JOURNAL OF MULTIDISCIPLINARY SCIENCES AND INNOVATIONS
VOLUME 04, ISSUE 8
MOPNTHLY JOURNALS
ISSN NUMBER: 2751-4390
IMPACT FACTOR: 9,08

SYMPTOMS, CAUSES, AND TREATMENT OF MYOPIA

Rashidov Farrux
Qo`qon Universiteti Andijon filiali tibbiyot fakulteti
"Davolash ishi yonalishi" talabasi
Emai: farrukxrashidov@gmail.com

Abstract: Myopia – also known as nearsightedness or the inability to see distant objects clearly – is a refractive error where distant objects appear blurry while nearby objects are seen clearly. In myopia, the main focus of light rays falls in front of the retina. Myopia can be congenital or acquired. It typically occurs in mild, moderate, and severe forms. Myopia is corrected with lenses, eyeglasses, or laser surgery.
Keywords: Eye, myopia, retina, eyeglasses, focus, laser surgery

Introduction

Myopia is a visual impairment in which close objects appear clear, while distant objects appear blurry. In myopia, the axial length of the eye is longer than normal, causing light rays to focus in front of the retina, instead of directly on it. As a result, the image on the retina is not clear, and distant objects appear blurred.

Nearsightedness is one of the most common ophthalmological disorders and currently affects about 30% of the global population. Myopia often begins in childhood or adolescence and may progress over time.

Causes of Myopia In people with myopia, distant objects are difficult to see, while near objects are clear. The causes of myopia are generally divided into congenital (hereditary) and acquired types:Congenital myopia:

This type originates from birth and can worsen with age.

It often occurs when there is a family history of myopia.

Acquired myopia:Develops due to changes in the refraction of light in the eye.

Usually progresses slowly over the years and may not be noticeable at first.

Common contributing factors:Early use of smartphones and digital devices

Excessive screen time Poor lighting conditions in classrooms and homes Reading small print or bright reflective boards

Reading in the dark or low-light environments Prolonged visual strain without rest Genetic influence:If one or both parents are nearsighted, the risk of developing myopia in children increases significantly.

This is due to the weakness of the accommodative muscles and connective tissue in the eye.Nutrition-related causes:

Poor or unbalanced nutrition in children, especially vitamin deficiency, can also contribute to the development of acquired myopia.

Symptoms of Myopia The main symptoms of myopia can vary in intensity and include:Blurred vision when looking at distant objects Clear near vision with poor distance vision

Eye strain while trying to see distant objects Frequent squinting

Headaches, especially in the forehead region, due to straining Eye fatigue

Night myopia – worsening of vision at night In children, signs include:

Sitting very close to TV or digital screens Constant squinting or eye rubbing

Tilting the head or narrowing the eyes to see better

In advanced cases, symptoms such as light sensitivity, nausea, and migraine-like headaches may occur.Diagnosis of Myopia

To diagnose myopia, ophthalmologists perform the following tests:

CT scan of the eye orbits Visiometry using Snellen or Shulgin eye charts
Refraction tests:Skiascopy Autorefractometry
Ophthalmoscopy: to evaluate the retina and optic nerve disk
Keratometry: to measure the corneal curvature radius
Treatment of Myopia
Myopia is treated using a combination of optical correction, medication, instrument-based therapy, and surgical methods.
Optical Correction:Eyeglasses: The most common and effective method, especially for mild myopia (up to -3.00 diopters). In children, glasses are prescribed primarily for distance viewing if they can manage daily activities without them.Contact lenses: Used as an alternative to eyeglasses, especially in older children and adults.Medication: Nootropics: Pantogam, Piracetam Vitamin therapy: Ascorbic acid (Vitamin C)
Mydriatics: Mezaton, Irifrin Tissue therapy: Aloe extract and similar biological stimulators Apparatus-Based Treatment (mostly in children):
Vacuum massage Infrared therapy Surgical Treatment – Laser Correction:
LASIK Epi-LASIK PRK (Photorefractive Keratectomy) Femtosecond LASIK
Electrostimulation therapy
Goal: These treatments aim to stabilize the elongation of the eyeball and stop the progression of the disease.
Modern medical methods, when diagnosed early, can preserve vision in 80% of cases. One of the most effective options is excimer laser correction, where a cool laser beam reshapes the cornea and corrects its refractive error. This allows light to focus directly on the retina. However, laser surgery is recommended only if the myopia has not progressed for at least 3 years.
It is crucial to consult an ophthalmologist for proper examination and selection of the appropriate treatment method.
Complications of Myopia
If left untreated or poorly managed, myopia may lead to serious complications:
Progressive vision loss – especially during growth periods in children and teens
Excessive elongation of the eyeball – leading to structural abnormalities
Retinal detachment – increases risk of blindness
Glaucoma – increased intraocular pressure is more common in people with myopia Eye strain and headaches – due to constant overexertion
Cataracts – may appear at an earlier age in myopic individuals
Prevention of Myopia
To prevent myopia or slow its progression, the following preventive measures are recommended:Regular eye check-ups:
At 3 and 6 months of age Every 6 months from 1 to 3 years old Annually from 4 to 7 years old
Proper use of digital devices:
Maintain a minimum of 45 cm distance from screens
Ensure adequate lighting while using devices or reading
Avoid excessively small fonts
Encourage good posture and avoid tilting the head
If a child is already diagnosed with myopia, it is crucial to:
Avoid further progression
Use therapies to improve eye tissue health
Perform special eye exercises to enhance accommodation
Maintain a balanced visual workload and rest regimen

Conclusion

To detect the disease in time, it is essential to regularly monitor a child's vision. If one or both parents had myopia in their youth, it is especially important to observe their child's visual development closely. Children should be given adequate water and fluids throughout the day, and it is necessary to include foods rich in vitamin A in their diet.

Modern medicine today is capable of preserving vision in 80% of cases if the condition is diagnosed early. To ensure early detection of myopia, it is crucial to regularly monitor a child's visual health, especially if there is a family history of the condition. If either parent experienced myopia during childhood, their children are at a significantly higher risk, and their vision should be checked frequently by an ophthalmologist.

A well-balanced diet plays an important role in preventing and managing myopia. Children should consume sufficient fluids during the day and eat foods rich in vitamin A, vitamin C, and omega-3 fatty acids, which are essential for maintaining healthy vision.

In addition, children should be encouraged to spend more time outdoors. Studies show that exposure to natural daylight and regular physical activity help reduce the risk of developing myopia. Limiting screen time, maintaining proper posture while reading or using digital devices, and taking frequent breaks during near work are also important preventive measures.

Thanks to advances in modern ophthalmology, up to 80% of visual function can be preserved when myopia is diagnosed and treated early. With proper care, lifestyle adjustments, and regular eye check-ups, the progression of myopia can be effectively managed, ensuring better long-term eye health and quality of life.

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