

How to use an Ophthalmoscope



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Basic use of a Direct Ophthalmoscope

- All direct ophthalmoscopes house a carousel containing up to 20 lenses. Each lens can be rotated into the viewing aperture (Fig 1).
- The 'positive' lenses (typically with black diopetre indicators 1-10) are increasingly convex. Hence the higher number lenses bring the focus closer to the operators eye.
- The 'negative' lenses (typically with red diopetre indicator 1-10) are increasingly concave. Hence the higher numbers take the focus point further from the operator's eye.
- At 0, the carousel is empty or contains plain glass.



Fig 1: The Direct Ophthalmoscope. The operator side showing the viewing aperture (1), the lens indicator (2) and the rotating carousel housing the lenses (3)

Distant Direct Ophthalmoscope

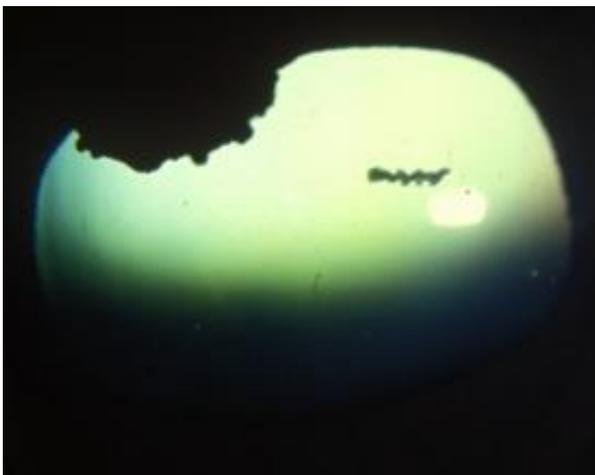


Fig 2: Linear opacity in the lens viewed by Distant Direct Ophthalmoscopy.

- This is a first line technique and is used to screen for the presence of opacities or refraction anomalies in the transparent media of the eye, particularly the cornea and lens.
- Ideally in a darkened area, select the '0' lens and examine the eye from 20-40cm distance.
- Opacities in the transparent media will appear in dark silhouette against the tapetal reflex. This is called 'retroillumination' (Fig 2).
- Any opacity can be further examined by close direct ophthalmoscopy or direct illumination.

Close Direct Ophthalmoscopy

- For the operator with normal refraction and the instrument held 3-5cm from the horse's eye, at 0 the optic disc can typically be brought into sharp focus (Fig 3). This will vary with the refraction of the operator's eye and with the viewing distance selected.
- The fundic image is upright and magnified (Fig 2). With the pupil fully dilated (using tropicamide NOT atropine) >50-60% of the fundus can be examined.
- To examine the vitreous. Lens and anterior chamber, the 'positive' lenses are progressively rotated into the viewing aperture bringing the focus closer to the operators's eye. This is usually combined with slight alterations in the focal distance (the horse or operator moving their head back and forward, often inadvertently) until the anatomic feature is in focus.
- For me, with near normal refraction, the vitreous is examined at +2-5, the posterior lens at +5-6 and the anterior lens at + 6-7.

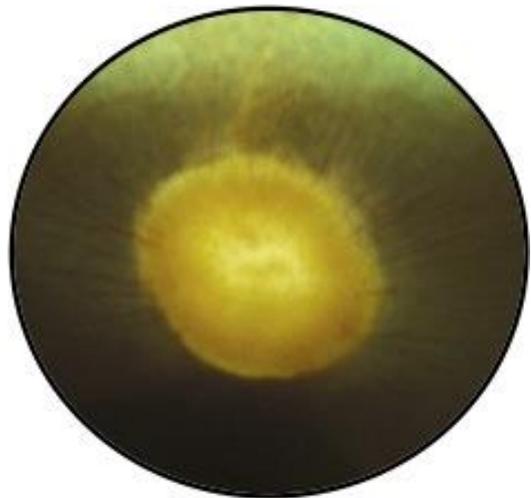


Fig 3: Normal optic disc viewed by Close Direct Ophthalmoscopy.