

Diplopia (Double Vision)

- In generalised myasthenia, the muscles of the rest of the body are affected. Symptoms may include breathlessness, swallowing difficulties, weak voice and arm/leg muscle weakness

4. Muscle

a) Thyroid eye disease

- Patients with thyroid problems may have enlarged extraocular muscles, which are stiff and do not move normally
- Other symptoms may include bulging of one or both eyes giving a “staring” appearance, excessive sweating and weight loss, palpitations, shaky hands. There may be a noticeable lump in the front of the neck (although it is possible to have thyroid eye disease without a thyroid lump present)

b) Inherited muscle diseases (myopathies)

- There may or may not be accompanying droopy eyelids
- A muscle biopsy and/or blood test can help to confirm the diagnosis

5. Eye socket (orbit)

a) Orbital wall fracture

- Our eyes are enclosed in a bony compartment in the skull called the orbit
- Injuries that break the bones of the orbit can cause orbital tissues (such as fat or extraocular muscle) to be trapped, such that the eyeball cannot move normally

b) Orbital tumours and infections

- These occupy space within the orbit and can displace the eyeball, causing diplopia

6. Decompensated squint

- Patients can have an eye misalignment from birth but this may not have been diagnosed if it was mild or the patient previously did not complain of diplopia
- Old photos may be helpful to diagnose this condition
- These patients do not have any abnormality of the brain, nerve, nerve-muscle junction or orbit as mentioned above

Tests

- **Magnetic resonance imaging (MRI)** scan can detect any compression of the cranial nerves as they course from the brain towards the eyeball as well as any abnormality of the extraocular muscles or orbit
- **Blood tests** may be required to look for certain conditions such as ocular myasthenia gravis or hyperthyroidism

Treatment

- Treatment of diplopia will be **specific to the underlying cause**
- For binocular diplopia, we can offer **press-on prisms (Fresnel prism)** or an **opaque foil** for your glasses to eliminate the double vision, but this does not treat the underlying cause

Caution!

You should **NOT** drive or operate heavy machinery while experiencing double vision.

LOCATION MAP



This patient information leaflet is a general guide to help patients understand specific eye conditions, treatment or tests. The information does not replace the need for individual advice from an ophthalmologist. Please consult with your ophthalmologist about your specific eye condition and/or concerns.

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DIPLOPIA
(DOUBLE VISION)



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Diplopia (Double Vision)

Seeing Double

Double vision (diplopia) is a symptom whereby a patient sees two images of one object. This can be caused by many reasons, ranging from the front of the eye all the way to the brain.

The first question to ask yourself when you are seeing double is: is it **monocular** or **binocular**? You can find out by covering one eye at a time.

Monocular Diplopia

If you cover one eye and still see double, you are having monocular diplopia in the opened eye.

The two images are not equally clear and the second image is indistinct, like a shadow of the original.



Monocular Diplopia

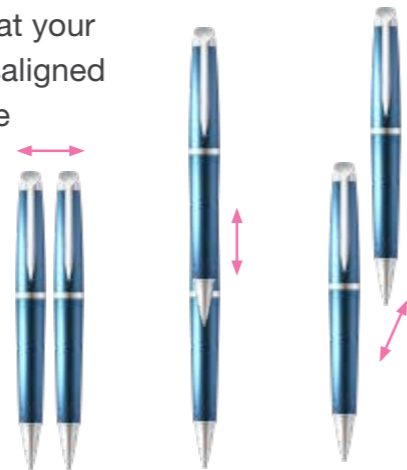
This is usually not a major concern and may be caused by:

- **Refractive error** (uncorrected myopia, hyperopia or astigmatism which requires glasses)
- **Dry eyes**
- **Cornea problems** (scar, swelling)
- **Cataract**
- **Retinal problems**

Binocular Diplopia

If you see double when both eyes are open but see single when either eye is closed, you have binocular diplopia. The two images you see with both eyes opened are equally clear.

This suggests that your two eyes are misaligned and is often more worrying.



Binocular Diplopia

You will need to see an ophthalmologist to make the diagnosis. Your ophthalmologist will take a medical history, perform a full eye examination and carry out some investigations.

Normal Eye Movements

Eye movements are controlled by the brain, which send signals via 3 nerves (third, fourth and sixth cranial nerves) that stimulate the muscles (extraocular muscles) of each eyeball.

Causes of Binocular Diplopia

The eye will not be able to move fully in a particular direction, resulting in misalignment of the two eyes and binocular diplopia if there is a problem affecting the:

1. **Brain**
2. **Nerve**
3. **Nerve-muscle junction**
4. **Muscle**
5. **Eye socket (orbit)**

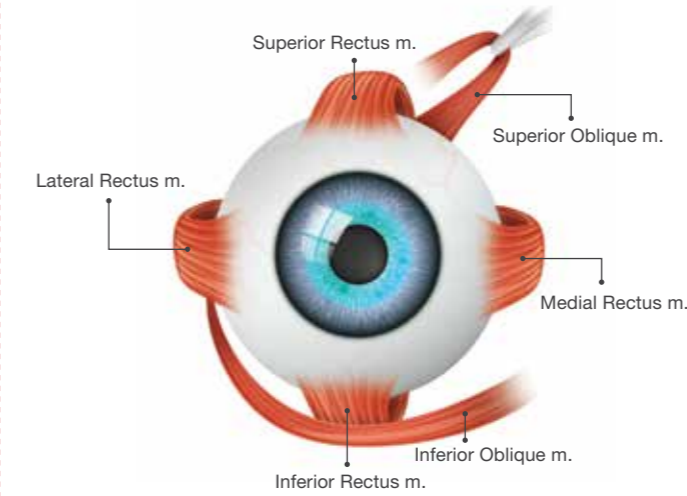


Illustration: Eyeball and muscles

1. Brain

- Stroke or brain tumours can damage the areas of the brain that control eye movements

2. Nerve

a) Acute ischaemia or lack of oxygen to one of the 3 cranial nerves (“mini-stroke”)

- Risk factors are age above 50 years, diabetes, hypertension, hyperlipidemia and smoking
- The problem tends to be temporary, with most cases attaining full recovery by three to six months
- There is no specific treatment for such cases but they serve as a reminder to control the underlying risk factors

b) Tumours and Aneurysms

- These lesions can compress on the cranial nerves causing them to malfunction
- Patients may also have other symptoms such as a droopy eyelid or a pupil that is larger on the affected side
- An important cause is a tumour arising from the back of the nose (nasopharyngeal cancer), which can compress on one or more of these nerves

3. Nerve-muscle junction

- **Myasthenia gravis** is an immune system disorder in which antibodies attack the nerve-muscle junction of different muscle groups
- In **ocular myasthenia gravis**, the eyes are affected and patients may develop droopy lids and/or double vision. The characteristic feature is that symptoms are usually better upon waking up or after a period of rest and worsen throughout the day