

Eye diseases

The following provides an overview of terms and definitions related to low vision.

Ocular albinism: Lack of pigment cells in the retina and iris that can also affect the entire visual organ or body. Patients experience extreme glare sensitivity, uncontrolled eye movement (nystagmus) and reduced visual acuity.

Diabetic retinopathy: Long-term diabetes can cause changes to the fundus of the eye. Due to the narrowing of blood vessels, the blood circulation is reduced. This results in insufficient blood supply to the retina and patchy vision.

Glaucoma is often caused by a pathological increase in intraocular pressure. For instance, when more aqueous humour fluid is produced than can drain out of the eye. Continuously elevated pressure inside the eye can pinch or compress the optic nerve head, thus damaging the eye severely.

Corneal dystrophies are corneal disorders and degenerations that can have various causes. They are characterised by many different disease patterns, the causes of which have not yet been identified. They can be age-related or resulting from a genetic disorder, inflammations, infections or allergies.

Iris coloboma is a hole in one of the eye structures, here the iris. It can be present from birth (congenital) or the result of eye surgery or eye trauma. When congenital, it is caused by failed or incomplete closure of the embryonic fissure, which normally closes around the 6th week of pregnancy.

Cataract: A cataract is a clouding of the lens inside the eye. The light entering the eye is scattered, which results in irradiation and reduced contrast sensitivity. Blue blocking filters can help increase contrast vision. Cataract surgery can often restore vision almost completely. In modern surgery, the clouded lens is removed and a synthetic or intraocular lens is implanted in the lens capsule.

Macular degeneration: The macula is the innermost third of the retinal cavity. A wide variety of hereditary and non-hereditary degenerative disorders often affect just the centre of the retina, the macula. As a result, the peripheral vision remains intact, enabling patients to remain mobile and find their way around. Since the rod photoreceptors gathered around the central retina still function, patients are not affected by night blindness. The symptoms resulting from cone damage to the macula correspond to those associated with advanced retinitis pigmentosa (RP): reduced visual acuity and reading ability, lower contrast sensitivity and colour perception, prolonged adaptation in changing lighting conditions as well as increased glare sensitivity. The onset of macular degeneration and symptoms vary and depend on the type of macular degeneration, such as age-related macular degeneration, Stargardt macular degeneration, cone dystrophy etc. Magnifying visual aids often help maintain the patient's reading ability.

Age-related macular degeneration (AMD): This disease is the most common cause of severe visual impairment in later adulthood. Metabolic products accumulate and can cause the formation of drusen between the choroid and the retina, causing the retina to bulge or become detached. There are two types of AMD: dry macular degeneration and wet macular degeneration.

Dry macular degeneration: Accumulation of metabolic products, also known as hard drusen, in a layer of the retina called Bruch's membrane. As a result, adjoining retinal photoreceptor cells are destroyed. This process advances gradually, slowly extinguishing the area of sharpest vision, and cannot be reversed.

Wet macular degeneration: Accumulation of fluid underneath the retina due to a dysfunction of the retinal pigment epithelium. Soft drusen accumulating underneath the retina are also often associated with macular degeneration, causing pigment epithelial detachment. This can lead to rapid, irreversible vision loss with pronounced metamorphopsia (distorted vision).

Metamorphopsia are changes on the retina caused by inflammations, macular degeneration or scotoma in the central field of vision. Geometric lines or squares may appear distorted.

Myopic degeneration: In the case of advanced myopia (the eyeball is too long in relation to its refractive power), the continuous stretching of the eyeball results in the destruction of the retina and choroid.

Retinal degeneration: Pathological destruction of retinal parts or areas which are then no longer able to perform their function.

Retinal detachment: Insufficient retinal blood flow causes the retina to become brittle and tear. High myopia increases the risk of retinal detachment due to excessive stretching and thinning of the retina. In old age, retinal detachment is often caused by sclerosis (hardening). Accidents can also trigger retinal detachment.

Nystagmus: Rapid consecutive eye twitching (= jerking or dancing eyes). People with nystagmus can be recognized by the way they hold their head (head tilted to the left/right or chin down). By changing the head posture, the vestibular reflex is activated which can slightly reduce the involuntary eye movements.

Retinitis pigmentosa is a hereditary eye disorder that can appear at an early age. In every healthy eye, parts of the inner membranes die, metabolic waste products accumulate and are removed from the lower retinal layers. Given a healthy metabolism, this "metabolic waste" is normally removed through the retinal blood vessels. In the event of retinitis pigmentosa, the metabolism is disturbed and dead cells are no longer removed but remain on the retina, often building up from the outside to the centre. This accumulation of "waste" can affect vision in different ways and even lead to "tunnel vision" or blindness in extreme cases:

- Narrowing of the visual field and blind spots
- Reduced vision in twilight and night blindness
- Compromised colour and contrast vision
- Increased glare sensitivity

Scotoma (Greek for darkness) refers to an area in the visual field, where vision is absent or deficient. Scotomas can be caused by disruption of the visual pathways, retinal disorders or cloudy ocular media. In addition to scotomas that appear as islands of visual field loss, there are ring scotomas and central scotomas.

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from the patient's perspective

