


AMERICAN ACADEMY
of OPTOMETRY

Ocular Prosthetics Workshop

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Disclosure Statement

- Nothing to disclose



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- Optometrists serve a unique role in managing the prosthetic patient. Optometrists can care for the sighted as well as the non-sighted eye. We can screen and treat ocular conditions and fit soft and GP contact lenses. This laboratory is designed to provide an overview of prosthetic devices and procedures. The emphasis will be to teach the skills needed to evaluate, maintain, modify and fit a prosthetic patient. Hands-on participation will include using contact lens modification equipment, power hand tools, bench grinders and casting equipment. The lab will emphasize techniques you can utilize in daily practice.

- **Learning Objectives**

- To describe the specific ocular prosthetic devices and their usage
- To be able to modify a prosthetic device using the methods and procedures provided
- To be able to cast a prosthetic device in stone
- To be able to clean a prosthetic device with a contact lens modification unit
- To be able to tint soft prosthetic contact lenses

Types of Prosthetic Devices

- Reform Eye (artificial eye)
 - Curved disc of plastic having a center thickness of 2mm or greater
 - Full thickness ocular prosthetic, fit in an orbital socket with no orbital globe
 - May be coupled to a surgically placed implant occupying the space of the orbital globe
 - Painted and shaped to match the fellow eye appearance and features
 - Can be fit using trial prosthetic eye fitting shapes or custom molded to the shape of the socket

- Shell Eye (scleral shell)

- Curved disc of plastic with a center thickness of less than 2 mm
- Designed to cover an intact eye or residual globe or shallow socket
- May allow light perception if patient has light perception
- Painted to match the fellow eye

- Corneal Prosthetic Contact Lenses

- Covers the cornea only
- Optics may be incorporated
- Color matched to natural eye

- Prosthetic Soft Contact Lens
 - Hydrophilic (soft) lens material and design
 - Can be standard diameter or scleral covering diameter
 - Optical correction may be incorporated into the lens design
 - Color matched to the natural iris of the fellow eye

Workshop Projects

1. STUDY THE EXAMPLES OF:

- Reform eyes
- Shell eyes/ Scleral Contact Lenses
- Glass eyes
- Implants
- Impression Molding Set
- Soft Prosthetic Contact Lenses
- Corneal Prosthetic Contact Lenses

2. SELECT A “PRACTICE” EYE

- Perform the following tasks:
 - Scratch the surface of the eye and polish it using a 3” sponge tool, GP polish and a CL modification unit
 - Scratch the surface of the eye and use the hand-held dremel tool and cut-down stone bit to remove plastic from the edge of the reform eye. Then smooth the rough surfaces with the rag wheel on a dremel tool with pumice and water slurry
 - When smooth, polish either with the CL modification unit technique or a dremel tool with rag wheel and plastic rouge

- Modify the eye with utility wax
 - Based on examples of the most common modifications as demonstrated
- Make a stone cast of the modified eye

CASTING PROCEDURE

- Use a small paper cup slightly larger than the prosthetic eye
- Coat the prosthetic on all surfaces with a thin layer of petroleum jelly or ocular lube ointment
- Mix enough powdered casting stone with water until a smooth, lump free “plaster” is created (consistency of sour cream)

- Fill the container half way with the casting stone and tap the container on a hard surface to bring the air bubbles to the surface
- Embed the coated prosthetic, anterior surface down, so that the stone reaches the rim of the eye, all the way round, but does not come over the edge
- Hold the eye stationary until the stone hardens

- Coat all the surfaces of the stone and eye cast again with a layer of petroleum jelly or ointment
- Mix enough powdered casting stone with water to cover the eye in the container
- Pour the top layer of casting stone and again tap the mold on a hard surface to release the trapped air bubbles
- Allow the casting to harden

- When solid (so a finger nail would not leave an impression), cut or peel away the container
- Scribe a line vertically in one side of the mold so the halves can be correctly aligned once separated
- Separate the two halves at the “ointment” line

- Carefully remove the prosthetic eye from the casting stone so as to not damage the stone mold
- Clean off the wax modification from the prosthetic and return it to the set/ patients socket
- Label the mold with: date, doctor, patient, R or L

- Ship the casting to the lab for creation of the new shape

Prosthetic Eye and Shell Eye Polishing

- Polish the practice eyes using a contact lens modification unit and tools
- Polish the practice eyes using the dremel tools and bench grinders and attachments

Equipment and Supplies Needed:

- Trial eye shapes: Monopex set or white shapes
- Scleral shells: Monopex shell set or “old” scleral contact lenses
- Camera , photo floodlight
- Dremel type flexible shaft tool, 1” rag wheels, pumice, casting stone, plastic rouge, cut-down stone

Softchrome Tinting Procedure

- Select a tinting pattern to create
- Mount the soft contact lens to the tinting template
- Mix the dye
- Inject the dye
- Set the timer
- Remove the lens after tinting and place in neutralizer