

Age-Related Macular Degeneration

Macular degeneration is the most common cause of severe visual loss in people over the age of 50. Over 8 million people in the US alone have some form of this disease.

The term “macular degeneration” includes many different eye diseases, all of which affect central, or detail vision. Age-related macular degeneration is the most common of these disorders, mainly affecting people over the age of 60. Although age-related macular degeneration is the primary focus of this booklet, much of the information also applies to the other types of macular degeneration.

We hope that this book increases your understanding of macular degeneration and enhances your communication with your ophthalmologist and other health care providers.

The Eye

The eye is a complex organ composed of many parts. Good vision depends on the way in which those parts work together. It is helpful to understand how the eye works before learning about macular degeneration.

As light enters the eye, it first passes through a lubricating tear film that coats the cornea. The clear cornea covers the front of the eye and helps to focus incoming light.

The iris is the colored part of the eye. As light conditions change, the iris may dilate to make the pupil bigger or constrict to make the pupil smaller. This allows more or less light into the eye.

The light then passes through the lens, a flexible, transparent structure that can change its shape to focus images on the retina.

After being focused by the lens, light passes through the center of the eye on its way to the retina. The eye is filled with a clear jelly called the vitreous.

Finally, light falls upon the retina, a thin, light-sensitive tissue lining the back of the eye. The retina converts light patterns into information the brain can use.

The macula is the small central portion of the retina with the densest population of photoreceptors, the light sensing cells. The center of the macula is called the fovea. With the highest density of photoreceptors, the fovea is what allows one to see fine detail such as small newsprint.

Behind the retina, a layer of blood vessels called the choroid supplies oxygen and nutrients to the outer layers of the retina.

The optic nerve is a bundle of nerve fibers which carries visual information from the eye to the brain.

The Retina

The retina is composed of many different tissue layers, each with a specific function. Some of these layers may not be working properly in someone who has macular degeneration.

The photoreceptor layer is composed of light-sensitive cells called rods and cones. Light images are converted into electrochemical signals inside the photoreceptors.

Under the photoreceptors is a dark layer called the retinal pigment epithelium or RPE. Cells of the RPE absorb excess light and transport oxygen, nutrients and cellular wastes between the photoreceptors and the choroid.

Bruch's membrane separates the blood vessels of the choroid from the RPE layer.

The choroid is a layer of blood vessels that supplies oxygen and nutrients to the outer layers of the retina.

The sclera is the fibrous, white, outer covering of the eye.