PROCEDURE

Ophthalmoscopy

Ophthalmoscopy is an eye examination used to view the retina, optic nerve, and blood vessels inside your eye.

PURPOSE
Examine the retina, optic nerve, and eye blood vessels

PROCEDURE TYPE
Diagnostic bedside examination using light and magnifying lenses

WHERE IT IS DONE
Outpatient clinic, emergency department, hospital bedside, or operating theatre

ANAESTHESIA
None

HOW LONG IT TAKES
2 to 10 minutes, excluding pupil dilation

PREPARATION
Usually none; bring sunglasses if pupils may be dilated

RECOVERY
Same day; avoid driving until dilated vision is clear

MAIN RISKS
Temporary blurred vision, light sensitivity, rarely acute angle closure

RESULTS
Usually explained immediately after the examination

Overview

Ophthalmoscopy is an examination of the inside of your eye. It allows a healthcare professional to look through your pupil at the retina, optic nerve, and blood vessels. These structures are at the back of the eye and are sometimes called the fundus .

The examination may be done with a small handheld instrument called a direct ophthalmoscope. An eye specialist may instead use a head-mounted light and handheld lens, known as indirect ophthalmoscopy. Another method uses a microscope called a slit lamp with a magnifying lens.

Your pupils may be widened with eye drops. This is called dilation. A wider pupil gives a clearer and broader view, especially of the outer retina.

Ophthalmoscopy does not involve surgery, injections, or radiation. Most examinations take only a few minutes, although you may need to wait for dilating drops to work.

Why the procedure is performed

Ophthalmoscopy may be part of a routine eye examination. It may also be recommended if you have changes in vision, eye pain, flashes of light, new floaters, or an eye injury.

The examination can help identify or monitor:

A normal examination cannot rule out every eye condition. Other tests may be needed when symptoms continue or when part of the retina cannot be seen clearly.

- Retinal tears, retinal detachment, bleeding, or swelling
- Damage related to diabetes or high blood pressure
- Glaucoma-related changes to the optic nerve
- Macular degeneration and other retinal conditions
- Optic nerve swelling or inflammation
- Changes caused by some medicines or medical conditions

Who should and should not have it

Ophthalmoscopy is suitable for most adults and children. It may be offered because you have eye symptoms, a condition that can affect the retina, or a need for regular eye monitoring.

A non-dilated examination has few reasons to avoid it. However, it provides a more limited view than an examination through dilated pupils.

Dilating drops may be avoided, changed, or delayed if you have had an allergic reaction to them. Tell the healthcare professional if you have narrow drainage angles, previous angle-closure glaucoma, or a past episode of sudden pressure rise in the eye. Dilation can rarely trigger acute angle closure in a susceptible eye.

Dilation may also be postponed if your pupils need repeated neurological checks after a head injury or serious illness. The drops temporarily change pupil size and could interfere with those checks.

If you cannot sit at an examination microscope, ophthalmoscopy can usually be adapted and performed while you are lying down or sitting in another chair.

How to prepare

The treating facility's own instructions take priority over general information in this article.

You can usually eat, drink, and take your usual medicines normally. Tell the healthcare team about eye conditions, previous reactions to eye drops, and all medicines you use, including eye drops.

Contact lenses may need to be removed for some parts of an eye examination. Bring your lens case and glasses if you use them.

If dilation is planned, bring sunglasses because daylight may feel unusually bright afterward. Consider arranging transport home. Do not plan to drive until your vision is clear and you feel safe to do so.

What happens during the procedure

The healthcare professional will usually ask about your symptoms, vision, eye conditions, and medicines. Your vision and pupils may be checked first.

If dilation is needed, drops are placed in each eye. They may sting briefly. You then wait while your pupils widen, often for several minutes.

For direct ophthalmoscopy, the room is dimmed. The examiner shines a small light through your pupil and looks through the instrument while standing close to you. You may be asked to focus on a distant point.

For indirect ophthalmoscopy, the examiner wears a light on their head and holds a lens near your eye. The light is bright, but each view is brief. This method gives a wider view of the retina.

A slit-lamp examination is performed while you sit with your chin and forehead supported. The examiner places a lens close to, or sometimes gently against, the front of your eye. Numbing drops are used if a contact lens is required.

You may be asked to look in several directions. In some retinal examinations, gentle pressure may be applied through the eyelid to bring the far edge of the retina into view.

Recovery and what to expect afterward

Ophthalmoscopy itself should not cause ongoing pain. Bright light may leave a temporary after-image. Your eyes may feel mildly irritated if drops or a contact lens were used.

You can eat and drink normally afterward.

Most people can return to usual activity immediately. If your pupils were dilated, reading and close work may be blurry, and bright environments may be uncomfortable until the drops wear off.

Do not drive while your vision is blurred or glare affects your ability to see safely. Follow any driving instructions given by the facility.

You can usually return to work the same day. You may prefer to delay work involving driving, machinery, detailed close vision, or bright light until your sight has returned to normal.

Risks and possible complications

Ophthalmoscopy without eye drops has very little risk. The bright light may be uncomfortable but does not normally damage the eye.

Dilating drops commonly cause temporary blurred near vision and sensitivity to light. Mild stinging can occur when the drops are applied.

Less common problems include irritation, an allergic reaction, or effects elsewhere in the body such as a dry mouth or a faster heartbeat. These effects are more relevant to certain drops and may be more noticeable in children or older adults.

Very rarely, dilation can trigger acute angle-closure glaucoma in an eye with narrow drainage angles. This causes a rapid rise in eye pressure and needs urgent treatment.

Results and follow up

The examiner can usually explain the main findings immediately. They may tell you that the view was normal, that an existing condition appears stable, or that further assessment is needed.

If photographs, optical coherence tomography, or other scans are taken, the results may be reviewed during the same visit or at a later appointment. Ophthalmoscopy does not remove tissue, so there is no pathology result to wait for.

Routine follow-up may include another dilated examination, retinal imaging, an eye-pressure check, or referral to an ophthalmologist. An ophthalmologist is a medical doctor who specializes in eye disease and surgery.

Alternatives

The best alternative depends on why the back of your eye needs to be examined.

Retinal photography creates a permanent image and may be used for screening, including some diabetic eye screening programs. It is quick and can be reviewed remotely, but it may miss changes outside the photographed area. Blurred or ungradable photographs still require an eye examination.

Optical coherence tomography , or OCT, uses light to create detailed cross-sectional images of the retina and optic nerve. It can detect subtle swelling or thinning, but it examines selected structures rather than the entire retina.

Eye ultrasound can show the retina when blood, a dense cataract, or another blockage prevents a direct view. It provides less surface detail than ophthalmoscopy.

Choosing no examination avoids drops and temporary visual effects, but important retinal or optic nerve changes may go undetected. If you are unsure, ask what the examination is expected to find and how the alternatives would change your care.

When to call your healthcare team

For routine advice, contact the healthcare team if blurred vision or light sensitivity lasts longer than the timeframe they gave you, or if mild irritation does not settle. Also contact them if you have questions about results or follow-up arrangements.

Seek urgent eye care after dilation if you develop:

Seek emergency help for sudden severe loss of vision, whether or not you recently had ophthalmoscopy. These symptoms are not expected effects of a routine examination.

- Significant eye pain or increasing redness
- Persistent blurred vision with headache, nausea, or vomiting
- Coloured rings or halos around lights

Common questions

Will I be asleep?

No. Ophthalmoscopy is performed while you are awake. Sedation and anaesthesia are not usually needed.

Can I drive home?

You may be able to drive if your pupils were not dilated and your vision is unchanged. After

dilation, do not drive until your vision is clear and glare no longer affects you. Arrange a ride if the facility advises it.

How painful is it?

It is usually painless. Dilating drops can sting briefly, and the light can feel very bright. Pressure on the eyelid during a detailed peripheral retinal examination may be uncomfortable.

How long do dilating drops last?

Blurred near vision and light sensitivity commonly last for several hours. The duration is influenced by the drops used, your age, and how your eyes respond.

When will I know the results?

The examiner can usually discuss what they saw immediately. Results from photographs or scans may be provided later if another specialist needs to review them.

Can ophthalmoscopy see every eye problem?

No. It mainly examines the retina, optic nerve, and blood vessels. Eye pressure testing, visual-field testing, scans, or examination of the front of the eye may also be needed.

Sources

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- Merck Manual Professional Edition. How To Do Direct Ophthalmoscopy .
- College of Optometrists. The Routine Eye Examination . Clinical guidance for examining the eye and ocular fundus.