Slit lamp biomicroscopy

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Today’s clever gadgets
Slit lamp biomicroscope

Gullstrand
1911
Three components

- Light source
- Microscope
- Patient Head-Rest
Slit lamp features
Important Controls

• ON / OFF
• Slit height
• Slit width
• Focus/movement
• Magnification
Important Controls

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Slit beam
Important Controls

- ON / OFF
- Slit height
- Slit width
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- Magnification

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Setting up

• Wash hands
• Disinfect slit lamp
• Adjust eyepieces
• Set interpupillary distance
• Set magnification
• Explain procedure ...

... and position the patient
Adjusting slit lamp height
Systematic examination
Systematic examination

• Start anteriorly and work back
• Begin with low magnification and wide beam
• Examine external eye (eyelids / tears)
• Gross examination of cornea and conjunctiva
• Gross examination of iris and pupil
Viewing the cornea

- Turn SL on
- Adjust slit to medium width
- Move the SL to focus light on the eye while watching from the side
- Look through the SL and fine-tune focus
- Now you should see something like…
... this!
... this!
... this!

- slit beam on cornea
- slit beam on iris
- slit beam on posterior lens
- slit beam on anterior lens
Lighting

• Broad slit for general examination
• Align light and viewing systems straight ahead for red reflex
• For other viewing separate systems and vary angle for best view
• Narrow slit for corneal thickness estimation
• Blue light (filter) for fluorescein examination
Narrow slit
Narrow slit
Narrow slit
Narrow slit
Narrow slit
Narrow slit

corneal epithelium
Bowman’s layer
corneal stroma
corneal endothelium
anterior chamber overlying pupil
anterior chamber overlying iris
iris
Narrow slit

corneal epithelium
Bowman’s layer
corneal stroma
corneal endothelium
anterior chamber overlying pupil
anterior chamber overlying iris
iris
Narrow slit

corneal epithelium
Bowman’s layer
corneal stroma
corneal endothelium
anterior chamber overlying pupil
anterior chamber overlying iris
iris
• View red reflex to highlight media opacities
• Narrow slit beam width and increase magnification to more closely observe the cornea and anterior chamber
• Adjust focus posteriorly (move slit lamp towards patient) to examine crystalline lens
If Warranted

- Examination with fluorescein
- Pressure check (Goldmann)
- Evert lids
- Fundal examination (Volk lens)
- Gonioscopy
Thank you

With special thanks to Dr Nathan Kerr for the video footage