

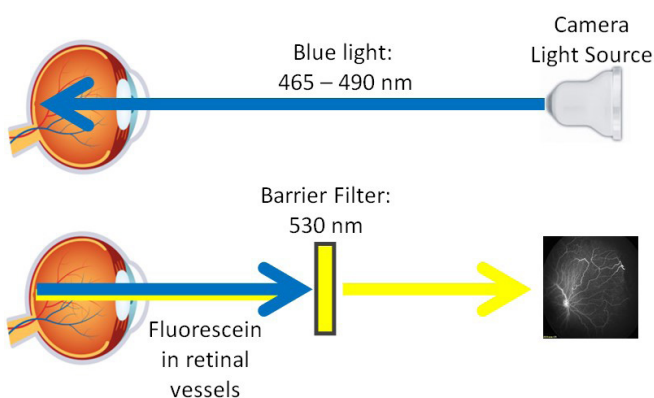
Review: Fluorescein Angiography

What is Fluorescein Angiography?

Fluorescein angiography (FA) is a diagnostic aid to examine the circulation of the retinal blood vessels. It is a minimally invasive, timed procedure, done with an injection of fluorescein sodium into the blood stream, and documented with a special camera filter to produce black and white images. These images will highlight abnormalities in blood flow in the retina.¹

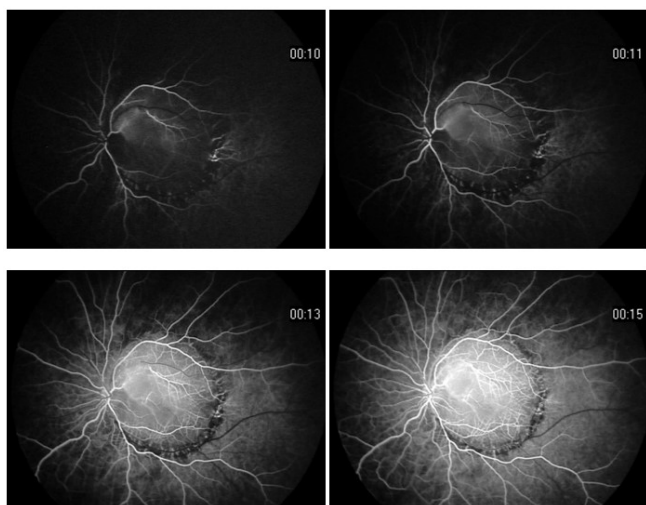
Why is Fluorescein Angiography performed?

Fluorescein angiography helps the ophthalmologist see what is happening in the retina. In Retinopathy of Prematurity (ROP), fluorescein angiography highlights abnormalities such as neovascularization. An FA can also show the separation in the vascular and avascular zones in great detail.¹



What is the Theory of Operation for Fluorescein Angiography with the RetCam?

Fluorescence occurs when a molecule is excited by light of a certain wavelength. In the case of Fluorescein Angiography with the RetCam, blue light with the wavelength of 465 – 490 nm enters the eye and excites unbound fluorescein molecules in the retina. Those molecules are stimulated to emit a longer wavelength yellow green light of 520 – 530 nm. Blue and yellow light that are returning to the camera system are separated by the barrier filter. The image is then recorded in a black and white format by the RetCam system.¹



How is Fluorescein Angiography performed?

For small children and babies, fluorescein angiography is often performed in the operating room with patients under sedation. Due to the nature of a timed procedure, patient cooperation is very important.¹

Fluorescein dye is then injected into a vein and a rapid series of images is captured as the fluorescein flows through the retinal arteries and veins.¹

There are typically three stages to an FA, including the early stage, mid-stage, and late stage. Typical FA imaging may take 5 to 10 minutes.¹

1. Angiography - Ophthalmic Photographers' Society, www.opsweb.org/page/Angiography

Checklist: Fluorescein Angiography

Key Players	Imager, Assistant(s) for software, Nurse(s)/Physician(s) overseeing dye administration
Item Checklist	☐ Lens(es) with the correct field of view ☐ Barrier Filter ☐ Coupling Gel ☐ Sterile Water ☐ Dye – dosage requirements for children will be based on body weight. Calculations will be found in the drug information enclosure ☐ Gauze ☐ Speculum ☐ Alcohol wipes
Prepare RetCam	- Ensure footswitch is set to correct operation – Save Stills or Video Record. *Note RetCam guidelines recommend capturing fluorescein angiography in save stills mode. If the imager chooses to use Video Record mode it is recommended that a NEW video is started for each segment (color, red-free, early phase, mid phase, late phase, etc). You MUST record separate videos for each eye. - Review imaging settings: Lens, Eye, Physicians, Tech, Etc.
Color Imaging	Document baseline color photo(s) of each eye – color photos allow the imager to locate pathology and establish correct focus
Red Free	Document baseline monochromatic photo(s) of each eye – Monochromatic “red-free” photos allow the imager to highlight retinal vasculature and potential auto-fluorescent structures prior to fluorescein administration. To acquire: after color imaging select “FA-ON” on imaging screen Capture appropriate images *Ensure focus is set to appropriate plane prior to moving on the FA procedure.
FA Checklist	☐ Turn ON FA module power ☐ Prepare Dye ☐ Prepare all members involved with procedure before starting ☐ Insert barrier filter: rubber o-ring facing up towards the lens base ☐ Move fiber-optic cable from the white halogen light source to the blue xenon light source
FA Procedure	- Imager should have camera in place - Inject Dye/Start Timer/Capture Image – FA team will do this simultaneously. - Take still image to document the beginning and end of injection <u>*Timer can be paused or reset if needed for any reason. In FA mode, the timer is controlled separately from the video. For example, when you pause or stop the video, video capture is interrupted, but the timer continues uninterrupted.</u> - Imager/Assistant will capture images as soon as dye is seen pulsing through vessels at a rate of one image every one to two seconds. Image capture rate will slow down in the mid and late phases *If switching RetCam lenses, secure the lens that has been removed to avoid dropping it. Also ensure the camera is held in the upright position to avoid dropping the barrier filter.
Image Review	Review phases of fluorescein and mark unneeded photos for deletion
End FA Procedure	☐ Turn off FA module power ☐ Remove and properly store barrier filter ☐ Move fiber optic cable from blue xenon light source back to white halogen light source
Notes	

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