Fundoscopy Skills

A short course
Why do a fundus exam?

- To enable detection of the three most common causes of blindness early enough to prevent blindness:
  1. Diabetic retinopathy (age group: 20-50 years)
  2. Glaucoma (age group: 50-70 years)
  3. Age related macular degeneration (70+ years)

These are all detectable by examination of the posterior pole of the eye by using a direct ophthalmoscope. Vision-saving treatments are available for these disorders if detected and referred to ophthalmologists early.
The normal eye
ANATOMICAL RELATIONSHIPS

- Find the disc!
Direct Ophthalmoscopes

- Standard Welch Allyn
- Welch Allyn Panoptic
Settings
Tips for successful viewing

**Stabilization:**
- Room lights dimmed
- Patient seated, removes eyeglasses; observer standing with eyes at same level. Observer may leave eyeglasses on
- Do not remove contact lenses
- Observer at same eye level, standing, with hand on chair or shoulder
- Patient should fixate straight ahead
- Use your right hand and right eye to view patient’s right eye
- Use your left hand and left eye to view patient’s left eye
- Grasp handle near the top

**Technique:**
- Center red reflex in view beginning about 10 inches from face
- Maintain 15-20 degree temporal angle from direct frontal approach
- Rapidly close distance to about 0.5 inch or less from eye (standard scope) maintaining red reflex centrally in view; with Panoptic place collapsible tube on face
- If disc not in view after 5-10 seconds of viewing, give yourself and patient a 10 second break
- Repeat if necessary until disc is in view; focus if necessary
Find the disc!

Using the standard Welch-Allyn head

Using the Panoptic
What can I see?

Maximum viewing area with regular ophthalmoscope

Before and After the Pupil Is Dilated

Undilated pupil

Dilated pupil

Portion of retina that can be seen through undilated pupil.

Portion of retina that can be seen through dilated pupil.

Courtesy of the National Eye Institute
The View

White circle: Standard direct ophthalmoscope view
Large grey circle: Panoptic view
Obstacles to viewing

Cataracts

Corneal Disease
The posterior pole

Where is the macula?

Patient uses foveola (center of macula) to fixate on target.
Have a plan:

1. Examine the disc for:
   - color
   - size
   - sharpness of margins
   - size and shape of cup
   - pattern of disc vessels

2. Look at vessels and their pattern

3. Look at the macular area for:
   - pigmentary changes
   - hemorrhages
   - exudates
   - cotton wool spots

4. Briefly examine all four quadrants
Examination of the optic nerve

Normal optic nerve

Papilledema

Note blurring of margin, swollen (choked) appearance, tortuosity of vessels, and small hemorrhages.
Hypertensive retinopathy

Papilledema, papillary hemorrhages, “cotton wool” spots, and narrowed arterioles
Examination of the optic nerve

Normal Optic Nerve

Glaucomatous Nerve

Note size, color, shape, margin, size of cup and lesions

Note large cup, nasalization of vessels
The optic nerve in glaucoma

Normal

Glaucoma
GLAUCOMA

Glaucomatous cupping
Examination of the macula

Normal macula  Background diabetic disease

Note absence of landmarks and vascularity  Note hemorrhages and exudates
Diabetic retinopathy

Advanced background diabetic retinopathy
Examination of the macula

Normal macula

Fixation marker to locate foveola

Age-related macular degeneration

Note hemorrhage and pigment changes
Age-related macular degeneration (ARMD)

Atrophic ARMD: loss of Retinal pigment epithelium

Drusen: early disease