Theme 2 – *Patient and Doctor: Clinical Practice*
CLINICAL COMMUNICATION & CLINICAL SKILLS COMPONENT

TUTORIAL BACK TO CAMPUS – Eye examination

Learning Objectives

- Revise the components of an eye examination
- Revise the features of an opthalmoscope
- Practise performing the components of an eye examination

OVERVIEW

In this tutorial you have the opportunity to revise components of an eye examination, which were covered in Year 3 and to extend your skills. You will practice a full eye examination on each other with tutor feedback.

This session doesn't include cover/uncover test, eye pressure measurement or slit lamp examination.

STUDENT REFERENCES AND RESOURCES

1. Geeky Medics. Examination of the eye and vision. https://geekymedics.com/eye-examination-osce-guide/

2. UBC Medicine: Opthalmology (YouTube page of 11 videos – https://www.youtube.com/playlist?list=PL242bEng6nyIwrHndZppnzg0KwYM08wKJ

   - Visual acuity techniques (2:14) - https://youtu.be/0uDciOi6uYE
   - Lid eversion techniques (0:56) - https://youtu.be/UDMaT9s0ZnA. Another good video (not UBC & no anaesthetic required)- https://www.youtube.com/watch?v=AApaKbJ08zo
   - Pupils technique (3:20) – https://youtu.be/wpG62cJMJcE
   - Extraocular movement techniques (1:11) - https://youtu.be/X0uM2NfO3Bk
   - Confrontational visual fields (1:58)- https://youtu.be/Vp7LBSe7DcI
   - Direct opthalmoscope overview & technique (4:43) - https://www.youtube.com/watch?v=VdV6cp4jpgA
   - Drops and fluorescein installation techniques (1:15) - https://youtu.be/TOg4xhnVhqU

Task
Introduction
Eye examination - components The components of the eye examination: • *Visual acuity including near vision* • *Colour vision assessment (Ishihara plates)* • *Visual fields* • *Blind spot assessment* • *Inspection of the eye – including lid eversion if foreign body* • *Pupillary assessment – size, symmetry, shape, colour, light and accommodation reflex* • *Strabismus assessment* • *Eye movements* • *(Tonmetry – eye pressures)* • *Fundoscopy.*

Visual acuity
 	
• *Lighting*
• *Distance - 3m/6m charts*
  ○ *Snellen, Tumbling E for children, adults who can't communicate verbally, language barriers etc. Animal chart for children*
• *Assessment with glasses*
• *Poor vision – pinhole improves vision of refractive error*
• *Recording visual acuity*
  ○ *Two letters incorrect record as e.g. 6/6 -2,*
  ○ *If three letters – record previous line 6/9*
  ○ *Very poor vision.*
  ▪ *Reduce distance to 3 metres or 1 metre. (record 3/denominator or 1/denominator).*
  ▪ *If can't read at this distance, then count fingers (record as CF@1 metre),*
  ▪ *If can't see, then light perception (record light perception or no light perception)*
• *Near vision*
  ○ *Jaeger chart. Cover one eye read paragraph of small print and repeat. Use reading glasses if use.*
 	
Perform/demonstrate the skills

Colour vision • *Lighting* • *Wear reading glasses if appropriate* • *Distance 75 cm (30 inches)* • *Right angle to line of vision* • *May not need to read all plates* • *Screens for commonest colour vision: red-green*

Task
Perform/demonstrate
Visual fields and blind spot *Visual fields* • *Sit apart distance 1 metre* • *Use hat pin or fingers* • *Assessor mirrors 'patient' – patient covers right eye, assessor coves left.* • *Ensure equal distance between patient and assessor* • *Start at periphery and move target slowly to centre, patient to say when first sees the target. Comparison between assessors and patient.* • *Assess each quadrant* *Blind spot* • *Similar technique* • *Hat pin moved laterally (horizontal)* • *Patient to assess when red part of hatpin disappears and then when it reappears* • *Hat pin then moved in vertical direction for superior and inferior borders* Perform visual fields – students may be asked to have different defects

Eye inspection, pupillary reflexes, eye movements
 	
• *Eye inspection – including ptosis e,g, Horner's or oculomotors nerve*
  ○ *Pupil – size, symmetry, shape (congenital, uveitis synechiae, trauma, surgery), colour, corneal haziness, fluid level (hypaema or hypopyon)*
• *Pupillary reflexes*
  ○ *Direct pupillary reflex – light in each eye ipsilateral constriction of each pupil*
  ○ *Consensual papillary reflex – light in right eye and check left eye pupil constriction and vice vera*
  ○ *Swinging light test – for relative afferent pupillary defect*
  ○ *Accommodation reflex – focus on distant object and then to finger (20-30 cm in front of eye) – observe pupil constriction and convergence.*
• *Eye movements*
  ○ *Target (finger or hatpin) 30 cm in front to eyes*
  ○ *Keep head still*
  ○ *Move target through eye axes "H pattern" – nystagmus, extraocular muscle actions*
 	
Video from 2:27 minutes for demonstration of left afferent defect - https://youtu.be/wpG62cJMJcE
 	
Perform tests
 	
Lid eversion
• *Lid eversion for foreign body*
  ○ *Exert down ward traction on the lower lid, get patient to look up and press firmly about half a centimetre below the lid margin*

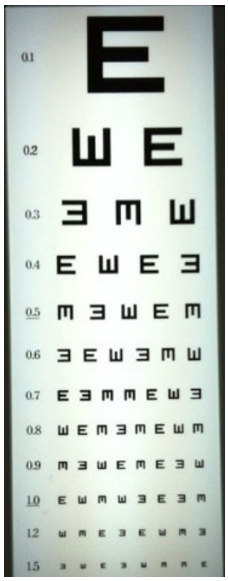
Task
○ *For upper lid get patient to tilt chin up, to look down with eyes, place cotton tip applicator over eyelid, with your non-dominant hand grasp the eyelashes at the centre of the lid and gently pull down (exposes horizontal skin crease – edge of tarsal plate), with dominant hand place at centre of skin crease and rotate the lid around this 'fulcrum' and hold the lid everted with a thumb or finger. Can sweep with a moist cotton tip rolling the cotton tip (not rubbing)* Perform
Direct opthalmoscopy • *Parts of the opthalmoscope (Appendix B)* ○ *Beam intensity* ○ *Aperture size* ○ *Actions of filters* • *Preparation for fundoscopy* ○ *Lighting* ○ *Mydriatics (not using)* ○ *Patient look straight ahead and fix on a distant target* ○ *Right eye assessor for right eye patient and vice versa* ○ *Choose smaller less intense light* ○ *Correct for self and/or patient* ○ *Need to be almost touching (one inch from patient)* • *Find vessels, follow vessels - move towards the nose - for the optic disc, then move into line of site for the macula (or get patient to look at light)* ○ *Assess vessels, AV nipping, copper wiring, look for haemorrhages, cotton wool spots,* ○ *Optic nerve – crisp edges, haemorrhages, cup to disc ratio* • *Test other eye* Perform

APPENDIX A

Student ‘patient’ Instructions

Visual acuity

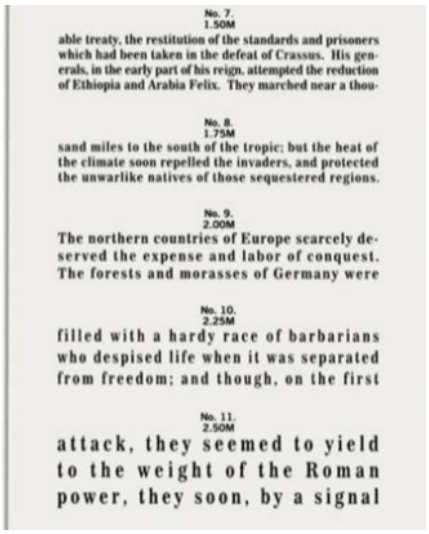
Snellen chart



Tumbling E

Animal chart

Jaeger near vision chart



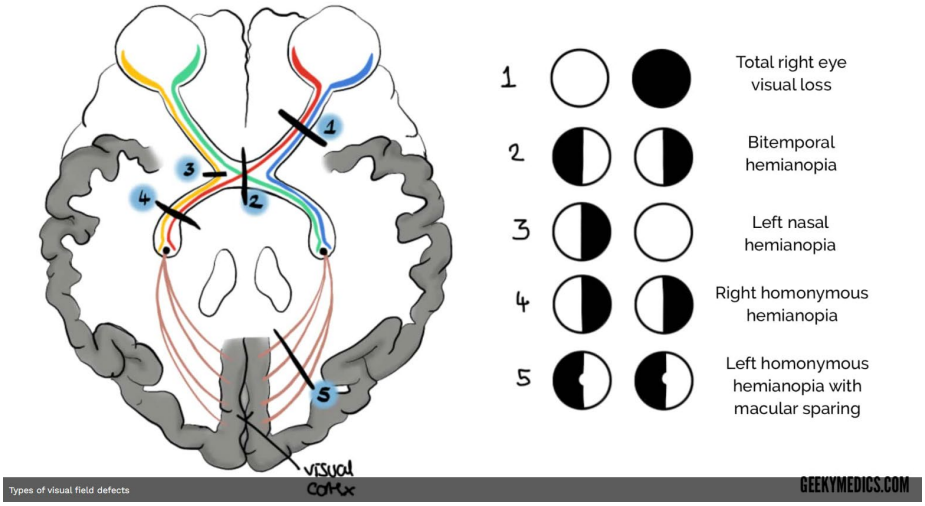
Colour vision

Ishihara Plate instructions

https://web.stanford.edu/group/vista/wikiupload/0/0a/Ishihara.14.Plate.Instructions.pdf

Visual fields

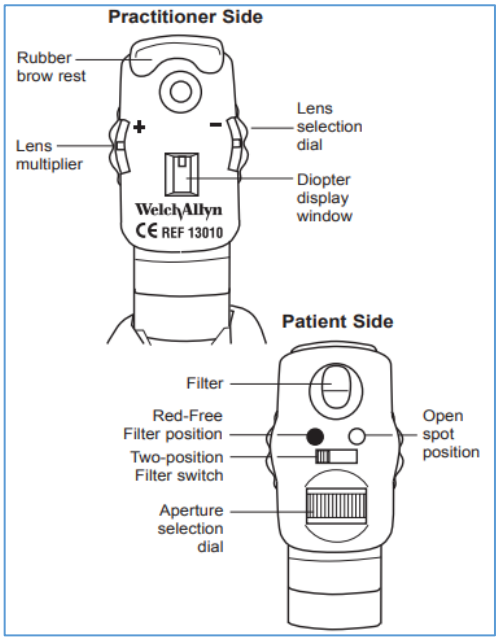
6-8 different instructions



APPENDIX B.

Opthalmoscope

1. Rubber Brow Rest.
2. Aperture selection dial with continuous rotation: Allows access to microspot, small, large, fixation, slit and cobalt blue.
3. Lens Selection Dial — When used with multiplier lever, allows single diopter steps through 48 lens combinations (from +22 to –25 diopters).
4. Multiplier Lever — Allows fast movement through the range via 16 diopter shifts. When used with lens selection dial, allows single diopter steps through 48 lens combinations.
5. Two-position filter switch: Engage either open or red-free filter.
6. Larger spot size for wider field of view.
7. Sealed optics.
8. Diopter Display Window — Displays direct reading of diopter values (positive values displayed in green; negative values displayed in red).



Aperture size (beam size)

Ophthalmoscopes typically allow you to select from a range of different **apertures** including:

- **Micro aperture**: used for viewing the fundus through very small undilated pupils
- **Small aperture**: used for viewing the fundus through an undilated pupil
- **Large aperture**: used for viewing the fundus through a dilated pupil and for the general examination of the eye
- **Slit aperture**: can be helpful in assessing contour abnormalities of the cornea, lens and retina as it makes elevation easier to see

Filter

Filters can be used to highlight specific pathology:

- **Cobalt blue filter**: used to look for corneal abrasions or ulcers with fluorescein dye (see our anterior segment examination guide for more details)
- **Red-free filter (Green)**: used to look at the centre of the macula and other vasculature in more detail