

# MACULAR DEGENERATION

## What is Macular Degeneration?

Age related macular degeneration (AMD) is one of the commonest causes of vision loss in those over 50 in Australia. It results in damage to the macula, the very centre of the retina. The retina is the “film of the camera”. It converts the light that you see into electrical signals to the brain. The macula is the area that gives us our reading vision, colour vision and driving vision.

## What are the symptoms of Macular Degeneration?

Damage to the macula results in blurred vision and visual distortion. It causes reduced central vision which impairs reading, watching TV and driving. Distortion results in straight lines looking bent or wavy. Colour vision may also be impaired.

## Who gets Macular Degeneration?

AMD occurs most commonly in otherwise healthy elderly adults usually 60 years of age or older. It is much more common in those who were heavy smokers and in those with high blood pressure and other cardiovascular risk factors. It does occur though in many people with no risk factors at all other than their age

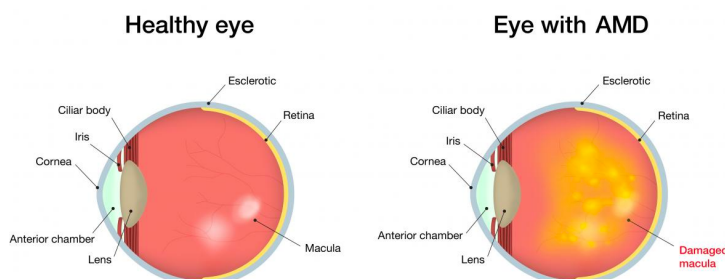
## What Causes Macular Degeneration?

The cause of AMD is not known and it usually multifactorial. While there are some genetic factors there it usually does not strongly run in families. It is definitely not due to how you use your eyes, and is not due to eyestrain, too much reading or computer work etc.

## Dry vs Wet

Dry AMD starts with the build up of drusen or “age spots” in the retina. Vision is usually good or only slightly reduced at this stage, and patients can remain at this stage without progression for decades. Most of these patients with mild dry AMD can continue to read and drive, although it may not be as easy as it was when they were younger. Some patients, but not all, progress to a more advanced stage of Dry AMD called geographic atrophy. This can result in severe loss of central vision and loss of the ability to read and drive. Unfortunately there is no treatment for dry AMD although there is a lot of ongoing research overseas. Even in these severe cases, patients almost always retain normal peripheral vision, enough to see where they are going and be independent around the home.

Wet AMD is very treatable and treatment is urgent as the sooner the treatment is commenced, the better. Wet AMD occurs when abnormal new blood vessels grow into the retina and start leaking fluid. This causes the retina to swell and the longer it is swollen the more the retinal fibres deteriorate. If the abnormal blood vessels bleed into the retina, this can do severe damage, which is often permanent.



# DIAGNOSIS

AMD is diagnosed with a combination of clinical examination, colour retinal photographs and special scans. An OCT scan takes high resolution images at high magnification to see what layer of the retina is affected by the fluid. A fluorescein angiogram is a very commonly performed dye test where a nurse injects some special dye into a vein in your arm, and then photographs the dye passing through the retinal blood vessels to see where the fluid is leaking from.

## What is the Visual Prognosis?

The prognosis for most patients with AMD with modern treatment is relatively good if treatment is commenced early before too much damage is done. Untreated, the prognosis is terrible, with the majority of untreated patients progressing to legal blindness in one or both eyes. This is not a condition which will ever make you completely blind. In severe cases though it can result in severe loss of central vision which can impair the ability to read and drive with that eye. Your peripheral vision will very rarely be involved and even severely affected patients retain peripheral vision sufficient to see where they are walking and remain relatively independent.

## Treatment

There is no cure for wet AMD but modern medical treatment has resulted in dramatically improved outcomes, since intravitreal injections became available in Australia in 2006. For those who require treatment, there are three options:

1. Intravitreal injections of medicine
2. Photodynamic Therapy with Visudyne
3. Thermal Laser

## Intravitreal injections

(Avastin, Eylea, Lucentis, Beovu)

Intravitreal injections have rapidly become the most common and most successful treatment for retinal swelling due to retinal vascular disorders such as AMD and diabetic retinopathy. These work by reducing swelling in the retina. They turn off the leakage of fluid into the retina, and works in more than 95 % of people with macular degeneration. The effect on the abnormal blood vessels is dramatic, like putting weed killer on weeds, they rapidly shrink away. Each year there are more than half a million intravitreal eye injections performed in the USA.

## Photodynamic Therapy (PDT) with Verteporfin (Visudyne)

This involves an infusion of special dye (Verteporfin / Visudyne) followed by a special "cold" laser which activates the dye in the retina. This has been largely superseded by intravitreal injections which have a vastly higher chance of visual improvement. For those rare cases not responding to intravitreal injections and not suitable for thermal laser, this is a viable alternative. It will result in resolution of the fluid in approximately two thirds of patients. Unfortunately approximately one third of patients do not respond and the fluid persists. In some of these cases a second treatment can result in resolution of the fluid. There is a small, 1-4% chance that the PDT can make the vision worse, and this would be permanent.

## Thermal Laser

Only a very small percentage of cases are suitable for laser. Laser is only possible in those uncommon cases where the AMD begins a long distance away from the macula and the centre of the macula is unaffected. The success rate for laser depends on how far away the leak site is from the centre of the macula. If the leak is a long way away from the centre of the macula, laser treatment has a very high chance of success.

If the leak is very close to the centre, laser has a risk of resulting in a permanent dark spot in the vision.

If the leak is directly underneath the centre, laser is not possible as it would make the vision worse.