

MACULA DEGENERATION

What is the macular?

The Macular is the important central area of the retina which is responsible for detailed central vision. It has the highest concentration of retinal receptor cells known as ‘cones’

What is macular degeneration?

Sometimes the delicate cells of the macula become damaged and stop working. We do not know why this is, although it tends to happen as people get older. This is called age-related macular degeneration.

There are two forms of macular degeneration – ‘Dry’ and ‘Wet’

Dry AMD is the most common and milder form of the disease and is identified by the collection of yellow, fatty deposits called drusen, at the macular. Visual deterioration is generally gradual over a long period (5-20 years).

Wet AMD occurs much less frequently (in about 1 in 10 cases), but is the more severe form of the disease. Drusen occur but wet AMD is characterised by the development of abnormal leaky blood vessels at the macular which cause damage to the retina. Vision loss may occur suddenly and people often report distortion of straight lines as a symptom. In advanced cases of the ‘wet’ form of AMD there is scarring of the macula caused by the leaking blood vessels. This is called disciform maculopathy and can create irreversible ‘blind spots’ in the central vision.

Because macular degeneration is an age-related process it usually involves both eyes, although they may not be affected at the same time or to the same degree.

Children and young people can also suffer from an inherited form of macular degeneration called macular dystrophy. Sometimes several members of a family will suffer from this, and if this is the case in your family, it is very important that eyes are checked regularly.

Macular degeneration is not painful and **never** leads to total blindness. It is the most common cause of poor eyesight in people over 60, but never leads to complete sight loss because it is only the central vision that is affected. Macular degeneration never affects vision at the outer edges of the eye. This means that almost everyone with macular degeneration will have enough side vision to get around and keep his or her independence.

What are the symptoms?

In the early stages central vision may be blurred or distorted, with things looking an unusual size or shape. This may happen quickly or develop over several months. Other people simply find increasing difficulty reading very small print. You may be

very sensitive to light or actually see lights that are not there. This may cause some discomfort occasionally, but otherwise macular degeneration is not painful.

The macula enables people to see fine details and those with the advanced condition will often notice a blank patch or dark spot in the centre of their sight. This makes activities like reading, writing and recognising small objects or faces very difficult.

What should I do if I think that I have macular degeneration?

If you suspect that you may have macular degeneration but there are no acute symptoms you should visit us. If necessary we will refer you to an eye specialist. If you have acute (sudden onset) symptoms then you should consult us, your doctor or local casualty department immediately.

Dietary Supplements and Age Related Macula Degeneration

Risk factors for macula degeneration

The cause of AMD is still unknown but cigarette smoking, sun exposure, high blood pressure, and high cholesterol have been thought to increase the risk of macular degeneration. Other risk factors include age (over 40), gender (higher in women), iris colour (light coloured eyes more prone to damage) and family history.

Antioxidants

Antioxidant containing foods are thought to be beneficial for patients with macular degeneration. The most popular antioxidants, called carotenoids, are the pigments that give fruits and vegetables their colour.

Two such carotenoids are found in the macula (Lutein and Zeaxanthin). A recent study by the National Institutes of Health in the USA with 3,640 patients, called the Age-Related Eye Disease Study (**AREDS**), suggests that antioxidants and vitamins help prevent the progression of macular degeneration and vision loss. These nutrients reduce the risk of advanced ARMD by about 25% and reduce the vision loss caused by about 19%. Nutrients are not a cure for ARMD, nor will they restore vision already lost, however they may help people at high risk from developing advanced ARMD.

Lutein and Zeaxanthin exist mainly in green vegetables such as kale, spinach and broccoli. (See supplementary sheet.) It is not always possible to modify your diet, or to consume the amounts recommended, so nutritional supplements are an alternative.

Vitamins

Vitamins C, E, beta-carotene and Zinc are proposed as dietary supplements to protect the retina from macular degeneration. The AREDS study supports the use of these supplements. It is clearly reasonable to take the recommended daily requirement of these vitamins and trace metals.

- You may wish to take nutritional supplements if you have either
 - a) Large drusen
 - b) Vision loss from AMD in one eye (either wet or dry)
- The study did not demonstrate any benefit to those with early AMD.

Your GP will help determine if they are safe for you.

Cautions for taking supplements

Self-medication with high doses of vitamins and minerals is not recommended. It is very important to talk to your GP before taking large dose supplements, and to follow his or her recommendations carefully. Some supplements may interfere with each other or other medications. High levels of zinc supplementation can cause copper deficiency, so copper is taken to prevent this. A few people taking Zinc alone had urinary tract problems requiring hospitalisation. Some people taking large doses of beta-carotene or antioxidants can experience yellowing of the skin.

Smokers and ex-smokers should not take beta-carotene as it has been shown to significantly increase the risk of lung cancer among smokers. Therefore combination tablets are not suitable and individual vitamin and antioxidants are recommended.

The recommendations of AREDS are: Daily dosage: 500 mg of Vitamin C, 400 iu of Vitamin E, 6mg of Lutein, 80 mg of Zinc and 2 mg of Copper. Non-smokers add 15 mg of beta-carotene.

Diet and Vitamins

It is important to note that cigarette smoking, sun exposure, high blood pressure, and high cholesterol have been thought to increase your risk of macular degeneration. In contrast, **antioxidant** containing foods are thought to be beneficial for patients with macular degeneration. The most popular antioxidants, called carotenoids (are the pigments which give fruits and vegetables their color). Two such carotenoids are found in the macula (Lutein and Zeaxanthin)

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Natural Sources of Carotenoids

Vegetable (100 grams or 1/2 cup)	Lutein or Zeaxanthin (Micrograms)
Kale	21,900
Collard Greens	16,300
Spinach	10,200
Parsley	10,200
Mustard Greens	9,900
Dill	6,700
Celery	3,600
Scallians	2,100
Leeks	1,900
Broccoli	1,900
Leaf Lettuce	1,800
Lettuce	1,800
Green Peas	1,700
Pumpkin	1,500
Brussel Sprouts	1,300
Summer Squash	1,200
Corn	790
Green Beans	740
Green Pepper	700
Cucumber Pickle	510
Green Olives	510
Tomatoes	100

Amsler Grid Check

The Amsler Grid may be helpful in revealing signs of wet age-related macular degeneration. It is not a substitute for regularly scheduled eye examinations/tests.

1. Wear the glasses or contact lenses you normally use for reading.
2. Hold the grid approximately 13 inches (33 cm) away from you, in good light.
3. Cover one eye with your hand and focus on the centre dot with your uncovered eye.
4. If you see wavy, broken or distorted lines, or blurred or missing areas of vision, you may be displaying symptoms of AMD and should contact your Optometrist immediately.
5. Repeat steps 1-4 with the other eye.

