

DEFECTS OF THE EYE

Myopia: (short-sightedness, near-sightedness) This is a defect of vision in which far objects appear blurred but near objects are seen clearly. The image is focused in front of the retina rather than on it usually because the eyeball is too long or the refractive power of the eye's lens is too strong. Myopia can be corrected by wearing glasses/contacts with concave lenses which help to focus the image on the retina.

Hyperopia: (long-sightedness, far-sightedness) This is a defect of vision in which there is difficulty with near vision but far objects can be seen easily. The image is focused behind the retina rather than upon it. This occurs when the eyeball is too short or the refractive power of the lens is too weak. Hyperopia can be corrected by wearing glasses/contacts that contain convex lenses.

Astigmatism: Astigmatism is a common vision problem. It occurs when either the lens of the eye or the cornea is abnormally curved. This can change the way light passes or refracts to the retina, causing blurry or distorted vision at all distances. Astigmatism can usually be corrected by using a special spherical cylindrical lens.

Eye related problems:

Cataracts

Cataracts are when the lens of the eye becomes cloudy. This restricts the amount of light that reaches the retina and affects vision. Cataracts tend to develop slowly over a period of years. In the early stages they may not produce any symptoms. However, without treatment (normally surgery) cataracts will get worse and eventually lead to complete blindness. The most common cause of cataracts is ageing, while other causes include other medical conditions, eye injuries, genetic defects and reaction to some medications.

Signs and symptoms of cataracts can include:

- Cloudy, blurred or foggy vision
- A noticeable cloudiness in the pupil
- Sensitivity to light
- A decrease in distance vision but an improvement in near vision
- Double vision
- Colours look faded or yellowish
- Poor vision at night

The symptoms of early cataracts may be improved with new glasses and stronger lighting. However, once cataracts progress to the point that impaired vision reduces the quality of life and interferes with daily activities, surgery is the only effective treatment. Cataract surgery involves removing the clouded lens and replacing it with a clear plastic lens.

Age-related macular degeneration (ARMD)

This is a degenerative condition of the macula (the central part of the retina). It is caused by the hardening of the arteries that nourish the retina. This deprives the retinal tissue of the nutrients and oxygen that it needs to function and causes a deterioration in central vision.

Glaucoma

Glaucoma is a disease that damages the optic nerve. The optic nerve sends visual information from the eye to the brain and is vital for good vision. Damage to the optic nerve is often related to high pressure in the eye. But glaucoma can happen even with normal eye pressure. Glaucoma can occur at any age but is more common in older adults. It is one of the leading causes of blindness for people over the age of 60. It is important to have regular eye exams that include measurements of the eye pressure. If glaucoma is recognized early, vision loss can be slowed or prevented.

https://www.chm.bris.ac.uk/webprojects2002/upton/defects_of_the_eye.htm

<https://www.southerncross.co.nz/medical-library/eye-conditions/cataracts>

<https://www.mayoclinic.org/diseases-conditions/glaucoma/>

<https://www.healthline.com/health/astigmatism>

Glossary

artery- tętnica
blurred, blurry – zamazany, rozmazany
cloudy- mętny
cloudiness - zmętnienie
concave- wklęsły
convex – wypukły
curved- zakrzywiony
deterioration- pogorszenie
distorted- zniekształcony, wykrzywiony
glaucoma – jaskra
impaired – uszkodzony, upośledzony
macula (lutea) – plamka (żółta)
nourish- odżywiać
refract – załamywać
tissue - tkanka

I. Match the words (1-6) to their pronunciation (A-F).

- | | |
|----------------|-----------------------|
| 1. myopia | A. /blɜːd/ |
| 2. hyperopia | B. /əˈstɪɡ.mə.tɪ.zəm/ |
| 3. astigmatism | C. /ˈtɪs.juː/ |
| 4. glaucoma | D. /ˌhaɪ.pərˈəʊ.pi.ə/ |
| 5. blurred | E. /glɜːˈkəʊmə/ |
| 6. tissue | F. /maɪˈəʊ.pi.ə/ |

II. Match each word (1-8) to its synonym or a short explanation (a-h).

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|--------------|-------------------------|
| 1. blurred | a. vision loss |
| 2. nourish | b. near-sightedness |
| 3. refract | c. cloudy, unclear |
| 4. impaired | d. far-sightedness |
| 5. distorted | e. feed |
| 6. myopia | f. twisted out of shape |
| 7. hyperopia | g. bend |
| 8. blindness | h. damaged |

**III. Read the text „Defects of the eye” and mark the sentences true (T) or false(F).
Correct the F sentences.**

1. Hyperopia is the same as short-sightedness.
2. In myopia far objects are not seen clearly.
3. Far-sightedness can be corrected by wearing glasses with concave lenses.
4. Near-sightedness occurs when the image is focused behind the retina.
5. Astigmatism is caused by a different shape than normal of the cornea or the lens.
6. A cataract is a clouding of the normally clear lens of the eye.
7. If left untreated, cataracts will eventually cause total blindness.
8. ARMD affects the macula and destroys the central vision.
9. Glaucoma causes damage to the optic nerve.
10. Glaucoma occurs only in older people with high eye pressure.

IV. Answer the questions:

1. What causes myopia and how can it be corrected?
2. What causes hyperopia and how can it be corrected?
3. When does astigmatism occur?
4. What are the causes of cataracts?
5. What are some of the symptoms of cataracts?
6. What does ARMD result in?
7. What is glaucoma?
8. What is the function of the optic nerve?
9. Why is it important to recognize glaucoma at an early stage?
10. Why is it important to have regular eye exams?



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mgr Marzena Gorczyca-Blok