

## Strabismus: misaligned eyes and its treatment.

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### Description

Strabismus, often referred to as "crossed eyes" or "lazy eye," is a common eye condition that affects individuals of all ages, from infants to adults. This condition occurs when the eyes do not align or focus on the same point, leading to a misalignment of the visual axes. Strabismus can have a significant impact on a person's vision, depth perception, and overall quality of life.

Strabismus is a visual disorder characterized by an imbalance in the positioning of the eyes. In a healthy visual system, the muscles that control the eye movement's work together to ensure both eyes are aligned and focused on the same object or point. However, in individuals with strabismus, these muscles may not function harmoniously, leading to misalignment. The condition can be categorized into several types, depending on the direction of eye misalignment. In esotropia, one or both eyes turn inward toward the nose. This is commonly known as "crossed eyes." Exotropia involves one or both eyes turning outward away from the nose. This condition is often referred to as "wall-eyed." Hypertropia occurs when one eye is positioned higher than the other. Hypotropia is the opposite of hypertropia, where one eye is positioned lower than the other.

The exact cause of strabismus can vary among individuals and may result from a combination of genetic, environmental, and neurological factors. Strabismus tends to run in families, suggesting a genetic predisposition to the condition. Amblyopia, commonly known as "lazy eye," is a condition that often accompanies strabismus. It occurs when the brain suppresses the input from one eye to avoid double vision, leading to decreased visual acuity in that eye. Problems with the muscles that control eye movements can result in strabismus. Weakened or overactive eye muscles can disrupt the proper alignment of the eyes. Uncorrected refractive errors such as near-sightedness (myopia), farsightedness (hyperopia), and astigmatism can contribute to the development of strabismus. Some neurological conditions, such as cerebral palsy, can affect the control of eye muscles, leading to strabismus. Premature infants are at an increased risk of developing strabismus due to the immature development of their eye muscles. Physical injuries or trauma to the head or eye region can sometimes result in strabismus. Certain medical conditions, like thyroid disorders and diabetes, have been associated with an increased risk of strabismus.

Identifying the symptoms of strabismus is crucial for early diagnosis and effective treatment. The primary symptom of strabismus is the noticeable misalignment of one or both eyes. This can manifest as crossed eyes, outward-turning eyes, or a vertical misalignment. Individuals with strabismus may experience double vision when both eyes are open, as each eye

may focus on a different point. Strabismus can lead to issues with depth perception, which can affect activities like judging distances and catching or throwing objects accurately. People with strabismus often experience eye strain and discomfort, as the brain continuously works to suppress one eye's image.

To compensate for the misalignment of the eyes, individuals with strabismus may tilt or turn their head in a specific direction. Frequent squinting is a common coping mechanism that individuals with strabismus use to reduce the impact of double vision. It is important to note that strabismus can affect individuals of all ages, including infants and young children. In young children, the condition can sometimes be challenging to detect because they may not be able to articulate their visual issues effectively. Therefore, regular eye examinations, starting in infancy, are essential to detect strabismus and other eye conditions. Diagnosing strabismus typically involves a comprehensive eye examination conducted by an ophthalmologist or optometrist. Visual acuity test assesses how well each eye can see, both individually and together. It helps identify any refractive errors or amblyopia that may accompany strabismus. Cover-uncover test, the doctor covers one eye and observes the movement of the uncovered eye. The test is then repeated for the other eye to detect any misalignment. Prisms and alternate cover test, this test uses prisms to measure the degree of eye misalignment and can help determine the direction and severity of strabismus. Examination of eye movements the doctor evaluates the range of motion of each eye to assess muscle function. The pupil's reaction to light is observed to check for any neurological issues that may be contributing to strabismus. Refraction tests help determine the presence of any underlying refractive errors.

Early diagnosis and intervention are crucial, especially in children, as the brain's ability to adapt and recover decreases with age. Detecting and addressing strabismus in its early stages can significantly improve treatment outcomes and reduce the risk of amblyopia. The treatment of strabismus aims to restore proper eye alignment, improve visual function, and prevent or manage amblyopia. The choice of treatment depends on various factors, including the patient's age, the type and severity of strabismus, and any underlying conditions. Correcting refractive errors with prescription eyeglasses or contact lenses can help improve visual acuity and may reduce the severity of strabismus. Vision therapy involves a series of exercises and activities designed to strengthen the eye muscles and improve eye coordination. It is often used in conjunction with other treatments, especially in children. Prism lenses can be prescribed to reduce double vision by shifting the image from the deviating eye to align it with the dominant eye. Patching the

stronger eye is a common treatment for amblyopia. This encourages the weaker eye to work and develop better vision. Eye muscle surgery is often recommended to correct the misalignment of the eyes. During the procedure, the surgeon adjusts the length or position of the eye muscles to achieve proper alignment. Surgery is typically performed under general anesthesia and is considered a safe and effective treatment option. Botulinum toxin (Botox) injections can be used to temporarily weaken specific eye muscles, allowing for improved alignment. This is a less invasive alternative to traditional eye muscle surgery. Vision-Enhancing Technologies have led to the development of specialized vision-enhancing devices and software that can help individuals with strabismus improve their visual function. The choice of treatment depends on the individual's unique circumstances and should be determined in consultation with an eye care professional. Successful treatment often involves a multidisciplinary approach, including collaboration between ophthalmologists, optometrists, and vision therapists.

Strabismus can be a lifelong condition, and living with it may present certain challenges. However, many individuals with strabismus lead fulfilling lives and adapt to their condition with appropriate treatment and support. Routine eye examinations are essential to monitor the progress of strabismus and adjust

treatment as needed. Engaging in prescribed vision therapy exercises and activities can help improve eye coordination and reduce the impact of strabismus. Joining support groups or seeking the advice of others with strabismus can provide valuable insights and emotional support. Educating family, friends, and co-workers about strabismus can foster understanding and reduce potential stigmatization. Developing coping strategies, such as adjusting head posture or using eye patches, can help manage the symptoms of strabismus. Some individuals may consider cosmetic options, such as specially designed glasses or contact lenses, to minimize the appearance of strabismus. Maintaining emotional well-being and self-confidence is crucial. Psychosocial support, including counselling, can be beneficial in managing the emotional aspects of living with strabismus.

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