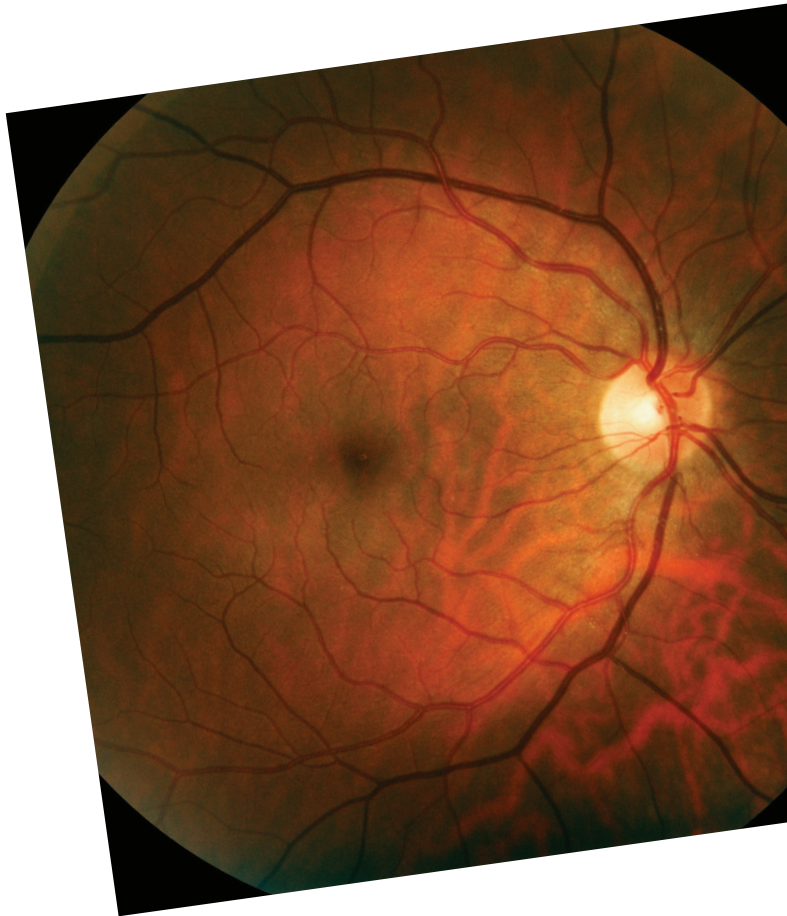


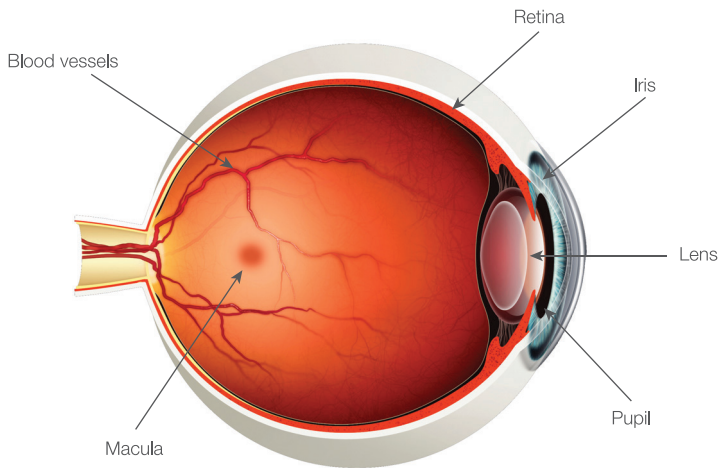
Age-related Macular Degeneration



The Ophthalmology Service offers the latest and most comprehensive eye care for patients. With a dedicated team of eye surgeons and consultants, we treat vision problems ranging from age-related macular degeneration, cataracts, corneal disease, diabetic retinopathy, glaucoma as well as other conditions affecting the eye.

What is the macula?

The back of the eye is lined with a layer of delicate nerve tissue known as the retina. The retina plays an important part in how we see. When we look at an object, light enters our eye and hits the retina, translating this light into an image. For the eye to see well the retina has to function normally. Even if other parts of the eye appear normal, poor vision can still occur if the retina is not functioning well.



Cut-away view of the eye

The macula is a small area in the centre of the retina essential for our central vision and when we need to look at fine details. Abnormalities in the macula can result in failure to see what is before us.

What is age-related macular degeneration (AMD)?

Age-related macular degeneration (AMD) is one of the leading causes of severe and irreversible vision loss. With Singapore's population ageing, AMD is estimated to affect 27% of our elderly population. It usually affects people over the age of 50, and is a natural result of ageing.

AMD occurs when the delicate cells in the eye are damaged and no longer functioning properly.

Vision loss that occurs as a result of AMD varies from mild to severe. AMD will not cause total blindness, but it can affect both eyes.

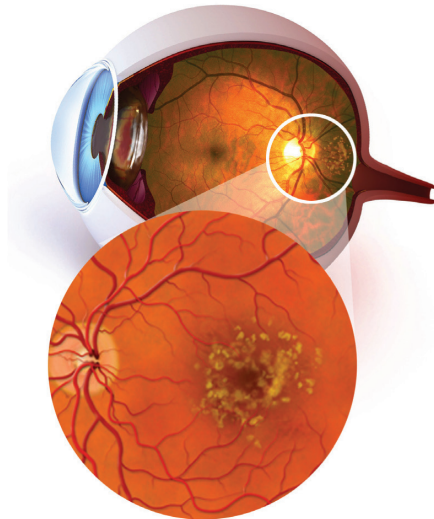


Types of AMD

Dry AMD

This is a common form of macular degeneration and develops slowly over a period of years.

- Dry AMD occurs when your eye's waste products are deposited in the region of the macula, causing the retinal cells to degenerate.
- There is no effective treatment for this, but the risk of vision loss is not high.



Wet AMD

A result of abnormal blood vessels developing under the retina, wet AMD are fragile and break easily, causing bleeding, scarring and fluid or protein leakage.

- There are various types of treatments available but vision loss from wet AMD is often severe and permanent.
- It also progresses more quickly.

Symptoms of AMD

How is sight affected?

AMD usually affects one eye first and symptoms can go unnoticed because the unaffected eye is able to compensate for problems in the affected eye.

If you have AMD you may experience:

- A reduction in the quality of the central part of your vision, noticing a black patch or dark spot in your vision.
- Straight lines appearing wavy and straight edges appearing distorted.
- You may miss your step more and misjudge distances and heights.
- You start to find it hard to match similar shades of the same colour.
- You find it difficult to cross busy roads or look at signs/landmarks.
- You complain you need better lighting.

If any of the above sound familiar, you may have AMD.

In addition, you could:

- Experience difficulty doing things that require detailed vision, such as sorting coins or watching television.
- Notice missing letters in a word when you read and have difficulty recognising faces from a distance. This happens because AMD outlines an image, but not the fine details.

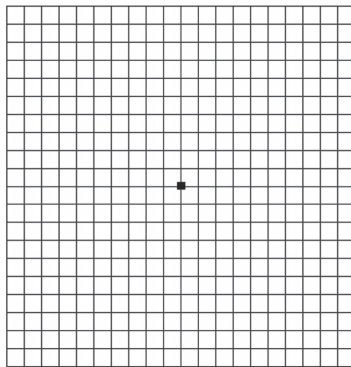


Diagnosis

How will my eye be examined for AMD?

A sight test and full eye examination can help to determine the type of AMD.

Drops will be instilled into your eyes to enlarge your pupils to allow your retina to be examined. The eye drops may blur your vision temporarily and cause light to appear harsh. Because of this, you should avoid driving to your appointment.



Amsler grid test

Depending on the severity of AMD, you will be asked to go for one or more of the following tests:

- **Amsler grid test**
You will be asked to look at a test page to check for blind spots.
- **Colour photographs taken with a special camera**
This test helps your doctor see the back of your eye clearly.
- **A fluorescein or indocyanine green angiogram**
Fluorescent yellow or green dye is injected into a vein in your hand or forearm to circulate around your body and retinal blood vessels. Abnormal areas in the capillary network will light up and be recorded in a series of flash photos. The dye will not leak out of normal capillaries. If it leaks out, your vessels are diseased or new vessels have developed.



What treatments are available?

There is currently no cure for AMD. Prevention is the best 'cure'.

A healthy lifestyle can prevent current AMD from worsening. Studies have shown that by quitting smoking, lowering hypertension, and reducing one's body mass index (BMI), the risk of AMD can be reduced by half.

Patients with advanced AMD may find low vision aids like mini-telescopes and magnifying glasses helpful in making the most out of the vision they have left.

Treatment

Dry AMD

Observation and regular check-ups will be done to check on its progression.

Nutritional supplements* that contain selenium, zinc and Vitamins A, C and E may be helpful. While they will not cure AMD or restore vision, they prevent dry AMD from developing into wet or advanced AMD.

Wet AMD

Intravitreal anti-vascular endothelial growth factors (anti-VEGF) injections are used in the treatment of wet AMD. Anti-VEGF prevent the growth of new blood vessels and further swelling of the macula.

Injections are done monthly and are useful in preventing severe vision loss by up to 95%. It may even improve vision by 30-40% most of the time.

The risks of intravitreal injections include:

- a small risk of infection (approximately 1 in 3 -4000)
- low risk of stroke

For effective treatment, injections are repeated every month, or once every six weeks. Its effectiveness depends on how early it is used.

*Such supplements should not be taken in high doses and should only be eaten as prescribed by your doctor.

- **Photodynamic therapy (PDT)**

PDT with verteporfin was approved as an alternative treatment for patients with wet AMD as it maintains the present level of vision and prevents further degeneration. PDT treatments are offered on a three-month basis.

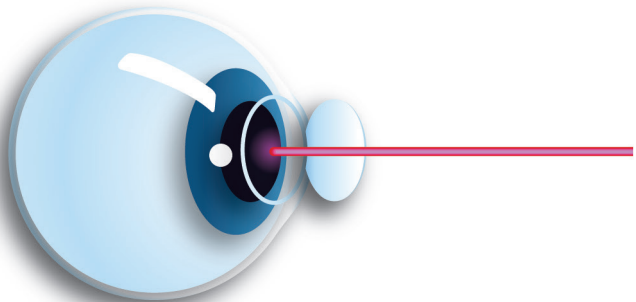
- **Laser therapy**

Laser can treat AMD because the high energy beam is able to destroy the fragile, leaky blood vessels in the eyes. Prolonged laser treatment may however damage surrounding healthy retinal tissue and this method is only effective if the leaky blood vessels have developed away from the fovea and caused a scar to affect vision.

The use of laser cannot restore lost vision, but may prevent further loss. It is painless and done as an outpatient procedure. In about 50% of patients, abnormal blood vessels persist or recur after laser treatment and re-treatments may be necessary.

- **Surgery**

Surgery is effective when the sub-macular is bleeding. Gas and a drug known as a tissue plasminogen activator are injected into the eye to move the blood away from the macula. This is a less common treatment.



Notes:

For more information

Ng Teng Fong General Hospital and Jurong Community Hospital

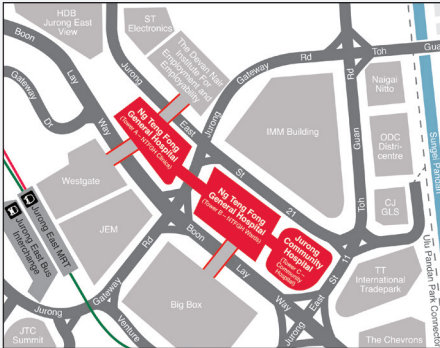
1 Jurong East St 21,
Singapore 609606
General enquiries: 6716 2000 Fax: 6716 5500
www.juronghealth.com.sg

Clinical and appointment line hours (closed on Sundays and public holidays)

For appointments, please call 6716 2222
Monday - Friday 8.00am - 5.30pm,
Saturday 8.00am - 12.30pm

For dental appointments, please call 6716 2233
Monday - Thursday 8.00am - 5.30pm
Friday 8.00am - 5.00pm

Getting there



By train

Jurong East MRT Station

By bus

From Jurong East Bus Interchange

SBS 51, 52, 66, 78, 79, 97, 97e, 98,
98M, 105, 143, 143M, 160, 183, 197,
333, 334, 335, 506

Along Boon Lay Way

SBS 99, Private bus service 625

Jurong Medical Centre

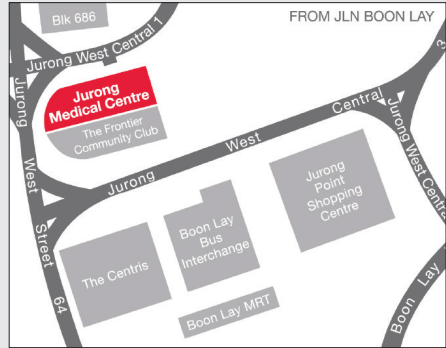
60 Jurong West Central 3,
Singapore 648346
General enquiries: 6716 2000 Fax: 6551 7999
www.jmc.com.sg

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Getting there



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Boon Lay MRT Station

By bus

SBS 30, 79, 154, 157, 174, 179, 181,
182, 192, 193, 194, 198, 199, 240, 241,
242, 243 W/G, 246, 249, 251, 252, 254,
255, 257, 405
SMRT 172, 178, 180, 187

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