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“I CAN’T SEE YOUR FACE AT ALL NOW, BUT I CAN SEE YOUR OUTLINE”

WORD LIM TECK CHOON • DESIGN RAZLI ABDUL RAHMAN

When well-respected actress Judi Dench went to India to film *The Second Best Exotic Marigold Hotel* in 2015, she could no longer see well enough to function on her own. Instead, she depended on fellow cast member and old friend Maggie Smith to help her get around. She eventually revealed in subsequent interviews that she has been diagnosed with age-related macular degeneration since 2012.

To read her scripts in preparation for new roles, she has them printed in very large fonts. She still loves movies, but she now has a friend come along so that the friend can tell her what is happening on the screen. “Lenses and glasses and very bright light”, as she puts it, become a regular fixture in her life.

Nonetheless, she still smiles as wide as ever. “As long as there is a possibility of working, I’m not going to retire; because if I retire, nothing will work anymore and it’s hard enough as it is,” she said in an interview with *Daily Mirror*.

What is **age-related macular degeneration**, really? In this issue, we catch up with Dr Chan Jan Bond to get more insight into this eye disease.

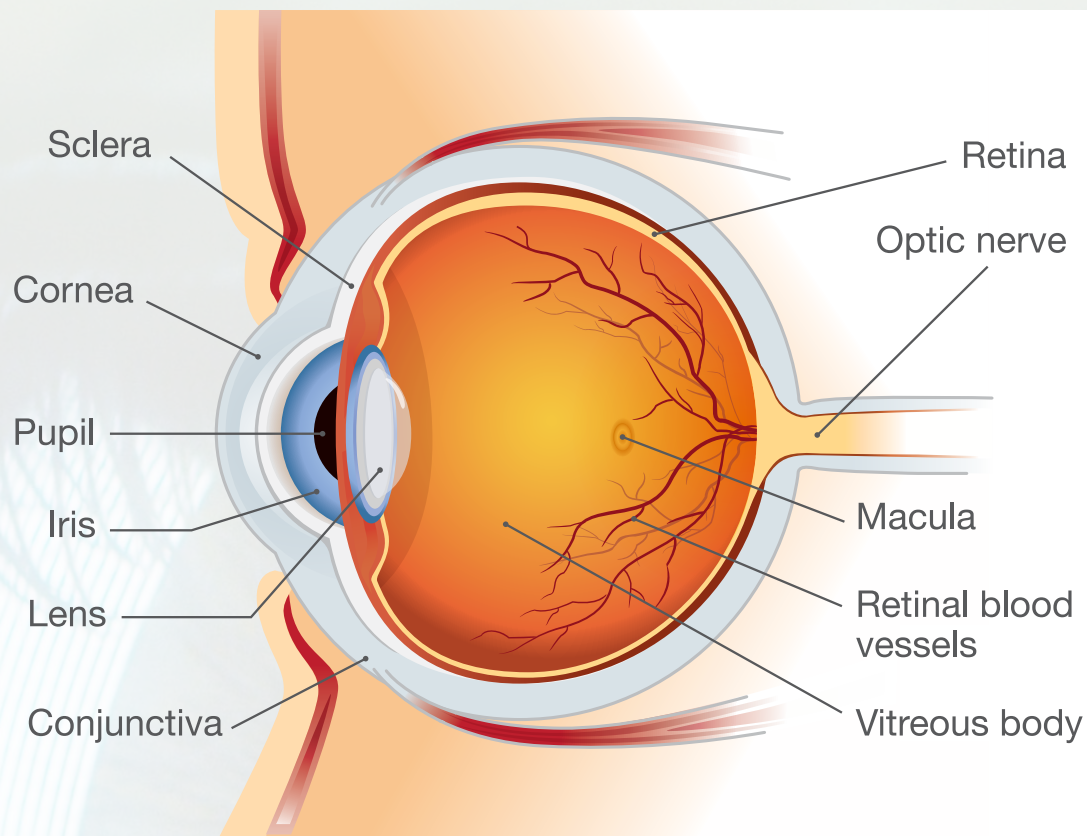


Image 1: Structure of the eye

THE LIGHT IN OUR EYES

To first understand **age-related macular degeneration (ARMD)**, it will help to first review how the normal eye works to allow us to see the world around us.

1. Light first passes through the cornea. That is the dome-shaped, clear front layer of the eye—see **Image 1**.
2. The cornea helps to bend the light so that it will pass through an opening called the pupil. The iris—that's the coloured part of the eye—helps to adjust the size and diameter of the pupil, in order to control how
3. Light passes through the pupil onto the lens. The lens will further bend, or refract, light so that light will focus correctly on the tissue layer at the back of the eye called the retina.
4. In the retina is a small, oval-shaped, pigmented area called the macula, or macula lutea as it's also called. The macula is responsible for sending signals of what we see to our brain. Our brain will

process these signals into coloured, high-resolution images.

WHEN THE MACULA DEGENERATES

Like its name would suggest, ARMD arises when the macula is damaged.

"ARMD is a medical condition of the eye which may cause blurred or no vision in the centre of the eye," Dr Chan explains.

He adds that it is considered age-related because it is more common among older persons. In fact, it is currently the leading cause of visual disability among patients over 60.

JUDI DENCH HAS WET ARMD IN ONE EYE AND DRY ARMD IN THE OTHER

Indeed, Dr Chan shares that there are 2 types of ARMD: wet and dry.

DRY ARMD

The beginning of dry ARMD is indicated by the appearance of little piles of waste products, called drusen, on the retina. We still don't really know how or why, but the appearance of drusen can sometimes lead to the thinning and breakdown (degeneration) of the macula.

As a result, the person will first experience blind spots in their vision. Vision may worsen over time, affecting the person's ability to read, write, make out faces and details, and carry out other activities that involve central vision.

There is also a risk of dry ARMD eventually progressing to wet ARMD if the disease is not properly controlled.

Dr Chan reveals that dry ARMD is the far most common form, as it represents 80% to 90% of all advance ARMD cases.

WET ARMD

This is usually a more advanced disease state, as more than 90% of people with this form of ARMD experience severe vision loss.

According to Dr Chan, wet ARMD is associated with rapid distortion and sudden loss of central vision. This is caused by the presence of abnormal blood vessels forming in the retina. These vessels are leaky and hence prone to leak blood and other fluids into surrounding tissues. Scars will eventually form, causing permanent damage

to the retina and the loss of central vision.

WHAT COULD BE THE CAUSES OF ARMD?

"We are not exactly sure what actually causes ARMD," says Dr Chan.

Some of possible factors said to be able to increase one's risk of developing ARMD include:

- Family history (Judi Dench's mother also has ARMD)
- Age, with a 3-fold increase in risk when one is 75 years old
- Cigarette smoking, which can double the risk
- Prolonged exposure to sunlight
- Diet high in fats, cholesterol, and foods with high glycaemic index but low in antioxidants and green leafy vegetables

Aside from family history and age, one can try to reduce the risk of developing ARMD by leading a healthy lifestyle of balanced diet, reduce unnecessary exposure to sunlight, and ditching unhealthy habits such as smoking.

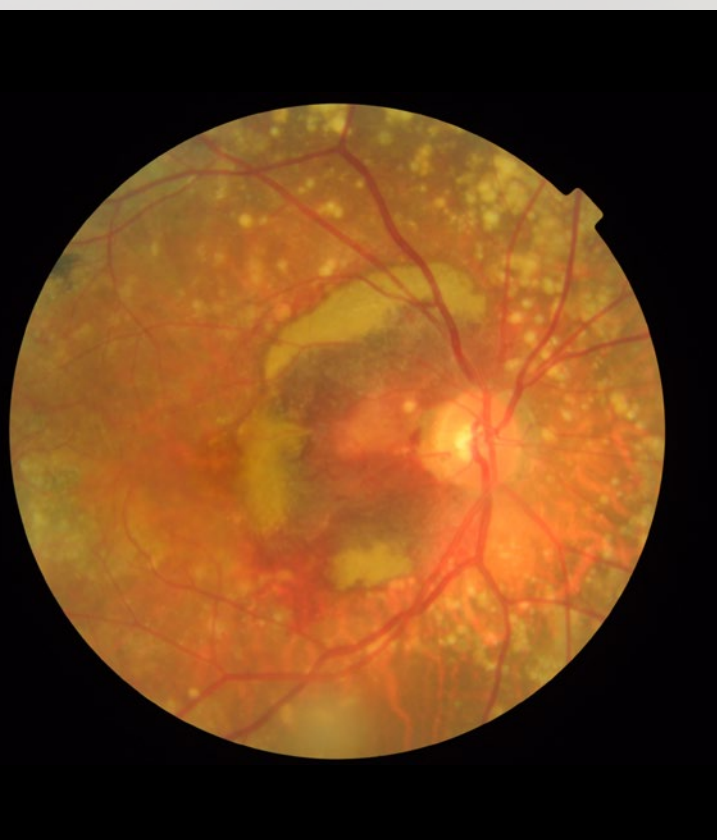


Image 2. What a digital retinal image of someone with ARMD looks like. Image courtesy of Dr Chan Jan Bond.

What exactly is 'central vision'?

Simply put, it's what we see when we look straight ahead. Pretty much all of our daily activities involve functional central vision. Needless to say, it's the most commonly used part of human vision

HOW TO KEEP ARMD UNDER CONTROL

To date, there is still no cure for ARMD. However, depending on how advanced the disease is once it is diagnosed, certain steps can be taken to preserve the person's vision.

EARLY STAGE ARMD

Dr Chan shares that, typically, people with early stage ARMD require constant monitoring instead of treatment.

"You may not have any symptoms during early stage," he clarifies. "The first sign that something is amiss is a minor change to the quality of vision. Straight lines may appear distorted or blurred out or even blackened areas (blind spots) may appear in one's central vision." See Image 3 to see a visual example of this.



Image 3. What a person with normal eye sees (left) vs what a person with ARMD may see (right). Image courtesy of Dr Chan Jan Bond.

Like other eye diseases, ARMD will be treated by eye specialists called ophthalmologists. They will conduct full examination on the eyes of people with early stage ARMD, including several eye scans, before advising the appropriate treatment options.

Early detection may lead to vision preservation or even improvement

If you have a family history, have reached an age whereupon ARMD is likelier to develop, or are otherwise concerned about this disease, consult an ophthalmologist on whether you need screening and, if yes, how regular should you be screened.

BEYOND MONITORING— INJECTIONS AND OTHER TREATMENTS

Dry ARMD

To date, there is no treatment developed for this form of ARMD. There are some medications being developed, but at the time of writing, nothing has been approved for use.

Wet ARMD

Injections of anti-vascular endothelial growth factor (anti-VEGF) into the region of the eye containing the vitreous humor (see Image 1) will help stop new abnormal blood vessels from forming in the retina. Anti-VEGF also helps to block leakages from existing abnormal blood vessels.

Optical aids and devices, such as spectacles, can be used to assist people with ARMD to still carry out their daily activities to the best of their abilities.

WILL SUPPLEMENTS HELP?

Dr Chan shares that **antioxidant supplementation** has been shown to reduce the risk of progression in ARMD in those with **intermediate or late stages** of the disease.

Research also found that **nutritional supplements** may delay progression of **intermediate to advanced** ARMD, helping the affected people keep their vision longer.

Such supplementations don't seem to benefit people with early stage ARMD or those wishing to reduce their risk of developing this disease.