

## Macular Degeneration (MD)

is the leading cause of blindness & severe vision loss in Australia.

MD is a degenerative condition that affects the macula which is an area at the centre of the retina that is responsible for central vision. MD leads to progressive loss of the central vision, significantly affecting a person's ability to **read, drive, recognise faces and perform activities requiring detailed vision**. MD leaves the peripheral or side vision intact. It can lead to 'legal blindness'\* but does not result in total blindness.



MD affects the central vision affecting the ability to recognise faces and perform activities requiring detailed vision.

\*A person is considered legally blind if they cannot see at six metres what someone with normal vision can see at 60 metres or if their field of vision is less than 10 degrees.

> Approximately **one in seven Australians** (1 million) over the age of 50 has some evidence of **Macular Degeneration**. The incidence increases with age.

### Macular Degeneration

Glaucoma

Cataract

Other

Uncorrected refractive error



Approximately **50 % of blindness** in Australia is caused by **Macular Degeneration**

# Macular Degeneration

There are two types of Macular Degeneration – **dry** and **wet**

## DRY Macular Degeneration

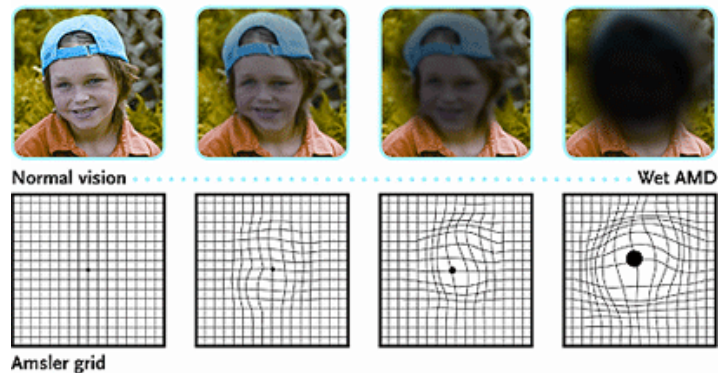
This is a slow form of the disease causing a gradual loss of central vision. It is caused by the atrophy of retinal tissue, the breakdown or thinning and disappearance of retinal pigment epithelial cells (RPE). Studies have shown that dry MD may be slowed through diet and lifestyle changes. It accounts for 33% of all cases of late stage MD. The dry form can later develop into the more aggressive wet form.

## WET Macular Degeneration

This is the more severe form of the condition. Vision changes are often sudden and severe. It occurs when the **retinal pigment epithelium** (RPE), a special layer of cells in the eye, fail to stop blood vessels from growing under the retina. The rapidly growing vessels are fragile with leaky walls and ooze fluid and blood under the retina, leading to scarring and vision loss. Symptoms of wet MD may include blurred vision, straight lines appearing wavy or distorted and black spots in central vision. There are a number of treatments available for wet MD. These treatments do not cure the disease but aim to stabilise and maintain the best vision for as long as possible.

“ **Early detection of wet MD is crucial to saving sight** ”

### The progression of wet AMD



▲ *The Amsler grid is a tool to assist with detecting changes in vision at home, such as possible progression from dry to wet MD. The image above shows an example of what a person would possibly see at different stages of Macular Degeneration.*



## What **causes** Macular Degeneration?

Risk factors for Macular Degeneration include age, family history, smoking, diet and lifestyle. There is a 50% chance of developing MD if there is a direct family history. Studies have shown that people who smoke are three to four times more likely to develop the disease and those who have a genetic predisposition and who smoke have a significantly increased risk of developing wet macular degeneration.



# Current research & clinical trials

Why is it taking so long for effective treatments to be developed for early and dry MD?

**Macular Degeneration is a very complex disease.** Development of MD is influenced by age, environmental and genetic factors, and also involves the immune system which is one of the most complex systems in our body.

## Stem Cell Treatment

Stem cells are special types of cells that can be transformed into other types of cells. The new cells can then be transplanted to replace damaged cells.

Stem cells are being used to produce new RPE cells which can be implanted into the eye.

In Australia and in the US, there is a significant amount of research into various stem cell treatments. Stem cells from bone marrow, human embryonic stem cells and foetal tissue are being investigated as possible treatments for MD.

There are a number of projects and other clinical trials currently being undertaken in Australia by the Centre for Eye Research Australia (CERA). These include the **Bionic Eye Project** which is a project aimed at developing an advanced bionic eye prototype to restore functional vision to people with retinal diseases such as Retinitis Pigmentosa and Macular Degeneration. This is a collaborative project between CERA and the Bionic Eye Institute.

Another current clinical trial is the Laser Intervention in Early Aged-Related Macular Degeneration. This investigates the use of nano-laser technology as a treatment for age-related macular degeneration.

*For further information on current research and clinical trials in Australia go to Centre for Eye Health Research (CERA).*

Do you have a patient or know someone who struggles to read, recognise faces, drive and perform daily tasks?

Contact

**Guide Dogs NSW/ACT**  
for a free functional  
vision assessment

**1800 484 333**

## Related Websites

**Guide Dogs NSW/ACT**  
[guidedogs.com.au](http://guidedogs.com.au)

**Macular Disease Foundation**  
[mdfoundation.com.au](http://mdfoundation.com.au)

**Centre for Eye Research  
Australia**  
[cera.org.au](http://cera.org.au)

**Bionic Vision**  
[bionicvision.org.au](http://bionicvision.org.au)

**Vision Loss**  
[visionloss.com.au](http://visionloss.com.au)



## MACULAR DISEASE ADVISORY SERVICE

Macular Disease Foundation Australia  
Level 9, 447 Kent St, Sydney NSW 2000

The service runs every Wednesday,  
please contact MDFA on 9261 8900 to book.

*Joint venture between Guide Dogs NSW/ACT  
& Macular Disease Foundation Australia*

# Living an independent life

People with varying degrees of Macular Degeneration continue to lead independent lives, as can be seen in the case studies of Zara & Trevor.



artist,  
actor &  
activist

Not too many people can be described as being an artist, an actor and an activist in their life time. Zara (93 years) wears these titles with pride. She is charismatic, a brilliant story teller and fiercely independent. Zara was diagnosed with dry MD several years ago but has tried hard to put things in place so the loss of central vision does not stop her from being independent.

With the assistance of an Orientation and Mobility Instructor from Guide Dogs NSW/ACT she has modified her home environment to assist with the changing levels of vision loss. Macular degeneration means that Zara finds it difficult to see fine detail. The most frustrating aspect for Zara is the inability to read magazines and recipes. Zara has tried to overcome this by changing the lighting levels and purchasing a magnifier from

Guide Dogs Low Vision Clinic. She said light makes all the difference as to whether or not she is able to read large print.

Zara has modified her home by placing tactile and high contrast markers on her stove and her DVD player. She painted the edging of her front steps to assist with distinguishing where each step is and thus reduce the chance of a fall.

Zara travels on public transport and uses her white folding support cane supplied by Guide Dogs. The support cane identifies her as having a vision loss which is helpful in busy environments and gives her greater confidence when getting on and off the buses.

## Zara's story

Macular Degeneration could turn a life upside down. For some people who are diagnosed with the condition it can mean that they have to stop doing what they love and look for alternate interests.

Trevor who is now in his late 70's, is fit and takes care of his general health. He was diagnosed with MD - about 20 years ago. When he noticed definite changes to his vision that could no longer be corrected by glasses he decided to retire from his full-time employment, much earlier than anticipated.

Trevor first noticed signs of his vision changing when he could no longer read bus numbers. He commented "it's so important to have your eyes checked as soon as you notice changes. With continual advancements in technology, optometrists can do a range of tests to check for early signs of eye diseases. If wet macular degeneration is left untreated it can cause significant vision loss that you can never regain."

In 2012 Trevor was diagnosed with dry macular degeneration in both eyes with a macula hole in his left eye and cataracts in both eyes.

This means his right eye has distortions and blanks and is very blurry, making reading impossible.

Trevor is incredibly thankful to the low vision specialists at Guide Dogs NSW/ACT. The specialists at the Chatswood Low Vision Clinic assess client vision needs, recommend low vision aids like magnifiers and lighting and provide training in their use. Trevor found the Low Vision Clinic extremely beneficial and strongly recommends it to anyone who is having difficulty reading, watching TV, recognising faces, reading signs and going shopping.

After an assessment at the Low Vision Clinic, Trevor now has a magnifier with a built in light and adjusts the lighting to make it more conducive to reading. With MD, having strong lighting coming from behind the person directed onto the body of text makes all the difference.

## Trevor's story



turning  
your life  
around  
at 50

# Eye health checklist

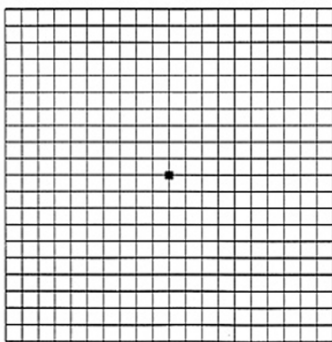


- Have your eyes tested and macula checked.
- Use an Amsler grid for self-checking.
- Do not smoke.
- Keep a healthy lifestyle, control weight and exercise regularly.
- Eat fish 2 to 3 times a week (Omega -3 fatty acids are extremely important for eye health).
- Limit intake of fats and oils.
- Eat dark green leafy vegetables and fresh fruit daily (Important antioxidants for eye health are lutein and zeaxanthin found in dark green leafy vegetables).
- Choose low glycaemic index carbohydrates.
- Eat a handful of nuts a week.
- Consider a suitable supplement in consultation with your doctor.
- Protect your eyes from the sun.

*Recommendations courtesy of  
Macular Disease Foundation Australia*

## Amsler Grid

The Amsler Grid may appear like this for someone without AMD



The Amsler Grid may appear like this for someone with AMD

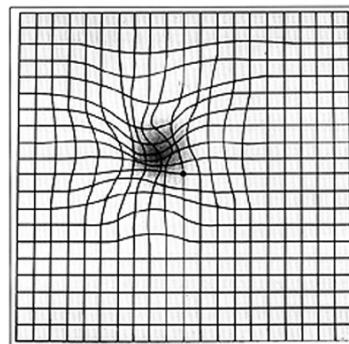


Photo Credit: National Eye Institute, National Institutes of Health Ref#: EC03 and Ref#: EC04

“

**Early detection and prompt intervention are crucial to saving sight. If any sudden changes in vision are noticed, it is critical to see an optometrist or ophthalmologist immediately. Delayed treatment increases the likelihood of losing sight.**

”

Call **Guide Dogs NSW/ACT** now on **1800 484 333** to request an Amsler Grid

## contact us

Guide Dogs NSW/ACT provides all of its services, including mobility aids, free of charge. To refer someone to us, with their permission, please phone one of the offices below:

Sydney East	(02) 9412 9300	Wollongong	(02) 4225 9247
Sydney West	(02) 9676 5802	Lismore	(02) 6621 8475
Low Vision Clinic	(02) 9412 9342	Newcastle	(02) 4925 3066
Guide Dogs Centre	(02) 4579 7555	Orange	(02) 6362 6625
ACT	(02) 6285 2988	Tamworth	(02) 6761 3152
Albury	(02) 6041 5201	Coffs Harbour	(02) 6652 7424

Or visit our website [www.guidedogs.com.au](http://www.guidedogs.com.au)

guidedogsnswact



The Guide is published for the information of health professionals. All rights reserved. No portion of this publication may be reproduced without written permission from Guide Dogs NSW/ACT. You can view our privacy statement on our website at [www.guidedogs.com.au](http://www.guidedogs.com.au).