index and middle fingers. Overfill the bowl with preservative free saline solution.

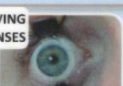


Separate lids. Holding your eye wide open apply the lens to the center of your eye.




Check to ensure the lens is centered and there are no bubbles.


**REMOVING LENSES**



Separate upper and lower lids over the upper and lower lens edge.



Press down on the top lid and then up on the lower lid under the lens.




Or, press upward on lower lid to loosen the lens.

## SCLERAL LENS HANDLING


- Always follow your eye care professional's instructions for:
- use of the lens care products
  - wearing schedule
  - follow-up appointments
  - back-up lenses
  - lens replacement

- Remove your scleral lenses and call your eyecare professional if you experience the following while wearing your scleral lenses:
- eye redness
  - discomfort and/or irritation
  - changes in your vision
  - excessive tearing


**HANDLING TIPS**



Proper hygiene is the first step in successful lens care. Wash your hands with a mild soap and dry with a lint free towel prior to handling your scleral contact lenses.



Make sure you have a clean lens storage case, a clean towel and your prescribed lens care solution.



Get in the habit of working with the same lens first, to help you avoid mixing up your right and left lenses prior to applying them.

## In Office Cleaning of Contact lenses



### In-Office Disinfection of Multi-Patient Use



### Diagnostic Contact Lenses

#### Gas permeable

- 1 Place 3% hydrogen peroxide with GP lens in a non-neutralizing case.
- 2 Disinfect lens for 3+ hours.
- 3 Rinse GP lens with Multipurpose Solution (MPS). Pat dry, store dry.

#### Hybrid and Soft

- 1 Place 3% hydrogen peroxide with soft or hybrid lens in non-neutralizing case for 3+ hours.
- 2 Transfer soft or hybrid lens to a neutralizing case. Fill with fresh 3% hydrogen peroxide. Add neutralizing disc or tablet as recommended by manufacturer.
- 3 Neutralize lens for 6+ hours, or as directed by manufacturer.
- 4 Rinse soft or hybrid lens with MPS. Store in a disinfected case with MPS.

- Multipurpose solutions are acceptable for rinsing.  
- ISO recommends this process every 28 days for soft or hybrid diagnostic lenses if they have been opened and not re-used and subsequently re-disinfected in that time period.

These methods have been approved by the American Academy of Optometry Section on Cornea, Contact Lenses and Refractive Technologies and The American Optometric Association, Contact Lens & Cornea Section adapted from the Standard of the International Organization for Standardization (ISO); ISO 19979:2018(E).

Created by Angelica Polizzi, 2020 OD candidate.

## Contact lens Wear during the Covid 19 Pandemic

Wash hands thoroughly for at least 20 seconds and dry with a paper towel  
Unless lenses are daily disposables, clean and disinfect upon removal at night  
Do not "top off solutions"  
Do not use tap water  
If you have flu like symptoms, discontinue contact lens wear during this time

## **Regulations**

HIPAA - The Privacy Rule

## **Basic Legal Issues**

- Malpractice
- Tort
- Principles of Informed Consent
- Duty of Disclosure
- Product Liability
- FCLCA Act
- FCLCA Update, October 16, 2020 and April, 2021

## **Government Agencies**

- FDA
- FTC
- OSHA
- HIV and Contact Lenses
- ANSI
- Contact Lens Tolerances (ANSI every 5 years)

## Contact Lens Tolerances

American National Standard Institute; ANSI Z80.20-

The following chart provides information on the tolerances established for general manufacturing. It is advised to know what a contact lens measures before modification. Some procedures may cause a change in lens parameters and understanding tolerances will prove beneficial.

	Power	Tolerance		Parameter	Tolerance
<b>Sphere Power</b>	0.0 to 5.00D	+/- 0.12D	<b>Base Curve</b>	Toric base curve	+/- 0.05mm
	5.12 to 10.00D	+/- 0.18D		dd r o to 0.20mm	+/- 0.05mm
	10.12 to 15.00D	+/- 0.25D		dd r 0.21 to 0.40mm	+/- 0.06mm
	15.12 to 20.00D	+/- 0.50D		dd r 0.41 to 0.60mm	+/- 0.07mm
<b>Cylinder Power</b>	0.0 to 2.00D	+/- 0.25D	dd r more than 0.60mm	+/- 0.09mm	
	2.12 to 4.00D	+/- 0.37D	<b>Lens Parameters</b>	Diameter	+/- 0.05mm
	Over 4.00D	+/- 0.50D		Optic Zone	+/- 0.10mm
<b>Cylinder Axis</b>	any	+/- 5 degrees		Center Thickness	+/- 0.02mm
			<b>Bifocal Refractive</b>	Add power	+/- 0.25D
		Seg height		+/- 0.10mm	

*\*dd = difference between radii of principal meridians*