DISCLOSURE STATEMENT
Speaker for VSP

Course Title: Fundamentals of Biomicroscopy: The Slit Lamp Exam

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Please silence all mobile devices.
Fundamentals of Biomicroscopy: The Slit Lamp Exam

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BIOMICROSCOPY

THE SLIT-LAMP BIOMICROSCOPE is a high-power binocular microscope with a slit-shaped illumination source, specially designed for viewing the different optically transparent or translucent tissues of the eye.

It enhances the examination by:

- Excellent image quality
- Binocular stereoscopic view
- Flexible illumination
- Flexible magnification
- Providing room for specialized attachments and lenses for detailed examination and diagnostic tests
The science of examination with a slit lamp is called **Biomicroscopy** as it allows in vivo study of living tissues at high magnification.
BIOMICROSCOPY

- Modern slit-lamps

Figure: Modern slit-lamp
BIOMICROSCOPY

• The two (2) basic parts of the slit lamp biomicroscope are:
  ➢ The slit lamp (illumination system)
  ➢ The biomicroscope

• The illumination system can be:
  ➢ Of the Zeiss type
  ➢ Of the Haag-Streit Type

• The compound microscope system can be:
  ➢ The Genrough Type
  ➢ The Galilean Type
1. Zeiss type

In the Zeiss type the illumination comes from below.
2. Haag-streit type

In the Haag Streit type the illumination comes from above
BIOMICROSCOPY

A. The Grenough type

Flip lever to change magnification
B. The Galilean changer type
Also different types of hand-held slit-lamp devices available for:

- Handicap patients
- Infants
- Bedbound patients
BIOMICROSCOPY

Associated instruments:

- Co-observation Tube
- Gonioscopic Lens
- Digital Archiving Devices
- Micrometre Eyepieces
- Fundoscopy Lenses
- Applanation Tonometer
- Laser
SLIT LAMP BIOMICROSCOPY: Clinical Procedure
Slit Lamp Biomicroscopy

Clinical uses:

• Considered the gold standard for assessment of the anterior segment of the eye
• Examination of ocular structures
• Used in conjunction with auxiliary lenses to view the posterior segment of the eye
Slit Lamp Biomicroscopy

Clinical uses: Diagnostic

- Anterior segment evaluation
- GAT
- TBUT testing
- Vital Dye Staining
- Gonioscopy
- And many more
Clinical uses: Therapeutic

- Epilation
- Foreign Body Removal
- Contact lens evaluation
- Corneal epithelial debridement
- Insertion of punctal plugs
- Laser procedures


Slit Lamp Biomicroscopy

Setup:

• Explain purpose to patient
• Clean the forehead band
• Change paper strip from chinrest
• Adjust patient in comfortable sitting position
• Position patient properly
  o Alignment – black line positioned at lateral canthus
  o Fixation target
• Adjust eyepieces to correct for examiner’s refractive error and interpupillary distance
• Children may need to stand, sit on their knees, or they can sit on parent’s lap
• Practice turning on and using

Fig. Correct positioning at the slit lamp
General Examination of the Eye

- It is important to develop a routine slit lamp examination protocol
- Sequential observation is efficient
- A logical sequence would be to start at the most anterior aspect of the eye (adnexa and lids) and work your way posterior towards the lens and vitreous
- An anterior-to-posterior approach should ensure completeness
Slit Lamp Biomicroscopy

Illumination techniques:

- Slit Width control knob

Narrow to fully open slit illumination achieved by rotating this knob
Slit Lamp Biomicroscopy

Illumination techniques:

Slit height control knob:

Short to long slit illumination achieved by rotating this knob.
Slit Lamp Biomicroscopy

Illumination techniques:

Slit angle rotation
Illumination Methods

- Direct illumination
  - Direct diffuse illumination
  - Direct focal illumination
    i. Parallelepiped
    ii. Optic section
    iii. Conical beam
- Specular reflection
- Tangential illumination
- Indirect illumination
- Retro-illumination
  - Direct retro-illumination
  - Indirect retro-illumination
    o Iris transillumination
Slit Lamp Biomicroscopy

Direct diffuse illumination

- A wide beam (at least 4 mm)
- Maximum beam height
- Directed obliquely between 30-45°
- Low magnification 6x to 10x
- Illumination: medium to high
- Filter: Diffuse

Applications:

- General gross scanning overview of eyelids, lashes, conjunctiva, sclera, pattern of redness, iris, pupil, gross pathology and media opacities
Slit Lamp Biomicroscopy
Direct diffuse illumination
Slit Lamp Biomicroscopy

Direct focal illumination

- Illumination and observation are focused on the same area
- Slit width narrow to broad
- Illumination angle 45° to 60°
- Magnification 10x-40x

Applications:

- Cornea in detail
- Anterior chamber
- Crystalline lens
- Anterior part of vitreous
- Grading cell and flare in the anterior chamber
Slit Lamp Biomicroscopy

Direct focal illumination
Slit Lamp Biomicroscopy

Direct focal illumination

i. Parallelepiped

- Slit width ~2-4 mm obliquely focusing on the cornea so that a quadrilateral block of light illuminates the cornea

Applications:

- To examine corneal surface, stroma
- To ascertain depth (Ex. Foreign Body)
**Slit Lamp Biomicroscopy**

Direct focal illumination

ii. Optic section

- Very thin ~1mm or less
- Maximum height
- Illumination angle 45-60° or more
- High illumination & magnification
- Optically cuts a very thin slice of the cornea

Applications:

- van Herick angle estimation
- Used primarily to determining the depth or elevation of a defect of the cornea, conjunctiva or lens
- Corneal depth, layers, scars, infiltrates, vessels, lens opacity

Slit Lamp Biomicroscopy

Direct focal illumination

iii. Conical beam (pinpoint)

- High illumination
- Narrow, short slit of light
  - Produces a small circular or square spot of light
- 45° - 60° light source directed to pupil
- High Magnification 16x-25x

Applications:

- Assessment of particles floating in the anterior chamber
- Inflamatory cells, flare, pigmented cells
- Principle: Tyndall phenomenon
Specular reflection

- Angle of incidence = angle of reflection
  - Observation and illumination system have same angle with perpendicular axis to each other
- The angle between the illumination source and biomicroscope is approximately 60°
- Slit width < 4mm
- High illumination
- High magnification

Applications:
- This is the only technique by which one is able to view the endothelial cells of the cornea or the epithelial cells on the back of lens
  - The cells are seen only by one eye
Tangential illumination

- A narrow light beam is projected almost parallel along the structure to be observed
- Elevated structures are visible by shadowing
- Illumination angle 90°
  - Microscope is pointing straight ahead
- Medium to wide beam of moderate height
- Magnification 10-25x

Applications:
- elevated abnormalities or changes in the iris
- tumors, cysts

Slit Lamp Biomicroscopy
Indirect illumination

• The beam is focused in an area adjacent to ocular tissue to be observed
• Decentered beam
• Illumination 2 to 4mm slit
• Magnification: Low to medium (depending upon object size)

Applications:
• infiltrates
• corneal scars
• deposits
• epithelial and stromal defects
Slit Lamp Biomicroscopy

Indirect illumination
Retro-illumination

- Light reflected on iris or fundus
- Microscope focused on cornea
- Two types: direct and indirect
- Moderately wide beam
- Vary angle of illumination
- Medium to high magnification

Applications:

For better visualization of

- Epithelial cysts
- Keratic precipitates
- Small blood vessels
- Small scar
Slit Lamp Biomicroscopy

Retro-illumination

- Direct retro-illumination
- Indirectly illuminated
- Vacuole
Retro-illumination from the Fundus

- This technique is used to observe media clarities and opacities
- The pupil is dilated
- The slit beam and microscope are made co-axial and light strikes the fundus and creates a glow behind the opacity in the media
- The media opacity creates a shadow in the glow

Applications:
- Abnormities in the anterior vitreous, lens, anterior chamber, cornea
Slit Lamp Biomicroscopy

Direct retro-illumination

- Observed feature is viewed in direct pathway of reflected light
- With this illumination, findings are made visible with high contrast
- Medium slit width 2 to 4mm
- Illumination angle 45-60°

Applications:
- Infiltrations, small scars, corneal vessels, etc.
Indirect retro-illumination

- Observer at right angle to the observed structures
- Illumination angle greatly reduced or increased
- Feature on the cornea is viewed against a dark background
- Medium slit width 2 to 4mm

Applications:

- Infiltrations, small scars, corneal vessels, microcysts, vacuoles
Iris-transillumination

- Transillumination of the iris by indirect light reflected from the fundus
- Mid dilated pupil (3 to 4 mm)
- Illumination and observation at coaxial position

Applications:
- Visualization of defects of the pigment layer of the iris

Fig. : Transillumination in Albinism
Chronology for slit-lamp examination:

1. Eyelids
2. Eyelid margins
3. Tear film
4. Aqueous humor
5. Cornea
6. Conjunctiva
7. Iris
8. Lens
9. Vitreous (ant.)
Slit Lamp Biomicroscopy

Chronology for slit-lamp examination:

BASELINE EXAM FLOWCHART

- Lids
- Conjunctiva
- Limbus
- Cornea
- Tears
- Anterior Chamber
- Iris
- Lens

Bulbar Palpebral
Slit Lamp Biomicroscopy: General Exam of the Eye

**Lids:** The eyelids and lashes are examined first, and diffuse illumination is most useful at this point.

- Inspection of the lashes for integrity, symmetry, growth pattern, any loss of lashes, and flakes or cones at the base
- Meibomian gland assessment
- Lid and punctal apposition and completeness of blink
- Lid position may be assessed as well, but it is more effectively evaluated when both eyes can be observed simultaneously
Slit Lamp Biomicroscopy: General Exam of the Eye

**Lids:** Begin with diffuse illumination and low magnification to look at the external aspects of the lids.

Look for:

- Signs of inflammation (hyperemia and/or edema)
- Any elevated lesions or abnormalities
- Observe the lashes for signs of debris (e.g. scurf, collarettes)
- Multiple rows (distichiasis) or misdirection (trichiasis)
- Note the position of the lid
Slit Lamp Biomicroscopy: General Exam of the Eye

A. Blocked meibomian gland (or retention cyst) at the lower lid margin. B. Ingrown eyelash at the upper lid margin. C. Squamous papilloma of the lower eyelid.
Slit Lamp Biomicroscopy: General Exam of the Eye

- punctum
- meibomian glands
Slit Lamp Biomicroscopy: General Exam of the Eye

Diffuse Illumination

lids / lashes / conjunctiva
Slit Lamp Biomicroscopy: General Exam of the Eye

- After lid and lash survey, the tear film, conjunctiva, and cornea can be assessed using parallelepiped illumination.

- Scanning twice across the ocular surface, with the beam directed from both the nasal and temporal sides, is important for viewing refractile corneal opacities.
Conjunctiva/Sclera: Begin with a wide beam, narrow the beam to 2-3 mm when indicated.

• Look for injection, discharge, papillae, or follicles
• Both the palpebral and bulbar conjunctiva should be examined
• To view the inferior palpebral conjunctiva, the lower lid must be pulled down
• To examine the superior palpebral conjunctiva, the upper lid must be everted
Slit Lamp Biomicroscopy:
General Exam of the Eye

**Tear film and Tear Breakup Time (TBUT):** The tear film is easily visualized when focused just anterior to the corneal surface.

- Important for patients with symptoms of dry eyes (burning, irritation, redness)
- Using sodium fluorescein and the *cobalt blue* filter, the TBUT may be determined
  - Normal is considered to be > 10-15 seconds
  - < 10 seconds is considered abnormal
Slit Lamp Biomicroscopy: General Exam of the Eye

tear film (have patient blink)
**Slit Lamp Biomicroscopy:**

**General Exam of the Eye**

**Cornea:**

*General examination with white light*- Magnification is important! If set too low, lesions may be missed. If set too high, you lose your field of vision and examination would take too long.

- Start with a parallelepiped and a magnification of 10X
  - Scan the entire cornea
- Next, narrow the beam further to an optic section and increase the magnification to 16X
  - Again, scan the entire cornea with the optic section
- The whole cornea should be scanned using a parallelepiped, observing: tears, corneal nerves, vasculature, corneal scars, striae, etc.
Slit Lamp Biomicroscopy: General Exam of the Eye

- Diffuse
- Parallelepiped
- Optic section
Slit Lamp Biomicroscopy: General Exam of the Eye

Compare the view from parallelepiped to optic section.

Optic Section - Cornea

- tear film
- stroma
- endothelium
Slit Lamp Biomicroscopy: General Exam of the Eye

Compare the view from parallellpiped to optic section.

Optic Section - Cornea
- tear film
- stroma
- endothelium
Slit Lamp Biomicroscopy: General Exam of the Eye

Documentation for Any Ocular Lesion: If a lesion (e.g. scar, opacity, foreign body) is detected, we need to record some specific information:

- **Description**: Appearance, color, or estimated size
- **Location**: Where is it located? Peripheral vs. Central; assign a clock hour position when indicated.
- **Severity**: Grade and intensity

**Corneal Lesions**: Most corneal scars will appear whitish (opaque) in color. Rust from a metallic body may have a reddish-orange hue.

**Neovascularization (small “new” blood vessels)**: Indicates trauma and/or hypoxia. It is not uncommon to see neovascularization on the superior portion of the cornea in contact lens wearers.
**Iris:**

Using direct illumination, examine iris for any abnormalities and/or deformities, and note iris color (blue, brown, green, hazel, etc.).

- For example: nevi, unusual nodules, tumors, neovascularization at the pupil margin (especially important for diabetic patients), holes or tears (possibly from trauma or previous surgeries)

- *Iris transillumination* defects are common in conditions such as albinism and pigmentary dispersion syndrome and may be detected using retroillumination (see section on retroillumination)

- It is best to perform iris transillumination **before** pupil dilation
Slit Lamp Biomicroscopy: General Exam of the Eye

- Pupillary ruff
- Iris crypts
- Lens
After the more anterior structures are observed and noted, the iris and anterior chamber angle can be assessed; these observations are made before pupillary dilation

Axial examination of the crystalline lens can be performed at this point, but can be much more appreciated through the dilated pupil
Slit Lamp Biomicroscopy: General Exam of the Eye

Anterior chamber:

Examination of the anterior chamber for cells or flare is performed before applanation tonometry or dilation. Be sure to let yourself **dark adapt**

- A **conical beam** or short, narrow rectangular beam is focused between the cornea and the anterior lens surface, light source 46 to 60 degrees temporal
  - This type of illumination is used to detect floating aqueous cells and flare by the *Tyndall effect* (likened to dust floating in a beam of sunlight)

- **High magnification** 16-25x and **high illumination**

- The examiner always allows themselves a period of time to **dark adapt**

- The conical beam is focused between the cornea and the anterior lens surface and observation is concentrated on the dark zone between the out of focus cornea and lens
  - This zone is **normally optically empty** and will appear **black**
Slit Lamp Biomicroscopy: General Exam of the Eye

**Anterior chamber:**

- In cases of inflammation, cells and flare may be seen
  - **Cells** (WBCs) will appear as small white dots
  - **Flare** (protein escaping from dilated vessels) will make the anterior chamber appear hazy or milky when compared to the uninvolved eye
- While focused in the anterior chamber, the light source may be oscillated left to right to enhance viewing or the examiner can position the instrument’s focus within the anterior chamber and simply wait & watch
  - This latter technique is traditionally used to grade the severity of inflammation
  - The convection currents of the aqueous will move any protein or cells into this zone
- This is one of the more difficult structures to learn how to examine
Slit Lamp Biomicroscopy: General Exam of the Eye

Anterior chamber:

<table>
<thead>
<tr>
<th>Grading Cells and Flare</th>
<th>Aqueous Cells</th>
<th>Grade</th>
<th>Flare</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>0</td>
<td>Optically Empty Compared Bilaterally</td>
</tr>
<tr>
<td></td>
<td>2-5 Cells Seen in 45 Seconds or One Minute</td>
<td>1</td>
<td>Faint: Haze or Not Equal Bilaterally</td>
</tr>
<tr>
<td></td>
<td>5-10 Cell Seen at Once</td>
<td>2</td>
<td>Moderate: But Iris Detail Still Clear</td>
</tr>
<tr>
<td></td>
<td>Cells Scattered Through Out Beam 20 or More</td>
<td>3</td>
<td>Marked: Iris Details Becoming Hazy</td>
</tr>
<tr>
<td></td>
<td>Dense Cells in Beam, More Than You Can Count</td>
<td>4</td>
<td>Dense Haze: With Obvious Fibrin Collecting on Iris</td>
</tr>
</tbody>
</table>

*Note: There are variances with grading*
Lens: Direct illumination and an optic section are used to examine the lens in cross section.

- Both the anterior and posterior portions of the crystalline lens may be examined.
- Placing the illumination source at 30 degrees will yield better results for examination of the lenticular layers (note: you may further collapse this illumination angle if viewing is difficult in an undilated eye).
- Because separate layers of the lens have different indices of refraction, there are subtle visual differences between them.
- Opacities (i.e. cataracts) can also be seen using retroillumination.
- To detect the anatomical location (anterior capsule, posterior cortical, etc.) of an opacity, an optic section should be used.
Slit Lamp Biomicroscopy: General Exam of the Eye

**Vitreous:** Without the use of auxiliary lenses, only the anterior portion of the vitreous may be examined

- Once you’ve learned to focus on the posterior capsule of the lens, push the joystick forward slightly (toward the patient)

- When the posterior lens capsule goes out of focus, you are in the anterior vitreous

- In young, healthy, people, this will appear as a black empty space
van Herick angle estimation: **You Must Master This.**

- It is extremely important to estimate the width of the anterior chamber angle before dilating your patients
  - Very narrow angles are at high risk for developing an angle closure.
- van Herick's technique for grading the anterior chamber angles uses an optic section placed near the limbus with the light source always at 60 degrees (mag 16x, light maximal intensity)
  - This technique allows you to judge the temporal and nasal angles

<table>
<thead>
<tr>
<th>Grade</th>
<th>Ratio of aqueous gap/cornea</th>
<th>Clinical interpretation</th>
<th>Schaffer angle degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>≥ 1 / 1</td>
<td>Wide Open</td>
<td>Closure impossible</td>
</tr>
<tr>
<td>3</td>
<td>½-⅓ / 1</td>
<td>Moderately Open</td>
<td>Closure impossible</td>
</tr>
<tr>
<td>2</td>
<td>¼ / 1</td>
<td>Moderately Narrow</td>
<td>Closure possible</td>
</tr>
<tr>
<td>1</td>
<td>&lt; ¼ / 1</td>
<td>Extremely narrow</td>
<td>Closure likely with full dilation</td>
</tr>
<tr>
<td>0</td>
<td>Nil</td>
<td>Closed</td>
<td>Closed</td>
</tr>
</tbody>
</table>

van Herick and Schaffer grades
Van Herrick’s Technique:

- Used to evaluate anterior chamber angle without gonioscopy
- Narrow slit beam close to limbus with Illumination angle 60°
- Medium magnification

Principle:

- Compare the width of cornea seen by optical section with the dark section seen between anterior surface of iris & back of cornea

Interpretation:

Grade 4 – open anterior chamber angle 1:1 ratio
Grade 3 – open anterior chamber angle 1:2 ratio
Grade 2 – narrow anterior chamber angle 1:4 ratio
Grade 1 – risky narrow anterior chamber angle less than 1:4 ratio
Grade 0 – closed anterior chamber
Van Herrick’s Technique: to assess anterior chamber angle
van Herick angle estimation
If the width of the anterior chamber = corneal thickness, then it is a wide open angle or grade 4.
## Slit Lamp Biomicroscopy

<table>
<thead>
<tr>
<th>Filter type</th>
<th>Filter Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cobalt Blue</td>
<td>Used with fluorescein dye during assessment of dry eyes, contact lenses, and Goldmann applanation tonometry.</td>
</tr>
<tr>
<td>Neutral density</td>
<td>Reduces the brightness of the illumination and is complemented by the rheostat on the instrument.</td>
</tr>
<tr>
<td>Yellow</td>
<td>Can be used in addition to the Cobalt blue filter to enhance contrast.</td>
</tr>
<tr>
<td>Red free (green)</td>
<td>Enhances the contrast of blood vessels on the corneas of contact lens wearers and haemorrhages seen under the conjunctiva</td>
</tr>
<tr>
<td>Diffuser</td>
<td>Generally used with a wide beam and low magnification with non-directional illumination for gross assessment of the eye.</td>
</tr>
</tbody>
</table>
**Slit Lamp Biomicroscopy**

**Filters:**

- **White filter**
  - Overview of ocular surface tissues
  - Examining intraocular structures

- **Cobalt Blue filter**
  - The cornea may also be evaluated using sodium fluorescein and the cobalt blue filter. After NaFl is instilled, use the blue filter to scan the cornea (beam should be widened to approximately 3-4 mm). Any defects in the corneal epithelium will appear bright green.
    - Corneal abrasion, ulcer
    - Goldmann Applanation tonometry
    - Determination of TBUT (Tear Break-Up Time)

- **Red free filter**
  - Rose-bengal staining
Slit Lamp Biomicroscopy: General Exam of the Eye

Recording:

Examples of NORMAL recordings:

Lids/Lashes: (L/L): clear/clean

Sclera (S): white

Conjunctiva (C): cl

Cornea (K): clear (cl)

Iris (I): flat, "note iris color"

Anterior chamber (A/C): deep/quiet (D/Q)

Lens (L): clear (cl)

Vitreous (V): clear (cl)

*Note: There are variances with recording (i.e. WNL)
Slit Lamp Biomicroscopy: General Exam of the Eye

Recording:

Examples of ANORMAL recordings:

- Lids/Lashes: Crust, lesions, pigment
- Conjunctive/Sclera: Injection or lesions
- Cornea: Defects, fluid, opacities
- Iris: Lesions or holes
- Anterior chamber: Cells or flare
- Lens: Opacities or discoloration
- Vitreous: PVD & cells

*Note: There are variances with recording*
Abnormal finding recordings:

▪ Before you can appreciate something that is abnormal, you must become thoroughly familiar with what is normal.

▪ If some type of pathology or other abnormality is found, it should be described and recorded appropriately.
  ❖ Always provide a description of the abnormality [WHAT]
  ❖ Note the location (nasal, temporal, superior, or clock hour, etc.) [WHERE]
  ❖ And assign a size or grading [SEVERITY]
Abnormal finding recordings:

- A number grading system is often used to indicate severity.
- Keep in mind that there tends to be some variability in grading among different observers.
- Grading systems are very subjective on the part of the examiner.
Slit Lamp Biomicroscopy: General Exam of the Eye

Abnormal finding recordings:

- A number grading system is often used to indicate severity
- Keep in mind that there tends to be some variability in grading among different observers
- Grading systems are very subjective on the part of the examiner
Associated instruments:

**Applanation Tonometer:**

*The Goldmann Applanation Tonometer* is the most common tonometer that usually mounted on the standard slit-lamp biomicroscope.

**Application:**

- Measurement of intraocular pressure (IOP)

**Parts:**

1. Tonometer tip (*biprism*)
2. Metal rod
3. Tonometer housing
4. Force adjustment knob
Slit Lamp Biomicroscopy: Clinical Assessment

**Goldmann Tonometry (GAT)**

- The most accurate method for IOP measurement
  - The “gold standard” reference tonometer
- Readings within 1 - 2 mm of actual IOP
- Flattens a small portion of the cornea
- GAT cannot be used without a slit lamp

**Precautions/ Contraindications**

- Inaccurate with thick or thin corneas, corneal edema or scarring, or abnormal biomechanical properties (e.g. post-LASIK)
- Difficult or impossible with irregular astigmatism
- Avoid in patients with active infection, abrasions, or recurrent corneal erosions
Slit Lamp Biomicroscopy: Clinical Assessment

- **Goldmann Tonometry (GAT)**

**Setup:**
- Properly clean the probe
- Make sure the probe is properly aligned
- Provide proper patient instruction
- Instill anesthetic + dye
- Position the patient comfortably
- Use cobalt blue filter, open maximum slit width and height, low magnification (10-16x)
- Assess cornea before and after with procedure
Slit Lamp Biomicroscopy:
Clinical Assessment

- Goldmann Tonometry
Slit Lamp Biomicroscopy:

Clinical Assessment

- Goldmann Tonometry
Slit Lamp Biomicroscopy: Clinical Assessment

- **Contact Lens Evaluation**
  - Corneal Coverage
  - Lens Movement
  - Rotation Stability
  - Axis Orientation
Slit Lamp Biomicroscopy: Clinical Assessment

- **Contact Lens Evaluation**
  - Corneal Coverage
    - Measured in primary gaze
Slit Lamp Biomicroscopy: Clinical Assessment

- Contact Lens Evaluation
  - Lens Movement
    - Measured in upward gaze
Slit Lamp Biomicroscopy: Clinical Assessment

contact lens  make-up
Slit Lamp Biomicroscopy:

Clinical Assessment

- **Contact Lens Evaluation**
  - Rotation Stability
  - Axis Orientation
Fundus Observation and Gonioscopy:

- Different types of Contact and Non-contact lenses used for examination, diagnostic and therapeutic purpose in fundoscopy and gonioscopy