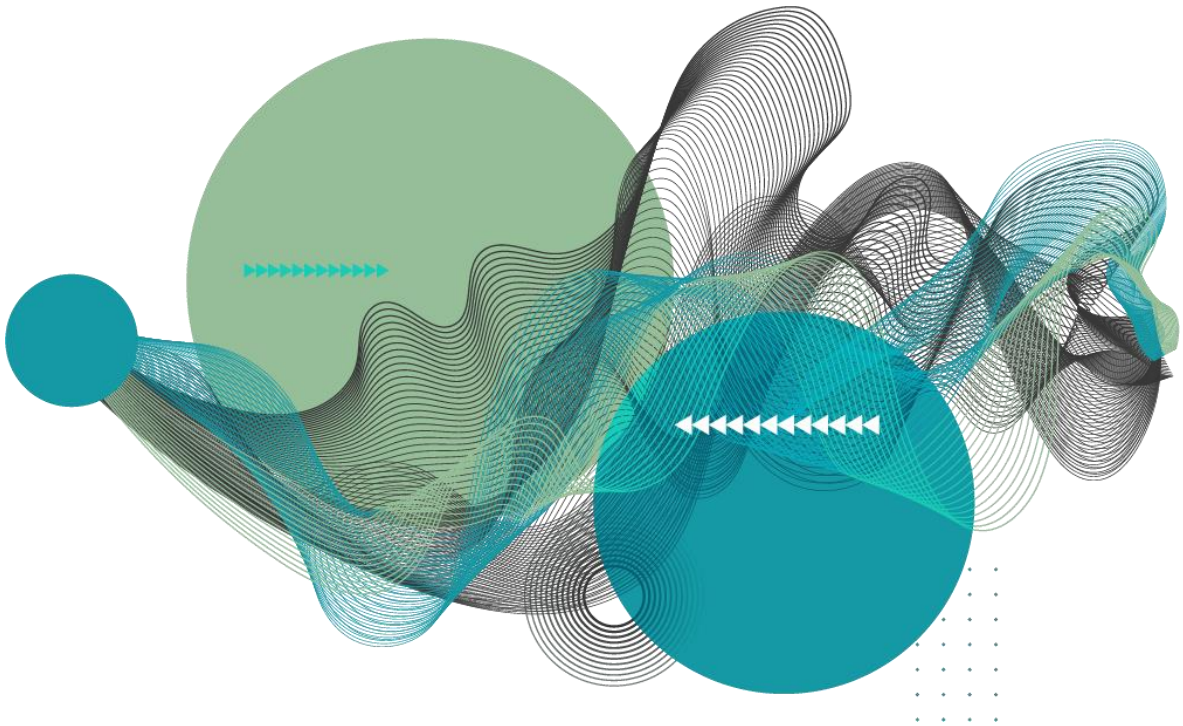
BIOS | BRITISH AND IRISH ORTHOPTIC SOCIETY

# Dictionary of Common Terms in Orthoptic Practice

Revised Edition 2024



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# A

**Abducens Nerve Palsy:**
*See Sixth Nerve Palsy*

**A Pattern:**
Relative convergence of the eyes on elevation and relative divergence of the eyes on depression.

**A, V, Y, X, λ, inverted Y Patterns:**
Syndromes where the denoted symbol describes the relative change in the horizontal deviation of the eyes from upgaze to downgaze.

**Abduction (ABduction):**
Term applied to uniocular eye movement when the eye is rotated outwards from the midline (temporally).

**Aberrant Regeneration:**
A change in the actions of muscles supplied by the third nerve following complete or severe third nerve palsy.

**Abnormal Binocular Interaction:**
A factor causing amblyopia in which incompatible images reach the fovea of each eye.

**Abnormal Binocular Single Vision:**
A form of binocular vision which occurs in the absence of bifoveal fixation, usually with abnormal retinal correspondence in everyday sight.

**Abnormal Head Posture:**
A position of the head adopted in the interest of comfortable vision, which may consist of:

a) Chin elevation or depression
b) face turn to the right or left
c) head tilt to the right or left shoulder

These components may exist together or singly.

**Abnormal Retinal Correspondence:**
A binocular condition in which there is a change in visual projection such that the fovea of the fixing eye has a common visual direction with an area other than the fovea of the deviating eye. The pairing of all retinal elements is similarly changed. It may occur whichever eye is used for fixation.

**Abnormal Eye Movements:**
Occur when ocular rotation is not within normal limits and include limitation, restriction, underaction and overaction.

**Absolute Eccentric Fixation:**
Eccentric fixation in which the angle of eccentricity equals the objective angle of deviation.

**Absolute Hypermetropia:**
Amount of hypermetropia which cannot be overcome by accommodation. It is assessed by the weakest convex lens which gives the best level of visual acuity.

**Absolute Scotoma:**
Complete loss of vision in part of the visual field.

**Accommodation:**
The ability of the eye to increase its dioptric power (the convexity of the crystalline lens) in order to obtain a clear image of a near object.

**Accommodation Disorder:**
An anomaly in the accommodation process.

**Accommodative Asthenopia:**
*See Asthenopia*

**Accommodative Component:**
*See Accommodative Element*

**Accommodative Convergence:**
One of the components of convergence of the eyes initiated by effort to overcome a blurred retinal image. *See also Fusional; Tonic; Proximal Convergence*

**Accommodative Convergence/Accommodation Ratio (AC/A Ratio):**
Ratio of accommodative convergence in prism dioptres in relation to one dioptre (sphere) of accommodation.

**Accommodative Element:**
A situation where the angle of deviation is affected by accommodative effort.

**Accommodative Esotropia:**
The convergent deviation is affected by the state of accommodation and this is a significant factor in the aetiology of the strabismus. *See also Fully Accommodative; Convergence Excess and Esotropia with an Accommodative Element*

**Accommodative Facility:**
A dynamic measure of how fast clarity is restored following a rapid change of focus.

**Accommodative Fatigue:**
The inability to sustain sufficient accommodation over an extended period of time.

**Accommodative Inertia:**
Difficulty in changing the accommodative state from one fixation distance to another.

**Accommodative Insufficiency:**
The amplitude of accommodation is lower than would be expected for the individual's refractive state and age.

**Accommodative Spasm:**
Spasm of the ciliary muscle resulting in the near and far points of accommodation becoming closer to the eye than expected for the patient's age. Associated with pseudomyopia and convergence spasm.

**Accommodative Strain:**
*See Accommodative Weakness*

**Accommodative Weakness:**
Deficiency in the ability to obtain (Accommodative Insufficiency) or maintain (Accommodative Fatigue) the amount of accommodation which would be expected from the patient's refractive state and age.

**Acoustically Elicited Eye Movement:**
Reflex movement of the eyes initiated by an acoustic stimulus.

**Acquired Nystagmus:**
Nystagmus caused by an event occurring after infancy.

**Adduction (AD duction):**
Term used in uniocular eye movement, to describe rotation in towards the midline (nasally).

**Adie's Pupil:**
Myotonic pupil with absent or diminished tendon reflexes.

**Adjustable Suture:**
Surgical procedure where the sutures can be readjusted within 24 hours.

**Adnexa:**
*See Ocular Adnexa*

**Adrenalin (epinephrine):**
A drug which dilates the pupil (sympathomimetic).

**Advancement:**
A surgical technique where the muscle insertion is moved forward from its original insertion thereby strengthening its action. *See also Readvancement*

**Afferent Pupil Defect:**
The affected pupil does not constrict to direct light stimulation but does react on consensual testing due to a lesion in the optic nerve.

**Against the Rule Astigmatism (indirect or inverse astigmatism):**
Refractive error in which the vertical meridian is relatively hypermetropic and horizontal meridian is relatively myopic (or ocular astigmatism in which the refractive power of the horizontal meridian is the greatest).

**Agonist:**
Primary muscle.

**Alexander's Law:**
Relating to nystagmus where gaze in the direction of the fast component increases the frequency and amplitude while gaze in the opposite direction has the reverse effect.

**Alphabet Pattern**
*See A, V Syndromes*

**Alternate Cover Test:**
A part of the cover-uncover test where each eye is alternately covered to reveal the maximal angle of deviation by disrupting binocular vision.

**Alternate Day Strabismus:**
*See Cyclic Esotropia and Cyclic Exotropia*

**Alternating Esotropia:**
Esotropia in which either eye may be used for fixation.

**Alternating Exotropia:**
Exotropia in which either eye may be used for fixation.

**Alternating Hyperphoria:**
On dissociation the occluded eye deviates upwards.

**Alternating Hypertropia:**
When one eye is fixing, the other eye is deviated upwards.

**Alternating Hypophoria:**
On dissociation the occluded eye deviates downwards.

**Alternating Hypotropia:**
When one eye is fixing the other eye is deviated downwards.

**Alternating Strabismus:**
Either eye may be used for fixation.

**Altitudinal Field Defect:**
These field defects involve two quadrants of either the superior or inferior visual field and are seen in ischaemic optic neuropathies. They precisely respect the horizontal meridian. The sharp horizontal separation occurs because there is a clear demarcation between superior and inferior fibres temporal to the macula.

**Altitudinal Scotoma:**
The area above or below the horizontal midline of the visual field is reduced or absent.

**Amaurotic Pupil:**
Defective pupil reflexes due to damage to the optic nerve and blindness.

**Amblyopia:**
A condition of diminished visual form sense which is not the result of any clinically demonstrable anomaly of the visual pathway, and which is not relieved by the elimination of any defect which constitutes a dioptric obstacle to the formation of the foveal image.

**Amblyopia Ex Anopsia:**
*See Stimulus Deprivation Amblyopia*

**Amblyopic (Amblyogenic) Factors:**
Factors which are thought to cause amblyopia.

1. Form deprivation at the fovea
2. Abnormal binocular interaction
3. Light deprivation of the entire retina

**Ametropia:**
Refractive error in which parallel rays of light are not brought to focus on the retina when the eye is not accommodating.

**Ametropic Amblyopia:**
Amblyopia which is the result of uncorrected bilateral refractive error.

**Amplitude of Accommodation:**
The difference in dioptres between the near and far points of accommodation (between the minimum and maximum amount of accommodation).

**Amplitude of Nystagmus:**
The size of the excursion from central to eccentric position of the slow phase of the oscillation.

**Amsler Grid:**
Chart used for assessing central visual fields.

**Angle Alpha:**
The angle between the optic axis and the visual axis. Positive angle, (corneal reflection displaced nasally), causes pseudo divergent strabismus; negative angle, (corneal reflection displaced temporally), causes pseudo-convergent strabismus.

**Angle Gamma:**
The angle between the optic axis and the fixation axis.

**Angle Kappa:**
The angle between the mid-pupillary line and the visual axis.

**Angle of Anomaly:**
The difference between the objective and subjective angles of deviation.

**Aniridia:**
Absence of iris.

**Anisocoria:**
Unequal sized pupils.

**Aniseikonia:**
A difference in size and/or shape of the retinal images of the two eyes.

**Anisometropia:**
A difference in refractive error between the two eyes.

**Anisometropic Amblyopia:**
Amblyopia which is the result of a significant difference in the refractive errors of the two eyes.

**Anomalous Angle:**
*See Angle of Anomaly*

**Anomalous Retinal Correspondence:**
*See Abnormal Retinal Correspondence*

**Antagonist:**
Extra Ocular muscle whose action opposes that of the contracting muscle.

**Anterior Positioning:**
A surgical procedure where the insertion of the oblique muscle is moved more anteriorly.

**Anticholinesterase:**
A drug that inhibits or inactivates the action of acetylcholinesterase.

**Antimetropia:**
*See Mixed Anisometropia*

**Aphakia:**
Absence of the crystalline lens from the pupillary line.

**Arcuate Scotoma:**
Defect of the retinal fibres causing loss of vision in an arc shape from the optic disc to the nasal side of the fovea either above or below the mid line found in glaucoma.

**Argyll Robertson Pupil:**
Dissociation of light/near reflex in which the pupil responds normally to near but reacts slowly if at all to light.

**Asthenopia:**
The collective term for various ocular symptoms, including sore and aching eyes; blurred vision and ocular fatigue.

**Astigmatism:**
Refractive error in which a point of focus cannot be formed on the retina owing to unequal refraction in different meridians.

**Ataxia:**
Impaired ability to co-ordinate movement.

**Atropine:**
A parasympatholytic drug obtained from belladonna (deadly nightshade) and used in the form of drops or ointment to dilate the pupil (mydriasis) and paralyse the ciliary muscle (cycloplegia).

**Audit:**
The undertaking of a review of clinical practice/procedures or records in order to provide, promote and best clinical practice.

**Augmented Recession:**
Surgical procedure to further weaken a muscle action, ie. recession of tight conjunctiva or very large recession of muscle.

**Axial Refractive Error:**
Refractive error caused by abnormal length between the anterior and posterior poles of the eye, e.g. axial myopia.

# B

**Bell's Phenomenon:**
Elevation of both eyes with divergence when the eyelids are closed.

**Benedikt's syndrome:**
Lesion in the region of the red nucleus resulting to an ipsilateral third nerve palsy and contralateral hemitremor.

**Bielschowsky Head Tilt Test:**
The observation of change in vertical deviation when the head is tilted to the shoulder of the suspected superior oblique weakness.

**Bifocal Glasses:**
Spectacles in which each lens is divided into two segments. Usually the upper segment is constructed for distance use and the lower segment for reading.

**Bifoveal Binocular Single Vision:**
Binocular Single Vision with bifoveal fixation.

**Bifoveal Fixation:**
Imaging of an object on both foveae at the same time.

**Binocular Convergence:**
Convergence associated with binocular single vision.

**Binocular Diplopia:**
This results from the presence of a manifest ocular deviation and is the simultaneous appreciation of two separate images caused by the stimulation of non-corresponding points by one object. The separation may be horizontal, vertical or torsional, or any combination.

**Binocular Fixation:**
Fixation of an object with both eyes, with or without binocular single vision.

**Binocular Function:**
The ability of the two eyes to co-ordinate binocularly either in free space, using prisms or instrumentally using a haploscope. It may be normal or abnormal.

**Binocular Rivalry:**
*See Retinal Rivalry*

**Binocular Single Vision:**
The ability to use both eyes simultaneously so that each eye contributes to a common single perception; may be bifoveal or monofoveal.

**Binocular Vision:**
The ability to use both eyes simultaneously. This may be with normal or abnormal binocular single vision or with the appreciation of diplopia.

**Binocular Visual Acuity:**
The maximum visual acuity obtainable with both eyes open.

**Biometry:**
The calculation of the strength of intra-ocular lens required to produce a required refraction following cataract surgery.

**Blepharophimosis:**
Pronounced inverse epicanthic folds, thickening and ptosis of lids, wide separation of the medial canthi and slit-like palpebral apertures.

**Blepharoptosis:**
*See Ptosis*

**Blindness:**
So blind as to be unable to perform any work for which eyesight is essential.

**Blind Spot Mechanism (Swann's Syndrome):**
A compensatory mechanism whereby rays of light from the fixation area fall on the optic disc of the deviating eye and thus diplopia is avoided.

**Blow Out Fracture:**
A fracture of one or more walls of the orbit caused by a blunt injury to the eye. May be pure, affecting only the walls or impure affecting the orbital rim.

**Botulinum Toxin (B.T.X.A.):**
A neurotoxin produced by the anaerobic bacterium clostridium botulinum; used to paralyse extraocular muscles in the treatment of ocular motility disorders.

**Brown's Syndrome:**
An ocular motility defect where the affected eye(s) does not elevate in adduction but has full depression in adduction. It can be congenital or acquired from injury to or defect of the superior oblique tendon or trochlea and has a positive forced duction test result. *See `Click' Brown's Syndrome*

**Buphthalmos:**
*See Infantile Glaucoma*

# C

**Caloric Nystagmus:**
Normal oscillatory eye movements which occur following the instillation of warm or cold water into the outer ear.

**Campimetry:**
Measurement of the visual field using a flat surface or screen.

**Case Mix:**
The mix of people, patients, treatments or services and is used to understand the needs, provision and resource uses associated with healthcare.

**Cataract:**
Opacification of the crystalline lens due to ageing or acquired from trauma, metabolic disorders, etc.

**Cavernous Sinus Syndrome:**
A lesion (e.g. tumour) in the cavernous sinus causing paresis of the ocular motor nerves and the first two divisions of the trigeminal nerve.

**Cecocentral Scotoma:**
*See Centrocaecal Scotoma*

**Central Fixation:**
The reception of the image of the fixation object by the fovea, the fixation object lying in the principal visual direction.  Central fixation may be steady or unsteady.

**Central Scotoma:**
Only involves fixation. The scotoma is negative and depending on the severity of the lesion, it can be relative or absolute.

**Centrocaecal Scotoma:**
A defect of the visual field caused by a lesion of the fibres entering the optic nerve from the macula causing a defect in the zone between the macula and the optic disc.

**Cerebral Palsy:**
A condition in which the control of the motor system is affected due to a lesion in the brain resulting from a birth injury or prenatal defect.

**Chiasmal Lesion:**
Damage to the optic nerve at the decussation above the dorsum sellae causing visual field defects, i.e. bitemporal hemianopias.

**Chronic Progressive External Ophthalmoplegia (C.P.E.O.):**
Progressive bilateral limitation of ocular motility accompanied by ptosis but usually without diplopia or pupil involvement.

**Ciancia's Syndrome:**
*See Nystagmus Blockage Syndrome*

**`Click' Brown's Syndrome:**
A variation of Brown's Syndrome in which the superior oblique tendon intermittently passes through the trochlea leading to full elevation in adduction, a 'click' is felt by the patient when this happens. When the superior oblique tendon does not pass through the trochlea the classic features of Brown's Syndrome result.

**Clinical Governance:**
A framework through which NHS organisations are accountable for continuously improving the quality of their services and safe-guarding the high standards of care by creating an environment in which excellence in clinical care will flourish.

**Cog Wheel Movements:**
Episodic jerk rotations with pursuit movements.

**Cogan's Lid Twitch:**
Transient eyelid retraction during refixation from down to straight ahead seen in Myasthenia Gravis.

**Cogan's Ocular Motor Apraxia:**
*See Congenital Saccadic Paresis*

**Cogan's Sign:**
A tonic deviation of the eye occurring on forced eyelid closure and associated with lesions in the cerebral hemispheres.

**Cognitive accommodation**
Change in accommodation induced by mental effort.

**Collier's (Tucked Lid) Sign:**
Unilateral or bilateral lid retraction due to a lesion in the midbrain, e.g. Parinaud's Syndrome.

**Coloboma:**
A fissure or gap in the eyeball or one of its parts, e.g. iris.

**Colour fields**:
Often used for testing macular sensitivity, with red or green targets. The normal red field is between 5 and 7 degrees and the green field between 3 and 5 degrees from the central point of fixation. Conditions in which these fields may be performed include, patients taking hydroxychlorequine for arthritic conditions, compressive thyroid eye disease and optic neuritis.

**Comitant:**
*See Concomitant*

**Compensatory Head Posture:**
A position of the head adopted in the interest of comfortable vision, which may consist of:

a) chin elevation or depression
b) face turn to the right or left
c) head tilt to the right or left shoulder.

These components may exist together or singly.

**Complete Dissociation:**
Elimination of all fusional stimuli using, e.g. an occluder.

**Complete Penalisation:**
*See Total Penalisation*

**Complete Third Nerve Palsy**:
*See* Third Nerve Palsy

**Concomitant Strabismus:**
Strabismus in which the angle of deviation remains the same in all directions of gaze, which ever eye is fixing.

**Confusion:**
The simultaneous appreciation of two superimposed images due to the stimulation of corresponding retinal points by two different images.

**Confusion Bars:**
*See Interaction Bars*

**Congenital:**
Occurring from birth.

**Congenital Esotropia Syndrome:**
*See Early Onset Esotropia*

**Congenital Ocular Motor Apraxia:**
*See Congenital Saccadic Paresis*

**Congenital Nystagmus:**
*See Early Onset Nystagmus*

**Congenital Saccadic Paresis:**
An inability to execute voluntary saccades resulting in the subject thrusting the head to gain fixation and using the vestibulo-ocular reflex to maintain fixation as the head is moved slowly to the midline.

**Conjugate Gaze Palsy:**
*See Gaze Palsy and One And a Half Syndrome*

**Conjugate Gaze Spasm:**
The eyes are directed towards one side dependent on the site and nature of lesion.

**Conjugate Movements:**
Movements of the two eyes in the same direction.

**Conjunctival Recession:**
A surgical procedure to loosen the conjunctiva in order to enhance a weakening of the extraocular muscle.

**Consecutive Esotropia:**
Esotropia in a patient who has previously had exotropia or exophoria.

**Consecutive Exotropia:**
Exotropia in a patient who has previously had esotropia or esophoria.

**Constant Esotropia**:
The esotropia is present under all conditions. *See also Esotropia with Accommodative Element and Without Accommodative Element*

**Constant Exotropia**:
The exotropia is present under all conditions.

**Constant Velocity Exponential:**
A term used to describe the slow phase in jerk nystagmus and which characterises vestibular nystagmus.

**Continuing Professional Development:**
The on-going process by which practitioners maintain, extend and enhance their knowledge and skills to the benefit of both the practitioner and patient.

**Contour Interaction:**
The effect on visual acuity of flanking optotypes, symbols or bars *see Interaction Bars*.

**Contracture:**
The inability of a contracted muscle to relax fully.

**Contralateral:**
Referring to the opposite side.

**Contrast Sensitivity:**
The ability of the eye to detect objects of varying contrast which can be tested using sinusoidal gratings of varying spatial frequency and varying luminance intensity.

**Controlled Binocular Acuity (CBA):**
The maximum visual acuity obtainable while maintaining binocular vision.

**Convergence:**
Simultaneous rotation of the eyes inwards. *See also Accommodative; Fusional; Proximal; Tonic; Voluntary*

**Convergence accommodation**
Change in accommodation induced by convergence. Best demonstrated in open loop conditions, as in the closed loop situation relative negative accommodation will be used to maintain a clear image.

**Convergence Accommodation/Convergence Ratio (CA/C Ratio):**
Ratio of convergence initiated accommodation per prism dioptre of convergence.

**Convergence Deficiency (C.D.):**
*See Convergence Insufficiency*

**Convergence Excess Esotropia:**
An intermittent esotropia with binocular single vision present at distance fixation but esotropia on accommodation for near fixation.

**Convergence Excess Type Esophoria:**
Esophoria greater on near fixation than distance fixation.

**Convergence Insufficiency (C.I.):**
The inability to obtain and/or maintain adequate binocular convergence without undue effort.

**Convergence Paralysis:**
A condition in which there is absence of convergence.

**Convergence Retraction Nystagmus:**
Nystagmus characterised when testing sustained upgaze or the optokinetic drum rotated downwards. Slow downward movements occur but upward movements are replaced by rapid convergent movements that may also retract the globe.

**Convergence Spasm:**
A condition in which there is excessive convergence. *See also Accommodation Spasm*

**Convergent Strabismus:**
*See Esotropia*

**Convergence Weakness Exotropia:**
*See Near Exotropia*

**Convergence Weakness Type Exophoria:**
Exophoria greater on near fixation than distance fixation.

**Corectopia:**
Displacement of the pupil.

**Corneal Astigmatism:**
Refractive error caused by the asymmetrical curvature of the cornea. It may be congenital or acquired from corneal disease.

**Corresponding Retinal Points:**
*See Retinal Correspondence*

**Cortical Blindness:**
A term applied to a severe defect of vision of both eyes as a result of a lesion of the visual cortex. Optic nerve and pupil reflexes may be normal.

**Cover Test:**
An objective dissociation test, in which each eye is covered in turn by an opaque occluder whilst the patient fixes a specified target in the required position, which detects manifest and/or latent deviations. *See also Alternate Cover Test*

**Cover Un-Cover Test**:
*See Cover Test*

**Cranial Nerve Palsy:**
*See Third, Fourth & Sixth Nerve Palsy*

**Craniofacial Disorders (dysostosis):**
A premature fusion of one or more of the sutures of the skull at a time when the brain is expanding which is caused by a failure in the development of the primitive mesoderm.

**Crossed Fixation:**
Patient uses right eye to fix in left field and left eye to fix in right field; seen in early onset esotropia, strabismus fixus and sixth nerve palsy. *See also Tripartite Fixation*

**Crowding Phenomenon (Separation difficulty):**
The phenomenon in which a line of letters or symbols of the same size on a test type are identified less easily than single optotypes.

**Cüppers Nystagmus Blockage Syndrome:**
*See Nystagmus Blockage Syndrome*

**Cuppers Procedure:**
*See Faden*

**Cyclic Esotropia:**
Normal binocular single vision alternates with large angle esotropia in rhythmic cycle.

**Cyclic Exotropia:**
Normal binocular single vision alternates with large angle exotropia in rhythmic cycle.

**Cyclodeviations:**
*See Cyclotropia*

**Cycloparesis:**
Weakness of the ciliary muscle.

**Cyclopentolate Hydrochloride (mydrilate):**
A short acting mydriatic producing cycloplegia in 30 minutes (parasympatholytic).

**Cyclophoria:**
On dissociation the occluded eye wheel-rotates. *See also Incyclophoria; Excyclophoria*

**Cycloplegia:**
Paralysis of the ciliary muscle resulting in loss of accommodation.

**Cycloplegic:**
A drug, e.g. atropine, which causes paralysis of the ciliary muscle and, therefore, loss of accommodation.

**Cycloplegic Occlusion:**
The reduction or blurring of vision of one eye by using a cycloplegic drug.

**Cycloplegic Refraction:**
Objective refraction often retinoscopy whilst the accommodation of the eyes is paralysed .

**Cyclotorsion:**
Rotation of the eye around its visual axis - *see also Incyclotorsion*; *Excyclotorsion*

**Cyclotropia:**
One eye is wheel rotated so that the upper end of its vertical axis is nasal (incyclotropia) or temporal (excyclotropia) assessed objectively using fundus photographs.

**Cyclovergence:**
Range of incyclo and excyclo motor fusion.

# D

**Decreasing Velocity Exponential:**
A term used to describe the slow phase in jerk nystagmus which has a decreasing velocity and which characterises latent nystagmus, manifest latent nystagmus and gaze evoked nystagmus.

**Delayed Visual Maturation:**
A condition where the appearance of the eye is normal, and the child does not respond to visual stimulus at a young age, but visual development occurs later than normal. This is the primary type of DVM, however, some classification systems include cases with an identifiable deficit in the eye or brain which result in slower visual development but may not reach normal levels.

**Depression:**
Rotation of the eye downwards.

**Depressor:**
A muscle whose action is to turn the eyeball downwards.

**Deprivation Amblyopia:**
*See Stimulus Deprivation Amblyopia*

**Desagittalization:**
*See Anterior Positioning*

**Diabetic Ophthalmoplegia/ Ophthalmopathy:**
A nerve palsy caused by involvement of a nutrient artery.

**Diagnostic Occlusion:**
Diagnostic occlusion to disrupt fusion in order to reveal the maximum deviation

**Dilate:**
To enlarge the pupillary aperture.

**Dioptre:**
A unit of measurement of the power of a lens equal to the inverse of the focal length in metres. A one dioptre lens brings parallel light in focus at one metre.

**Diplopia:**
The simultaneous appreciation of two images of one object. *See also Pathological; Physiological; Homonymous; Heteronymous; Incongruous; Paradoxical*

**Direction of Nystagmus:**
Defined by the direction of the fast phase or beat, although the pathological movement is the slow drift off fixation and the fast phase constitute the corrective movements.

**Disjugate (disjunctive):**
Movements of the two eyes in which the visual axes do not remain parallel but move in opposite relative directions. *See also Convergence; Divergence*

**Dislocated Lens:**
The lens becomes dislocated into the vitreous or, rarely, into the anterior chamber because of an associated degeneration of the suspensory ligament of the lens.

**Disorders of Accommodation:**
*See Accommodative Fatigue; Inertia; Spasm*

**Dissociated Nystagmus:**
The movements of the two eyes are different.

**Dissociated Vertical Deviation (Divergence) D.V.D.:**
When the level of illumination received by either eye is reduced sufficiently that eye deviates progressively upwards, but reverts to its original position when the level of illumination returns to normally acceptable levels. It may sometimes be so asymmetrical as to be virtually unilateral and is associated with heterotropia usually of early onset or, rarely, with binocular single vision.

**Dissociation:**
*See Complete or Partial Dissociation*

**Distance Esotropia:**
An intermittent esotropia where binocular single vision is present on near fixation and an esotropia on distance fixation.

**Distance Exotropia:**
An intermittent exotropia where there is binocular single vision on near fixation and exotropia (intermittent or constant) on distance fixation. *See also True or Simulated Distance Exotropia.*

**Distance Penalisation:**
The use of the amblyopic eye for distance by using additional plus lenses in front of the fixing eye.

**Divergence:**
Simultaneous rotation of the eyes outwards.

**Divergence Excess Exotropia:**
*See Distance Exotropia*

**Divergence Excess Type Exophoria:**
Exophoria greater on distance fixation than near fixation.

**Divergence Paralysis:**
Inability to relax visual axes at distance, resulting in esotropia.

**Divergence Weakness Type Esophoria:**
Esophoria greater on distance fixation than near fixation.

**Doll's Head Manoeuvre:**
A rapid, passive head rotation to elicit an initial proprioceptive contraversion deviation of the eyes followed by a prompt recentring.

**Donder's Law:**
To each position of the line of sight belongs a definite orientation of the horizontal and vertical retinal meridians relative to the co-ordinates of space irrespective of the route taken.

**Dorsal Midbrain Syndrome:**
*See Parinaud's Syndrome*

**Double Depressor Palsy:**
Limitation of downgaze without reference to a particular vertical muscle palsy.

**Double Elevator Palsy:**
A limitation of up gaze without reference to a specific muscle defect.

**Double Hyperphoria:**
*See Alternating Hyperphoria*

**Downbeat Nystagmus:**
Eyes drift up and beat down again, associated with a lesion in the posterior fossa near the cranio-cervical junction.

**Down's Syndrome:**
A congenital abnormality with learning difficulties and characteristic facial features. May have myopia, strabismus and visual acuity problems.

**Duane's Retraction Syndrome:**
A congenital condition of limitation of horizontal ocular movement with retraction of the globe and narrowing of the palpebral fissure on adduction.

**Duction:**
Rotary movement of one eye from the primary position, i.e. Adduction; Abduction; Supraduction; Infraduction; Incycloduction; Excycloduction.

**Dysmetria:**
*See Ocular Dysmetria*

**Dysmetric Saccades:**
*See Ocular Dysmetria*

**Dysthyroid Eye Disease:**
*See Thyroid Eye Disease*

**Dysthyroid Orbitopathy:**
*See Thyroid Eye Disease*

# E

**Early Onset Esotropia:**

Constant esotropia occurring before 6 months of age. With or without latent nystagmus, manifest latent nystagmus, dissociated vertical divergence, cyclotropia, abnormal head posture, limited Abduction.

**Early Onset Nystagmus:**
Oscillations in both eyes seen from early infancy of any waveform with increasing exponential slow phase.

**Eccentric Fixation:**
A uniocular condition in which there is fixation of an object by a point other than the fovea. This point adopts the principal visual direction. The degree of the eccentric fixation is defined by its distance from the fovea in degrees.

**Eccentric Viewing:**
A uniocular condition in which there is fixation of an object by a retinal point other than the fovea without change in the principal visual direction.

**Ecchymosis:**
A bruise: an effusion of blood under the skin.

**Ectopia Lentis:**
Partial dislocation of the lens causing myopia and astigmatism.

**Ectropion:**
A condition in which the lower lid margin falls away from the globe.

**Electronic Health Record (EHR):**
A longitudinal record of a patient's health and healthcare from birth to death.

**Electronic Patient Record (EPR):**
Used as a replacement for separate files owned by different organisations and departments such as hospitals, GP's, community services and laboratories.

**Elevation:**
Rotation of the eye upwards.

**Elevator:**
A muscle whose action is to turn the eyeball upwards.

**Emmetropia:**
A refractive state of the eye when parallel rays of light are brought to focus on the retina when the eye is at rest (not accommodating).

**End Point Nystagmus:**
Oscillatory eye movements which occur on extreme lateral gaze, with fast phase towards side of gaze.

**Enophthalmos:**
Posterior displacement of the eye.

**Entropion:**
A condition in which the lower lid margin turns in onto the globe.

**Epicanthic Folds:**
*See Epicanthus*

**Epicanthus:**
Skin folds between the medial canthi and the nose causing pseudostrabismus.

**Epinephrine:**
A drug which dilates the pupil (sympathomimetic).

**Epiphora:**
An excessive flow of tears.

**Epistaxis:**
Bleeding from the nose.

**Eserine (Physostigmine):**
A drug used to constrict the pupil (anticholinesterase).

**Esophoria:**
On dissociation of the two eyes the occluded eye deviates nasally.

**Esotropia:**
One or other eye deviates nasally when both eyes are open.

**Esotropia Controlled by Refraction:**
*See Accommodative Esotropia*

**Esotropia Relating to Fixation Distance:**
*See Near Esotropia; Distance Esotropia*

**Esotropia Relating to Time:**
*See Cyclic Esotropia*

**Essential Alternators:**
Alternating esotropia occurring early in life. *See also Early Onset Esotropia*

**Essential Esotropia:**
*See Early Onset Esotropia*

**Esterman Fields:**
A visual field analysis carried out on the Humphrey visual field analyser in order to establish the extent of peripheral fields to meet D.V.L.A. standard.

**Evidence Based Practice:**
The conscientious explicit and judicious use of current best evidence when making decisions about individual patients.

**Excyclophoria:**
On dissociation the upper end of the vertical meridian rotates temporally.

**Excyclotorsion:**
1) Rotation of the eye around the anteroposterior axis so that the upper end of the vertical meridian rotates temporally. 2) A type of diplopia where a horizontal line tips down temporally associated with an incyclodeviation.

**Excyclotropia (excyclodeviation):**
The eyes are misaligned around the anteroposterior axis so that the disc appears above the macula due to weakness of the incyclorotating muscles [superior oblique, superior rectus].

**Executive Bifocal Glasses:**
The lower segment is placed high in the lens to bisect the pupil on distance fixation.
*See also Bifocal Glasses*

**Exophoria:**
On dissociation of the two eyes the occluded eye deviates temporally.

**Exophthalmic Ophthalmoplegia:**
A term used to describe protrusion of the eyeball, associated with defective action of certain of the ocular muscles due to thyroid dysfunction.

**Exophthalmos:**
Protrusion of the eyeball with upper lid retraction.

**Exotropia:**
One or other eye deviates temporally when both eyes are open.

**External Ophthalmoplegia:**
Paralysis of all the extraocular muscles with the eye assuming the position of rest.

**Extra Ocular Muscles (extrinsic):**
The six extra ocular muscles that rotate the eyeball - superior rectus; inferior rectus; medial rectus; lateral rectus; superior oblique; inferior oblique.

**Extrinsic muscles:**
*See Extra Ocular Muscles*

**Eye Strain:**
*See Asthenopia*

# F

**Facultative Suppression:**
*See Suppression*

**Faden:**
A surgical procedure where the muscle is stitched to the globe behind the insertion, to further weaken its action in its field of gaze.

**False Localisation:**
The incorrect uniocular subjective localisation of the fixation object.

**False Negative Response:**
There is no response despite the presence of previously seen stimuli.

**False Positive Response:**
A positive response is given despite the absence of stimuli.

**False Torsion:**
The discrepancy between the vertical corneal meridian and the objective vertical.

**Far Sight:**
*See Hypermetropia*

**Far Point of Accommodation:**
The furthest point at which an object can be seen clearly.

**Fascicular Lesion:**
A lesion along the cranial nerve after the nucleus but before the nerve leaves the brainstem.

**Fast Phase of Nystagmus:**
*See Direction of Nystagmus*

**Fells Modification of Harado Ito Procedure:**
A strengthening of the superior oblique by moving the anterior portion of the tendon anteriorly on the globe.

**Field Defect:**
*See Visual Field Defect*

**Field of Binocular Single Vision (Field of Binocular Fixation):**
The extent to which binocular single vision is maintained by movement of the eyes whilst the head is kept still.

**Field of Uniocular Fixation:**
The extent to which each eye can maintain foveal fixation whilst the head is kept still.

**Fisher's One and A Half Syndrome:**
*See One and A Half Syndrome*

**Fixation:**
*See Central Fixation*

**Fixation Disparity**:
A phenomenon which occurs in binocular single vision in which the image is seen singly despite a slight under or over convergence of the visual axes, provided the disparate retinal points are within Panum's area. It generally increases if binocular single vision is under stress and can be demonstrated instrumentally when fusion occurs for identical features of two targets but any dissimilar features are displaced in the direction of the heterophoria.

**Fixation Movement:**
*See Saccade*

**Forced Duction Test:**
A test used to determine the tone of the muscle by attempting to move the eye with forceps in different directions. It is termed positive when there is significant resistance to movement.

**Forced Generation Test:**
A test to determine the function of a paralysed extra ocular muscle.

**Form Deprivation:**
A factor causing amblyopia due to an obstacle preventing a clear image at the fovea.

**Fourth Nerve Palsy [4th/IV N. Palsy]:**
Partial or complete loss of function of the superior oblique muscle.

**Foveal Fixation:**
*See Central Fixation*

**Foville's Syndrome:**
Horizontal gaze palsy, fifth, seventh and eight nerve palsies, ipsilateral Horner’s syndrome

**Frequency of Nystagmus:**
The number of oscillations occurring per second.

**Frenzel Lenses/Goggles:**
+20 dioptre lenses mounted on spectacles fitted with side-blinker and illuminated in order to study eye movements.

**Fresnel Lenses/Prisms:**
Plastic prisms or lenses which can be adhered temporarily to spectacles.

**Fully Accommodative Esotropia:**
Esotropia in which normal binocular single vision is present for all distances when the hypermetropia is corrected.

**Fully Accommodative Esotropia with Microtropia:**
*See Microtropia with Fully Accommodative Characteristics*

**Fulminating:**
Severe and rapid in its course.

**Functional:**
1) A deviation which has the ability, at least potentially, for binocular single vision.
2) Patient shows signs or symptoms of a disorder but careful examination fails to reveal any evidence of structural or physiological abnormalities. There may be spiralling fields or improvement in visual acuity with plano lenses.

**Functional Assessment:**
The assessment of the behaviour of a person with low vision.

**Functional Paralysis of Accommodation:**
Inability to accommodate due to disordered states of mind or suffering from neurosis.

**Fusion:**
*See Sensory Fusion; Motor Fusion*

**Fusion Range:**
The range of convergence and divergence whilst maintaining binocular single vision.

**Fusional Convergence:**
One of the components of convergence initiated by disparity.

**Fusional Vergence:**
The range of convergence and divergence of the eyes whilst maintaining clear binocular single vision. *See also Negative and Positive Relative Fusional Vergence*

# G

**Gaze Evoked Nystagmus:**
Nystagmus which is only present on eccentric gaze with fast phase in the direction of fixation, associated with neurological disease.

**Gaze Palsy:**
Partial or complete loss of conjugate gaze which may affect horizontal or vertical versions.

**Gaze Paretic Nystagmus:**
*See Gaze Evoked Nystagmus*

**General Fibrosis Syndrome:**
A congenital, often familial developmental abnormality of the extraocular muscles and levator palpebral superioris. The features are bilateral ptosis and external ophthalmoplegia caused by fibrotic muscles.

**Glissade:**
A small corrective movement slower than a saccade, used to fixate an object after a hypo or hypermetric saccade.

**Goldenhar's Syndrome:**
A syndrome characterised by preauricular skin tags, vertebral anomalies and hemifacial hypoplasia with microphthalmos and strabismus.

**Grades of Binocular Vision:**
These are the aspects of binocular function which indicate the degree of binocular vision present, i.e. simultaneous perception, superimposition, fusion and stereopsis.

**Gradenigo's Syndrome:**
Petrous apex otitis secondary to mastoiditis or suppurative otitis media causing a sudden onset sixth nerve palsy with facial pain.

**Grave's Disease:**
*See Thyroid Eye Disease*

**Guillain-Barré Syndrome:**
A viral syndrome followed by progressive motor weakness or paralysis and/or cranial nerve palsies.

# H

**Hangback Recession:**
*See Loop Recession.*

**Harada-Ito Procedure:**
A surgical procedure to the superior oblique to enhance the intorting action by moving the anterior portion of the tendon more anteriorly on the globe. *See also Fells Modification*

**Harmonious Abnormal Retinal Correspondence:**
The angle of anomaly is equal to the objective angle.

**Head Nodding:**
*See Spasmus Nutans*

**Head Thrusting:**
*See Congenital Saccadic Paresis.*

**Hemianopia**:
A hemianopia is a complete defect involving one half of the visual field. A heteronymous hemianopia involves opposite sides of the visual field. Lesions of the optic chiasm typically produce bitemporal heteronymous hemianopias. A homonymous hemianopia involves the same side of the visual field in each eye. Lesions of the retrochiasmal pathways typically produce homonymous hemianopias.

**Hering's Law:**
A law of ocular motor innervation whenever an impulse for the performance of an eye movement is sent out, corresponding muscles of each eye receive equal innervations to contract or relax.

**Herpes Zoster Ophthalmicus:**
An infection of the trigeminal nerve due to herpes zoster virus producing neuralgic pain followed by vesicular reaction in the skin. May be associated with ocular nerve palsies.

**Heteronymous (crossed) Diplopia:**
Binocular diplopia associated with exotropia in which the image of the fixation object is received on the temporal area of the retina of the deviating eye and is projected nasally.

**Heterophoria:**
Both visual axes are directed towards the fixation point but deviate on dissociation.

**Heterotropia:**
A condition in which one or other visual axis is not directed towards the fixation point.

**Hippus:**
A state of pupillary unrest with constant slight fluctuations without any change in illumination.

**Homonymous (uncrossed) Diplopia:**
Binocular diplopia associated with esotropia in which the image of the fixation object is received on the nasal area of the retina of the deviating eye and is projected temporally.

**Horizontal Gaze Palsy:**
Loss of horizontal saccades and/or pursuit in both eyes in lateral gaze.

**Horner's Syndrome:**
A lesion in the sympathetic pathway of the eye producing a miotic pupil, tonic accommodation, partial ptosis, loss of sweating on the same side of the face, hyperaemia of the conjunctiva.

**Horopter:**
The locus of all points in space that are imaged on corresponding retinal points.

**Hydrocephalus:**
Excess of cerebrospinal fluid causing pressure on the brain.

**Hyper Acuity:**
*See Vernier Acuity*

**Hypermetric Saccades:**
A fast eye movement which overshoots the target.

**Hypermetropia:**
Refractive error where the principal focus of the eye is calculated to be behind the eye. May be axial, curvature or index.

**Hyperopia:**
*See Hypermetropia*

**Hyperphoria:**
On dissociation the occluded eye deviates upwards. May be one or both eyes. *See also Alternating Hyper; Hypophoria*

**Hypertropia:**
One eye is deviated upwards when both eyes are open.

**Hypoaccommodative Esotropia:**
Convergence excess esotropia in which there is a remote near point of accommodation.

**Hypometric Saccades:**
A fast eye movement which undershoots the fixation target.

**Hypophoria:**
On dissociation the occluded eye rotates downwards. May be one or both eyes.

**Hypotropia:**
One eye is deviated downwards when both eyes are open.

# I

**Iatrogenic:**
A disorder resulting from treatment.

**Idiopathic:**
Without apparent cause.

**Impure Blow Out Fracture:**
Fracture of one or more walls and rim of the orbit.

**Incomitant Strabismus:**
Strabismus in which the angle of deviation differs depending upon the direction of gaze or according to which eye is fixing, associated with:

a) defective movement of the eye
b) asymmetrical accommodative effort

**Incongruous Diplopia:**
Pathological binocular diplopia in which the separation of the images when assessed subjectively does not correspond with the objective angle of deviation, occurring in cases of unharmonious abnormal retinal correspondence.

**Increasing Velocity Exponential:**
A term used to describe the slow phase in jerk nystagmus which has an increasing velocity that characterises early onset nystagmus.

**Incyclophoria:**
On dissociation the upper end of the vertical meridian rotates nasally.

**Incyclotorsion:**
i) Rotation of the eye around the antero posterior axis. ii) A type of diplopia where a horizontal line tips down nasally associated with an excyclodeviation.

**Incyclotropia(incyclodeviation):**
The eye is misaligned around the anteroposterior (Sagittal) axis so that the disc appears below the macula due to weakness of the excyclorotating muscles [inferior oblique; inferior rectus].

**Index Refractive Error:**
A refractive error caused by an increase or decrease in the refractive index of the structures of the eye, e.g. cornea and lens.

**Indirect Astigmatism:**
*See Against the Rule Astigmatism*

**Infantile:**
Occurring in the first years of life.

**Infantile Esotropia:**
*See Early Onset Esotropia*

**Infantile Glaucoma (Buphthalmos):**
A congenital abnormality in the mesoderm between the iris root and the trabeculum which impedes access of aqueous to the trabeculum. This increases the intraocular pressure and enlarges the cornea.

**Infective Paralysis of Accommodation:**
A defect of accommodation secondary to viral conditions.

**Inferior Division Third Nerve Palsy:**
Palsy of the inferior rectus, inferior oblique and medial rectus.

**Inferior Oblique Muscle:**
One of the extra-ocular muscles whose action results primarily in elevation of either eye but also in extorsion and abduction.

**Inferior Rectus Muscle:**
One of the extra-ocular muscles whose action results primarily in depression of either eye but also in extorsion and adduction.

**Infraduction:**
*See Depression*

**Inharmonious (ARC):**
*See Unharmonious Abnormal Retinal Correspondence*

**Interaction Bars:**
Black bars placed tangentially to letters or symbols in order to simulate the crowding effect and test linear acuity.

**Intermittent Esotropia:**
The esotropia is only present under certain conditions.

**Intermittent Exotropia:**
The exotropia is only present under certain conditions.

**Intermittent Strabismus/ Deviation:**
A manifest deviation which is only present under certain conditions.

**Internal Ophthalmoplegia:**
Internal ophthalmoplegia is characterised by paresis of ciliary body with loss of power of accommodation and pupil dilatation because of lesions of ciliary ganglion.

**Internuclear Ophthalmoplegia (I.N.O.):**
A disorder of horizontal eye movement with impaired adduction on the side of the medial longitudinal fasciculus lesion and abducting nystagmus of the contralateral eye. Convergence may/may not be preserved.

**INO of Lutz**
INO with partial third nerve palsy. The MLF is involved in the midbrain and abduction is impaired.

**Interpupillary Distance (I.P.D. or P.D.):**
The distance between the two pupillary centres. The average for an adult is 60mm when the eyes are fixing in the distance.

**Intractable Amblyopia:**
Amblyopia which has not responded to treatment.

**Intraocular Lens:**
An acrylic lens inserted into the eye following cataract extraction.

**Intrinsic Ocular Muscles:**
The muscles inside the eye i.e. ciliary muscle, sphincter pupillae, dilator pupillae.

**Inverse Astigmatism:**
*See Against the Rule Astigmatism*

**Inverse Knapp's procedure:**
A surgical procedure where the lateral and medical recti are transposed to the level of the inferior rectus insertion in order to improve depression.

**Ipsilateral:**
Referring to the same side.

**Iridodonesis:**
Tremulous wobbling of the iris.

**Irregular Astigmatism:**
Astigmatism in which the two principal meridians are not at right angles to each other.

**Irregular Corneal Astigmatism:**
Irregular astigmatism as a result of asymmetric cornea.

**Irregular Lenticular Astigmatism:**
Irregular astigmatism as a result of asymmetric crystalline lens.

**Isometropia:**
Equal refractive error in each eye.

**Isopter:**
Positions of equal sensitivity plotted perpendicular to the limits of the expected visual field with kinetic perimetry.

# J

**Jensens:**
A surgical procedure to enhance abduction in which the lateral portions of the superior and inferior rectus are attached to the upper and lower portions of the lateral rectus using a nonabsorbable suture.

**Jerk Nystagmus:**
Nystagmus with a fast and slow phase.

# K

**Kappa Angle:**
*See Angle Kappa*

**Kearns-Sayer Syndrome:**
A chronic progressive external ophthalmoplegia due to deletions in mitochondrial D.N.A. associated with skeletal muscle weakness, heart block (cardiac conduction weakness) and hearing loss.

**Keratometry:**
A measure of the cornea to determine its curvature and therefore its power.

**Kestenbaum:**
Surgical procedure to all four horizontal recti to correct an abnormal head posture used to reduce nystagmus.

**Kinetic Perimetry:**
A mobile target of fixed luminosity is used with which visual field isopters are plotted through the free movement of the target in all directions.

**Klippel-Feil Syndrome/Anomaly:**
An abnormality of the cervical spine leading to a short neck and reduced movements and a low posterior hairline.  May be associated with Duane's Syndrome.

**Knapp's Procedure:**
A surgical procedure where the lateral and medical recti are transposed to the level of the superior rectus insertion in order to improve elevation.

# L

**Lambert-Eaton-Rooke Syndrome (Myasthenic Syndrome):**
Due to impaired release of acetylcholine secondary to an autoimmune disorder affecting active zones of the nerve terminal. May cause ocular palsies.

**Latent Convergence:**
*See Esophoria*

**Latent Hypermetropia:**
The difference between total and manifest hypermetropia, i.e. approximately one dioptre sphere.

**Latent Nystagmus:**
An involuntary rhythmical oscillation of both eyes which occurs when the stimulus to either eye is reduced. The fast phase is to the fixing, uncovered eye with decreasing velocity exponential slow phase.

**Latent Deviation/Strabismus:**
*See Heterophoria*

**Latent Vertical Deviation/Strabismus:**
*See Hyperphoria, Hypophoria*

**Lateral Rectus Muscle:**
Results in abduction of either eye.

**Latero Pulsion:**
The eyes deviate towards the side of the cranial lesion when the eyes are closed, with a corrective saccade on opening of the eyes.

**Lenticular Astigmatism:**
Refractive error caused by abnormal curvature of the posterior or anterior surface of the lens.

**Lid-Lag:**
A condition occurring in thyroid eye disease where the upper lid does not follow the eye fully when changing fixation from up to downgaze. An area of white sclera will be exposed (von Graefe's Sign).

**Lid Retraction:**
Raised upper lid due to overaction of Müllers muscle. *See also Collier's Sign*

**Lid Twitch:**
*See Cogan's Lid Twitch*

**Light Deprivation:**
A factor causing amblyopia due to an obstacle preventing the normal passage of light to the retina.

**Limited Eye Movement:**
A description of abnormal ocular rotation. *See also Abnormal Eye Movements*

**Linear Optotype:**
Letters, symbols or pictures presented in evenly spaced rows with separation between the letters equal to the size of the letter.

**Linear Visual Acuity:**
Visual acuity tested using a line of optotype.

**Listing's Law:**
A law elaborating Donder's Law of combined actions of the extraocular muscles: each movement of the eye from the primary position to any other position involves a rotation around a single axis lying in the equatorial plane called Listing's plane.

**LogMAR:**
The logarithm of the minimum angle of resolution.

**Long Sight:**
*See Hypermetropia*

**Loop Recession:**
A surgical procedure where the muscle is recessed and attached to the sclera with a non absorbable loop.

**Low Vision:**
Any level of visual loss or impairment resulting in a level of disability even after treatment and/or standard refractive correction with visual acuity of less than 6/18 to light perception, or a visual field loss of less than 10 degrees from the point of fixation but with the ability to use vision for the planning and/or execution of a task.

**Low Vision Aid:**
Any piece of equipment used by a visually impaired person to enhance their vision. These aids may be optical or non-optical.

**Low Vision Service:**
The process by which a person with low vision is given access to a range of services which will enable them to use and/or enhance their remaining vision to its greatest potential.

**Low Vision Training:**
Individually tailored tuition in the use of vision or low vision aids.

# M

**Macropsia:**
Objects are perceived as larger than their natural size.

**Manifest Hypermetropia:**
The amount of hypermetropia present when all accommodation is relaxed.

**Manifest Latent Nystagmus:**
Manifest nystagmus of the latent nystagmus form, i.e. fast phase beats to fixing eye and decreasing velocity exponential slow phase.

**Manifest Nystagmus:**
Nystagmus occurring with both eyes open, may be pendular or jerk.

**Manifest Strabismus/Deviation:**
*See Heterotropia*

**Marcus Gunn Jaw Winking Phenomenon:**
A condition in which movement of the jaw results in a change in the lid position.

**Marcus Gunn Pupil:**
*See Afferent Pupillary Defect*

**Marfan's Syndrome:**
A dominantly inherited condition with skeletal features of arachnodactyly and long limbs and subluxation of the crystalline lens and also cardiac involvement.

**Mechanical Strabismus:**
A strabismus caused by obstruction to movement of the extraocular muscles.

**Medial Rectus Muscle:**
Results in adduction of either eye.

**Medical Exemptions:**
A supply and administration mechanism. Exemptions to the Human Medicines Regulations (2012) are defined in law allowing specific listed medicines to be sold, supplied and/or administered to patients by a specific health professional group without the need for another appropriate prescribing or supply/administration mechanism. Exemptions are NOT a prescribing mechanism**.**

**Meridional Amblyopia:**
Amblyopia which is the result of uncorrected astigmatism.

**Micro Nystagmus:**
Very small movements made to maintain fixation and avoid local retinal adaptation.

**Micro Strabismus:**
*See Microtropia*

**Micro Strabismus with Monofoveal Binocular Single Vision:**
*See Microtropia*

**Microphthalmos:**
An abnormally small eye.

**Micropsia:**
Objects are perceived as smaller than their natural size.

**Microstrabismus:**
*See Microtropia*

**Microtropia:**
A small angle heterotropia (usually of 10 dioptres or less) in which a form of binocular single vision occurs.

**Microtropia with Associated Heterophoria:**
Microtropia which has co-existing heterophoria. *See also Microtropia With and Without Identity*

**Microtropia with Fully Accommodative Characteristics:**
A fully accommodative esotropia with co-existing microtropia, either with or without identity.

**Microtropia with a Latent Component:**
*See Microtropia with Associated Heterophoria*

**Microtropia with Identity:**
Occurs when there is absolute eccentric fixation, and the angle of anomaly equals the angle of eccentricity. A manifest deviation is not seen on cover test.

**Microtropia without Identity:**
A microtropia which is detected by a movement on cover test. May have central or non-absolute eccentric fixation.

For either form the retinal correspondence may be:

1) abnormal retinal correspondence
2) normal retinal correspondence with central suppression and peripheral fusion.

**Microtropic Fully Accommodative Esotropia:**
*See Microtropia with Fully Accommodative Characteristics*

**Millard-Gubler Syndrome:**
Sixth nerve palsy, ipsilateral seventh nerve palsy and contralateral hemiplegia.

**Miller Fisher Syndrome:**
A rare, acquired nerve disease that is considered to be a variant of Guillain-Barré syndrome, characterised by abnormal muscle coordination, paralysis of the eye muscles, and absence of the tendon reflexes.

**Miosis:**
Constriction of the pupil.

**Miotic:**
A drug which constricts the pupil, e.g. Pilocarpine.

**Misdirection Syndrome:**
*See Aberrant Regeneration*

**Mitochondrial Ocular Myopathy:**
*See Kearns-Sayer Syndrome and CPEO*

**Mixed Anisometropia:**
Refractive error in which one eye is myopic and the other eye is hypermetropic.

**Mixed Astigmatism:**
Refractive error which is hypermetropic in one meridian and myopic in the other.

**Moebius Syndrome:**
A congenital syndrome with loss of abduction and facial weakness.

**Monocular Diplopia:**
Double vision attributable to one eye.

**Monocular Strabismus/Deviation:**
A unilateral deviation which does not alternate fixation.

**Monofixation Phoria:**
*See Monofixation Syndrome*

**Monofixation Syndrome:**
A term used by Marshall Parks to describe a condition which has straight eyes with monofoveal binocular single vision.

**Monofoveal Binocular Single Vision:**
Occurs with normal or abnormal retinal correspondence in everyday sight and suppression of one fovea.

**Motor Fusion:**
The ability to maintain sensory fusion through a range of vergence, which may be horizontal, vertical or cyclovergence.

**Multiple Optotype:**
An array of symbols in lines or patterns usually producing a crowding effect.

**Muscle Sequelae:**
Sequence of extra ocular muscle adaptation following muscle weakness or limitation. Relates to Hering's and Sherrington's laws of innervation.

**Myasthenia Gravis:**
A disease of skeletal muscle acetylcholine receptors, characterised by increased fatiguability with use. May have ptosis and variable ocular motor paresis.

**Myasthenic Syndrome:**
*See Lambert-Eaton-Rooke Syndrome, now known as Lambert- Eaton Myasthenic syndrome*

**Mydriasis:**
Dilation of the pupil.

**Mydriatic:**
A drug which dilates the pupil.

**Mydrilate:**
*See Cyclopentolate*

**Myectomy:**
Removal of a portion of a muscle.

**Myopathy:**
A primary disease of the muscle, causing it to underact.

**Myopia:**
A refractive error where parallel rays of light come to a focus in front of the retina when the eye is at rest.

**Myopic Astigmatism:**
Refractive error in which one meridian is myopic or emmetropic and the other is more myopic.

**Myositis:**
Inflammation of a muscle.

**Myotomy:**
Incision into the muscle which has a weakening effect.

# N

**Near Penalisation:**
The use of the amblyopic eye for near by using a cycloplegia in the better eye and adding a convex lens up to 3 dioptres to the amblyopic eye.

**Near Sight:**
*See Myopia*

**Near Esotropia:**
An intermittent esotropia where there is binocular single vision on distance fixation and esotropia at near even when the accommodation is relieved.

**Near Exotropia:**
An intermittent exotropia where there is binocular single vision on distance fixation and exotropia at near (intermittent or constant).

**Near Point of Accommodation:**
The nearest point at which an object can be seen clearly.

**Near Point of Convergence:**
The nearest point at which binocular convergence can be achieved.

**Near Synkinesis/Triad:**
Association between convergence accommodation and pupil reflexes.

**Near Test Types:**
Vision test used at reading distance.

**Negative Fusional Range/Vergence:**
Motor fusion maintained with base in prisms or with the eye diverging.

**Negative Relative Convergence:**
Exerting less convergence in association with required accommodation.

**Neuropathy:**
A disorder affecting the structure and function of the nervous system.

**Neutral Density Filter:**
Filter which reduces the intensity of all wave lengths equally (usually Kodak Wratten filter 90, ND2 and ND 0.50), used in diagnosing organic amblyopia.

**Neutral Zone of Nystagmus:**
Position of the eyes in which the direction of the nystagmus reverses.

**Night Blindness:**
Inability to see in the dark, may be associated with Retinitis Pigmentosa.

**Non-Specific Esotropia:**
An intermittent esotropia which does not conform to any pattern.

**Non-Specific Exotropia:**
An intermittent exotropia which does not conform to any pattern.

**Non-Specific Type Esophoria/Exophoria:**
Esophoria/Exophoria which does not vary significantly in degree for any distance.

**Normal Binocular Single Vision:**
Occurs with bifoveal fixation and normal retinal correspondence in everyday sight.

**Normal Retinal Correspondence:**
A binocular condition in which the fovea and areas on the nasal and temporal side of one retina correspond to and have a common visual direction with the fovea and temporal and nasal areas of the retina of the other eye.

**Nothnagel's Syndrome:**
Lesion in the superior cerebellar peduncle producing an ipsilateral third nerve palsy and cerebellar ataxia.

**Null Position of Nystagmus:**
Position of the eyes in which the intensity (amplitude x frequency) of nystagmus is least.

**Nyctalopia:**
*See Night Blindness*

**Nystagmus:**
Involuntary oscillations of the eyeball. *See also Early Onset (Congenital), Acquired, Manifest and Latent*

**Nystagmus Block Syndrome:**
Unilateral constant esotropia associated with a face turn towards the side of the fixing eye in order to maintain the eye in an adducted position thereby lessening or eliminating the oscillations of nystagmus.

**Nystagmus Retractorius:**
*See Convergence Retraction Syndrome*

# O

**Objective:**
Responses observed by the examiner.

**Objective Angle:**
The angle of misalignment of the visual axes as measured by the observer.

**Occluder:**
A device for obscuring the vision of one eye, either totally or partially so as to ensure the use of the other eye.

**Occlusion:**
The reduction or elimination of retinal image in order to prevent or reduce visual stimulation.

**Occlusion Amblyopia:**
Reduced vision in the eye being occluded due to prolonged treatment.

**Ocular Adnexa:**
Term applied to eyelids, lacrimal glands, accessory nasal sinuses, etc.

**Ocular Bobbing:**
Intermittent rapid downward deviation with slow drift up, usually associated with pontine dysfunction.

**Ocular Dominance:**
A preferred eye used for monocular tasks and relied upon more than the other eye in binocular vision.

**Ocular Dysmetria:**
Eyes overshoot and oscillate to take up fixation (associated with cerebellar disease). *See also Hypometric and Hypermetric Saccades*

**Ocular Flutter:**
A series of oscillations of the eye in a horizontal direction.

**Ocular Motor Apraxia:**
*See Congenital Saccadic Paresis*

**Ocular Myasthenia:**
A disease of the ocular muscles due to a defect in the acetylcholine receptors with no electro evidence of systemic involvement.

**Ocular Myoclonus:**
Rhythmic oscillatory eye movements which persist during sleep and which may be associated with oscillation of non-ocular muscles.

**Ocular Torticollis:**
An abnormal head posture involving head tilt which is adopted in infancy to compensate for a muscle palsy of a vertically acting muscle.

**Oculocephalic Reflex:**
*See Doll's Head Manoeuvre*

**Oculogyric Crisis:**
Conjugate deviation of both eyes in one direction, usually upwards lasting for several minutes and associated with extra pyramidal disorders.

**Oculomotor Palsy:**
*See Third Nerve Palsy*

**One + a Half Syndrome:**
Combined lesions of paramedian pontine reticular formation and medial longitudinal fasciculus producing an I.N.O. and horizontal gaze palsy to one side.

**Ophthalmic (Ophthalmoplegic) Migraine:**
A migraine headache associated with a third, fourth or sixth nerve palsy.

**Ophthalmoplegia Plus:**
Chronic progressive external ophthalmoplegia accompanied by a variety of other findings. *See also Kearns Sayer Syndrome*

**Opsoclonus (Saccado-Mania):**
A series of rapid to and fro saccades in all directions can be a presenting sign of neuroblastoma.

**Optic Nerve Hypoplasia:**
Small grey optic disc surrounded by a yellow halo of hypopigmentation, can cause reduced vision and pupillary reflexes with possible visual field defects.

**Optokinetic Nystagmus:**
Normal oscillatory eye movements which occur with movement of the visual environment.

**Optotype:**
Letter, symbol or picture used to test visual acuity.

**Orbital Apex Syndrome:**
Abnormal eye movement caused by a lesion in the apex of the orbit.

**Organic Amblyopia:**
Term used to describe amblyopia due to some subtle subclinical pathology which is not reversible.

**Orthophoria:**
Both visual axes are directed towards the fixation point and do not deviate on dissociation.

**Oscillopsia:**
An illusion of oscillatory movement of the environment experienced in patients with acquired nystagmus.

**Overaction:**
Excessive action of a muscle caused by increased innervation as a consequence of palsy or limitation to the ipsilateral antagonist or contralateral synergist.

# P

**Palpebral fissure:**
The distance/gap between the upper and lower lids.

**Palsy:**
Partial or complete loss of function of a muscle.

**Panoramic Vision:**
The awareness of an enlarged field of vision due to the separation of visual fields occurring in exotropia.

**Panum's Area:**
The area surrounding corresponding retinal points within which disparity of correspondence may occur whilst maintaining binocular single vision.

**Panum's Space:**
A band around the horopter in space within which object points give rise to binocular single vision.

**Paracentral Scotoma:**
This involves an area of visual field away from fixation and tends to be elongated circumferentially along the course of the optic nerve fibres within the central 30 degrees. It may be seen in glaucoma or lesions affecting the optic disc such as papilloedema.

**Paradoxical Diplopia:**
Pathological binocular diplopia in which heteronymous (crossed) diplopia occurs in esotropia or homonymous (uncrossed) diplopia occurs in exotropia.

**Parafoveal Fixation:**
Fixation of an object in the area adjacent to the fovea.

**Paralysis:**
Complete inability of a muscle to act.

**Paralysis of Accommodation:**
Total or partial loss of accommodation due to paralysis of the ciliary muscle.

**Paralytic Strabismus:**
A deviation caused by a palsy to one or more of the extraocular muscles or nerves supplying them.

**Paramacular Fixation:**
Fixation of an object in an area adjacent to the macula.

**Parasympatholytic**
Drugs that block the action of the parasympathetic system causing mydriasis and cycloplegia.

**Parasympathomimetic:**
Drugs that constrict the pupils.

**Paresis:**
Partial paralysis or defective action in a muscle.

**Paretic:**
*See Paralytic*

**Parinaud's Syndrome (Dorsal Midbrain Syndrome):**
A lesion in the dorsal midbrain causing loss of upgaze; convergence retraction nystagmus; and Collier's Sign.

**Partial Dissociation:**
Reduction of fusional stimuli, using e.g. filters; lenses; septum.

**Partial Myotomy:**
*See Myotomy*

**Partial Occlusion:**
The reduction of quality of retinal image in order to prevent or reduce visual stimulation.

**Partial Oculomotor Nerve Palsy:**
*See Third Nerve Palsy*

**Partial Recovery:**
Term used to describe the recovery in heterophoria to a microtropia with or without identity.

**Partial Sight:**
Substantially and permanently handicapped by defective vision caused by congenital defect, illness or injury.

**Partially Accommodative:**
Term used to describe a constant esotropia with an accommodative element.

**Past-Pointing:**
*See False Localisation*

**Pathological Diplopia:**
Double vision caused by misalignment of the eyes, can be monocular or binocular.

**Penalisation:**
The treatment of amblyopia and/or eccentric fixation by optical reduction of form vision of the non-amblyopic eye at one or all fixation distances. The effect may be achieved by the alteration of the spectacle correction and/or use of a cycloplegic drug, or neutral density filters. *See also Near Penalisation; Distance Penalisation*

**Pendular Nystagmus:**
A type of nystagmus which can be congenital or acquired and which resembles a sinusoidal oscillation.

**Perimeter:**
Equipment used to assess visual fields.

**Perimetry:**
Measurement of the visual field using a curved surface.

**Periodic Alternating Nystagmus:**
Horizontal jerk nystagmus that periodically reverses direction, can be congenital or acquired, mainly reported in cerebellar disorders.

**Peripheral Fixation:**
Eccentric fixation in the peripheral area of the retina, it may be steady or unsteady.

**Phoria:**
*See Heterophoria*

**Photophobia:**
An intolerance of light.

**Physiological Diplopia:**
A type of diplopia which exists in the presence of binocular single vision. It consists of the appreciation that a near object appears double when a distance object is fixated (heteronymous or crossed diplopia) and a distant object appears double when a near object is fixated (homonymous or uncrossed diplopia).

**Physiological Nystagmus:**
Normal oscillatory eye movements. *See also End Point Nystagmus; Optokinetic Nystagmus; Caloric Nystagmus*

**Pilocarpine:**
A parasympathomimetic cholinergic drug used to constrict the pupil.

**Plication:**
*See Tuck*

**Polyopia:**
The simultaneous appreciation of several images of an object seen either uniocularly or binocularly.

**Positive Fusional Range/ Vergence:**
Motor fusion maintained with base out prisms or with the eyes converging.

**Positive Relative Convergence:**
Exerting more convergence in association with required accommodation.

**Posterior Fixation Suture:**
*See Faden*

**Post-Operative Diplopia Test:**
Diagnostic test normally carried out in patients requesting strabismus surgery. The angle of deviation is corrected and overcorrected with prisms and the patient investigated for appreciation of diplopia.

**Postural Nystagmus:**
Nystagmus associated with the differing position of the body.

**Potential Binocular Vision:**
Binocular functions demonstrable under testing conditions.

**Presbyopia:**
The loss of accommodation with age.

**Primary Angle of Deviation:**
The deviation when fixing with the unaffected eye in paralytic incomitant strabismus.

**Primary Esotropia:**
The convergent deviation constitutes the initial defect.

**Primary Exotropia:**
The divergent deviation constitutes the initial defect.

**Primary Microtropia:**
The microtropia is the initial defect and may be with or without identity.

**Principal Visual Direction:**
The line of projection in subjective space of images stimulating the fovea or eccentric point used for fixation.

**Prism:**
A wedge-shaped refracting media which deflects traversing rays of light towards the base.

**Prism Dioptre:**
A unit of measurement of the strength of a prism. A prism of one dioptre displaces the image of the object through one cm for each metre of distance between the object and the prism.

**Progressive External Ophthalmoplegia:**
*See Chronic Progressive External Ophthalmoplegia*

**Progressive Supranuclear Palsy (Steele Richardson Syndrome):**
Impairment of vertical saccades caused by a degeneration of the brainstem reticular formation. It may lead to complete ophthalmoplegia.

**Projection:**
The subjective interpretation of the direction of an object.

**Proprioceptively Elicited Eye Movement:**
Movement of the eyes which result when the head is turned forcibly right, left, up or down or tilted to right or left. *See also Doll's Head Manoeuvre*

**Proptosis:**
Protrusion of one or both eyeballs.

**Proximal Accommodation:**
Change in accommodation induced by the awareness of nearness of the object perceived.

**Proximal Convergence:**
One of the components of convergence initiated by the nearness of an object.

**Pseudo Divergence Excess Exotropia:**
*See Simulated Distance Exotropia*

**Pseudo Myopia:**
A condition of excessive accommodation inducing artificial myopia. May be associated with controlling an intermittent exotropia or decompensating exophoria.
*See also Accommodative Spasm*

**Pseudo von-Graefe Sign:**
Elevation of the upper lid on downgaze associated with third Nerve palsy, with aberrent regeneration.

**Pseudophakia:**
The presence of an intraocular lens replacing the crystalline lens.

**Pseudostrabismus:**
The appearance of a deviation, often due to epicanthus or facial asymmetry.

**Ptosis:**
Drooping of the upper eyelid, may be partial or complete.

**Pure Blow Out Fracture:**
A fracture involving one or more walls of the orbit without the rim.

**Pursuit:**
*See Smooth Pursuit*

# Q

**Quadrantanopia**:
This is a complete defect involving a quadrant of each visual field. Heteronymous quadrantanopia involves opposite sides of the visual field and either superior or inferior quadrants. Homonymous quadrantanopias involve the same side of the visual field in each eye and either superior or inferior quadrants. These may be produced by temporal, parietal or occipital lobe lesions.

**Quinquipartite Fixation:**
The use of tripartite fixation under binocular vision and fixation with the abducting eye in extreme lateroversion.

# R

**Range of Accommodation:**
The linear distance between the near and far points of accommodation.

**Raymond's syndrome:**
Sixth nerve palsy, contralateral hemiparesis.

**Readvancement:**
A surgical procedure where a previously recessed muscle is advanced to its original insertion.

**Recession:**
A surgical procedure which weakens the action of the muscle by moving the insertion towards the origin.

**Refraction:**
The process within the optical system that brings light into focus on the retina involving the curvature of the cornea, the refractive power of the lens and the axial length of the eye. A refractive error exists if these components do not balance.

**Refractive Amblyopia:**
Amblyopia caused by a refractive error. *See also Anisometropic, Ametropic and Meridional Amblyopia*

**Refractive Error:**
An imbalance in the optical system of the eye which may be hypermetropia, myopic or astigmatic.

**Refractive Polyopia:**
More than two images of an object are perceived. It may be caused by opacities or irregularities of the refractive media.

**Regular Astigmatism:**
Refractive anomaly where the two maximally differing meridians of the eye are at right angles.

**Relative Fusional Vergence:**
*See Negative and Positive Relative Convergence*

**Relative Afferent Pupil Defect (RAPD):**
An indication of damage to the visual system which is greater on one side than the other. The pupils constrict less when a light is directed into the affected eye than they do when the same light is directed into the normal (or less affected) eye. The presence of an RAPD usually indicates damage to the retina or optic nerve that results in diminished light impulses being transmitted from the eye to the brain on the affected side.

**Relative Scotoma:**
Reduced visual resolution in part of the visual field.

**Research:**
A detailed study of a subject especially in order to discover (new) information or reach a (new) understanding of the research topic.

**Resection:**
A surgical procedure which strengthens the action of the muscle by removing a portion close to the insertion. The muscle is then reattached to the original insertion.

**Residual Esotropia:**
Esotropia remaining after surgery for original esotropia.

**Residual Exotropia:**
Exotropia after surgery for original exotropia.

**Response AC/A ratio**
Ratio of accommodative convergence in prism dioptres per actual one dioptre change in accommodation. This involves objective measurement of the change (response) of accommodation to a given stimulus.

**Resting State of Accommodation:**
*See Tonic Accommodation*

**Restriction (Eye Movement):**
A term to describe abnormal ocular rotation where the movement does not improve fully when testing ductions and is often associated with mechanical aetiology**.**

**Retinal Correspondence:**
Retinal areas of each eye have the same visual direction during binocular vision.

**Retinal Detachment:**
A break in the integrity of the retina which allows fluid from the vitreous to pass into the subretinal space.

**Retinal Incongruity:**
A phenomenon found under test conditions in which images are seen by each eye simultaneously, but cannot be superimposed or related to each other.

**Retinal Rivalry:**
Occurs in binocular vision when non-fusible images are presented to corresponding retinal points. The images are alternately suppressed, "shimmer" or form a changing mosaic.

**Retinomotor Value:**
The amount of eye movement triggered by an image falling on a given retinal element to place the image on the fovea or eccentric point used for fixation. In foveal fixation the retinomotor value of the fovea is zero.

**Retinopathy of Prematurity (R.O.P.):**
A retinal pathology associated with premature birth varying in severity from incomplete vascularisation of the retina to total retinal detachment.

**Retrolental Fibroplasia:**
A previous name for the condition now known as retinopathy of prematurity.

**Riddoch phenomenon (Stato-kinetic dissociation):**
Preservation of perception of motion in otherwise blind field due to damage to striate cortex in occipital lobe.

# S

**Saccade:**
Rapid conjugate eye movements under both volitional and reflex control. Voluntary includes willed refixations and those in response to command. Reflex include saccades in the direction of a new stimulus and usually are accompanied by head movement in the same direction.

**Saccadic Intrusions:**
Unintended saccades away from fixation, not necessarily followed by a return movement.

**Sagittalisation:**
*See Anteropositioning*

**Scotoma:**
An area of partial or complete blindness surrounded by normal or relatively normal visual field. *See also Relative, Absolute, Central, Paracentral and Cecocentral Scotoma*

**Secondary Angle of Deviation:**
The deviation when fixing with the affected eye in paralytic incomitant strabismus.

**Secondary Esotropia:**
Esotropia which follows loss or impairment of vision. (N.B. in U.S.A. known as sensory esotropia and secondary is used to refer to consecutive strabismus).

**Secondary Exotropia:**
Exotropia which follows loss or impairment of vision. *See above.*

**Sector shaped defects**:
These visual field defects start as small scotomas on the temporal side of the visual field and end as complete sectorial loss.

**See Saw Nystagmus:**
One eye elevates and intorts whilst the other eye depresses and extorts. Associated with pituitary tumours, head trauma or midbrain infarction.

**Sensory Fusion:**
The ability to perceive two similar images, one formed on each retina, and interpret them as one.

**Sensory strabismus:**
Esotropia or exotropia which follows loss or impairment of vision.

**Separation Difficulties:**
*See Crowding Phenomena*

**Setting Sun Sign:**
A tonic deviation of the eyes downwards, seen in premature infants with intraventricular haemorrhage.

**Sherrington's Law:**
A law of reciprocal innervation: whenever an agonist receives an impulse to contract, an equivalent inhibitory impulse is sent to its antagonist which relaxes.

**Short Sight:**
*See Myopia*

**Simple Astigmatism:**
Refractive error in which one meridian is emmetropic and the other ametropic.

**Simulated Distance (Divergence Excess) Exotropia:**
The near angle of deviation increases/near exophoria becomes exotropia with:

1) prolonged disruption of fusion;
2) elimination of accommodation.

**Simultaneous Perception:**
The ability to perceive simultaneously two images, one formed on each retina.

**Simultaneous Visual Perception:**
*See Simultaneous Perception*

**Single Opto-Type Visual Acuity:**
Visual acuity tested using isolated symbols.

**Sixth Nerve Palsy [6th/VIth N. Palsy]:**
Partial or complete loss of function of the lateral rectus muscle.

**Skew Deviation:**
A hypertropia caused by prenuclear input which may be concomitant or may alternate. It is differentiated from a vertical muscle palsy by the co-existence of other signs of central neurologic dysfunction.

**Slow Phase Of Nystagmus:**
*See Direction of Nystagmus*

**Smooth Pursuit Movement:**
Conjugate, smooth, slow movement of one or both eyes to maintain fixation on a moving object.

**Spasm of Accommodation:**
*See Accommodative Spasm*

**Spasmus Nutans:**
A triad of nystagmus, head nodding and anomalous head positions occurring in the first year of life.

**Square Wave Jerk:**
Saccade off fixation with a return saccade within one saccadic reaction time.

**Static Perimetry:**
Use of brief random presentation of spot stimuli.

**Stato-kinetic dissociation:**
See Riddoch phenomenon

**Steady Eye Strategy:**
The moving of reading text to facilitate reading for patients with central or a combination of central and peripheral field loss.

**Steele Richardson Syndrome:**
*See Progressive Supranuclear Palsy*

**Stereoacuity/Stereoscopic Acuity:**
An angular measurement of the minimum resolvable binocular disparity necessary for the appreciation of stereopsis.

**Stereopsis:**
*See Stereoscopic Vision*

**Stereoscopic Vision:**
The perception of relative depth of objects on the basis of binocular disparity.

**Stilling-Türk Syndrome:**
*See Duane's Retraction Syndrome*

**Stimulus AC/A ratio**
Ratio of accommodative convergence in prism dioptres per one dioptre change of accommodative stimulus. This measurement assumes that the accommodative response is equal to the stimulus.

**Stimulus Deprivation Amblyopia:**
Amblyopia which is the result of lack of adequate visual stimulus in early life.

**Strabismus:**
A manifest or latent ocular deviation.

**Strabismic Amblyopia:**
Amblyopia which is the result of manifest strabismus.

**Strabismus Fixus:**
A marked esotropia which can be congenital or acquired with fibrosis and contracture of both medial rectus muscles resulting in adduction of both eyes.

**Subjective:**
Response from the patient or subject.

**Subjective Angle:**
The angle between the visual direction of the retinal element in each eye receiving images of the fixation object. It is shown by the subjective separation of diplopia in heterotropia or dissociated heterophoria.

**Subluxated Lens:**
*See Dislocated Lens*

**Superimposition:**
The simultaneous perception of the two images formed on corresponding areas, with the projection of these images to the same position in space. This may occur whether the correspondence is normal or abnormal. If fusion is absent two similar images are seen as separate but superimposed and no fusion range is demonstrable.

**Superior Division Third Nerve Palsy:**
*See Third Nerve Palsy*

**Superior Oblique Muscle:**
One of the extraocular muscles whose action results primarily in elevation of either eye but also in intorsion and abduction.

**Superior Oblique Myokymia:**
Monocular intermittent rapid fine vertical and torsional movement accompanied by vertical and torsional diplopia and oscillopsia. Best seen with ophthalmoscope.

**Superior Oblique Tendon Sheath Syndrome:**
*See Brown's Syndrome*

**Superior Rectus Muscle:**
One of the extraocular muscles whose action results primarily in elevation of either eye but also in intorsion and adduction.

**Suppression:**
The mental inhibition of visual sensations on one eye in favour of the other eye, when both eyes are open. This may occur in binocular single vision and in manifest strabismus. It may vary in area and density. A defined area is known as suppression scotoma.

**Supraduction:**
*See Elevation*

**Supranuclear Palsy:**
A lesion in the pathway for eye control above the level of the nucleus resulting in gaze palsies.

**Syndrome:**
A collection of clinical signs and/or co-existence of conditions.

**Sylvian Aqueduct Syndrome:**
*See Parinaud's Syndrome*

**Sympatholytic:**
Drugs that block the action of the sympathetic system.

**Sympathomimetic:**
Drugs that dilate the pupils.

**Synergists:**
Contralateral muscles which normally work together.

**Synoptophore (Major Amblyoscope):**
Equipment which can be used to assess the angle of deviation and binocular potential at a theoretical distance fixation.

# T

**Tenectomy:**
A surgical procedure which removes a portion of the tendon thereby weakening its action (usually the superior oblique).

**Tenotomy:**
A surgical procedure which cuts into the tendon thereby weakening its action (usually the superior oblique).

**Tensilon:**
Edrophonium used to test for Myasthenia Gravis.

**Third Nerve Palsy [3rd/III. N. Palsy]:**
Partial or complete loss of function of the superior rectus, inferior rectus, medial rectus, inferior oblique, levator palpebrae superioris, constrictor pupillae and ciliary muscle (muscles supplied by the third nerve). The involvement of the combination of muscles may be partial or complete; superior or inferior division; internal or external.

**Thyroid Associated Ophthalmopathy (T.A.O.):**
*See Thyroid Eye Disease*

**Thyroid Eye Disease (T.E.D.):**
Eye signs associated with thyroid dysfunction: e.g. lid retraction, lid lag, proptosis, restricted eye movements, oedema.

**Thyroid Ophthalmoplegia:**
*See Thyroid Eye Disease*

**Thyroid Related Orbitopathy:**
*See Thyroid Eye Disease*

**Tolosa-Hunt Syndrome:**
A rare syndrome with unilateral ocular nerve palsy, ipsilateral periorbital or hemicranial pain, pupillomotor dysfunction and sensory loss along the first and second division of the trigeminal nerve.

**Tonic Accommodation:**
The level of accommodation under stimulus free conditions.

**Tonic Convergence:**
Passive state of vergence of the eyes in the absence of a stimulus, maintained by the tonus of the extraocular muscles.

**Torsion**:
*See Cyclotorsion*

**Total Occlusion:**
The complete elimination of vision with or without the exclusion of light.

**Total Ophthalmoplegia:**
Internal and external ophthalmoplegia.

**Total Penalisation:**
The use of the amblyopic eye for all distances by using a strong convex lens to the better eye with or without cycloplegia.

**Toxic Amblyopia:**
Amblyopia caused by toxins, e.g. alcohol, tobacco.

**Transposition:**
1) A surgical procedure which moves the insertion of the muscle to alter its action, eg. vertical transposition of horizontal recti for A or V pattern; Knapp procedure; Jensen's; Hummelschiem's, etc.
2) conversion of the prescription of a spherical/cylindical lens from a plus cylinder form to a minus cylinder form or vice versa.

**Tripartite Fixation:**
A situation in which the left eye is used for fixing objects on the right side, the right eye for fixing objects on the left side and alternate eyes for the central part of the visual field. *See also* *Crossed Fixation*

**Triplopia:**
The simultaneous appreciation of three images of an object seen either uniocularly or binocularly.

**Trochlear Nerve Palsy:**
*See* *Fourth Nerve Palsy*

**Tropia :**
*See* *Heterotropia*

**Tropicamide (Mydriacyl):**
A short acting cycloplegic drug (parasympatholytic)**.**

**True Distance (Divergence Excess) Exotropia:**
Exotropia (intermittent or constant) on distance fixation with binocular single vision on near fixation under all testing conditions.

**Tuck (Plication):**
A surgical procedure which shortens the tendon and thereby strengthens its action (usually performed on superior oblique).

**Türk-Duane's Syndrome:**
*See* *Duane's Retraction Syndrome*

**Typoscope:**
A non-optical low vision aid made from dark (usually black) card with a central or paracentral aperture of varying size. This is used to reduce confusion from print and enhance tracking and reading skills of patients who experience difficulties locating sections of print on a page.

# U

**Underaction (Eye Movement):**
Reduced ocular rotation which improves on testing ductions, often associated with neurogenic palsy.

**Unharmonious Abnormal Retinal Correspondence:**
The angle of anomaly is less than the angle of deviation.

**Unilateral Strabismus:**
One eye is habitually used for fixation.

**Uniocular Nystagmus:**
When present in the primary position, nystagmus in one eye is due to spasmus nutans; monocular visual deprivation; superior oblique myokymia or multiple sclerosis. If present in eccentric gaze this may be the consequence of internuclear ophthalmoplegia; restrictive syndromes or superior oblique myokymia.

**Upbeat Nystagmus:**
Eyes drift down and beat up again, associated with lesions of anterior vermis or cerebellum or medulla.

# V

**V Pattern:**
Relative divergence on elevation of the eyes and relative convergence on depression of the eyes.

**Veith-Muller Circle:**
The theoretical model in which the horopter is the result of symmetrical retinal correspondence nasally and temporally about the fovea. In reality, the horopter is flatter due to asymmetry of correspondence. The difference between the two is referred to as the Hering-Hillebrand deviation.

**Vergence:**
Disjugate fast or slow eye movements. *See also Fusional Vergence*

**Vernier Acuity:**
The ability to detect nonalignment of two lines usually horizontal alignment of two vertical lines.

**Version:**
Movement of the two eyes in the same direction, i.e. lateroversion; dextroversion; laevoversion; direct elevation.

**Vertical Gaze Palsy:**
A lesion in the vertical gaze pathway causing defective saccade and pursuit vertically.

**Vertical Gaze Spasm:**
Oculogyric crisis consisting of a spasmodic involuntary upward deviation of the eyes and lids associated with neck hyperextension that lasts from several minutes to a few hours.

**Vertical Heterophoria:**
*See Hyperphoria; Hypophoria*

**Vertical Nystagmus:**
Type of acquired nystagmus in which the direction is determined by the fast phase. *See also Upbeat Nystagmus; Downbeat Nystagmus*

**Vertical Retraction Syndrome:**
Analagous to the horizontal involvement in Duane's Syndrome. Elevation or depression may be limited and there is retraction of the globe with narrowing of the palpebral fissure on attempted upgaze or downgaze.

**Vestibular Ocular Reflex:**
A mechanism to maintain clear vision during rotation of the head and stimulated by the angular acceleration sensors of the labyrinthine semicircular canals (*see Doll's Head Manoeuvre*).

**Visual Acuity Both Eyes Open:**
The level of visual acuity without occlusion of either eye, may be with or without binocular single vision.

**Visual Agnosia:**
Lesions in visual association areas which do not cause true blindness but a form of mind blindness in which objects remain meaningless.

**Visual Deprivation Amblyopia:**
*See Stimulus Deprivation Amblyopia*

**Visual Direction:**
The line of projection in subjective space associated with a given retinal point.

**Visual Disability:**
Any restriction or lack of ability to perform an activity, resulting from visual impairment.

**Visual Evoked Response/Potential:**
Recording of electrical activity at the occipital cortex that results from light flashes or repeating patterns stimulating the retina.

**Visual Field:**
Extent of peripheral visual function without movement of the eye.

**Visual Field Assessment:**
An assessment of the field of vision, extending nasally, temporally, superior and inferior, which determines the boundaries of the visual field and ensures a full field within the documented boundaries.

**Visual Field Defect:**
A departure from the normal shape of the hill of vision which may be localised or a general depression of the whole field.

**Visual Hallucinations:**
Visual perception not evoked by an object stimulus.

**Visual Halos:**
Coloured rings of light seen around a light source. May be caused by e.g. corneal oedema resulting from closed angle glaucoma.

**Visual Handicap:**
A disadvantage for an individual, resulting from a visual impairment or a visual disability that limits or prevents the fulfilment of a role that is normal for that individual.

**Visual Impairment:**
Any loss of abnormality of visual function.

**Visual Rehabilitation:**
Teaching people to make the best of use of their residual vision.

**Voluntary Convergence:**
The ability to converge the eyes without the aid of a fixation stimulus.

**Voluntary Eye Movement (command movement):**
Movement of the eyes which may be induced by an effort of will or movement of the eyes initiated by instructing the patient to look in various positions of gaze.

**von Graefe Sign:**
Elevation of the upper lid on downgaze of the eye associated with thyroid eye disease.

# W

**Waardenburg's Syndrome:**
Characterised by facial anomalies, partial albinism and possible deafness.

**Wandering Fixation:**
A uniocular condition in which the fovea has lost its functional superiority and no one retinal element is used for fixation.

**Weber’s Syndrome:**
Lesion in the area of cerebral peduncle resulting in ipsilateral third nerve palsy and contralateral hemiparesis.

**With the Rule (Astigmatism):**
Astigmatism in which the refractive power of the vertical meridian is the greatest.

# X

**X Pattern:**
Relative divergence of the eyes on elevation and depression.

# Y

**Y Pattern:**
Relative divergence of the eyes on elevation.

**Yoke Muscle:**
*See Synergist*

**Yokoyama Procedure:**
Surgery to join superior rectus and lateral rectus muscle when globe dislocation occurs in association with high myopia.

**Orthoptic Abbreviations**

# A

| | |
|---|---|
| ABDn | Abduction |
| ADDn | Adduction |
| Accom | Accommodation |
| AC/A | Accommodative convergence/accommodation ratio |
| Adj | Adjustable |
| ACS | Alternating convergent strabismus |
| ADS | Alternating divergent strabismus |
| A Eso | A pattern esotropia/esophoria |
| A Exo | A pattern exotropia/exophoria |
| Alt | Alternating |
| Amb | Amblyopia |
| AMD | Age related macular degeneration |
| APD | Afferent pupillary defect |
| Acq/acqd | Acquired |
| ARC | Abnormal/anomalous retinal correspondence |
| Atrop | Atropine |

# B

| | |
|---|---|
| Bag. Gls | Bagolini glasses |
| ^BD | Base down prism |
| Bd/bid | Twice daily (bis die/bis in die) |
| BE | Both eyes |
| BEO | Both eyes open |
| BF | Binocular function |
| BH | Birth history |

| | |
|---|---|
| BHTT | Bielschowsky Head Tilt Test |
| ^BI | Base in prism |
| Bilat | Bilateral |
| Binoc | Binocular(ly) |
| ^BO | Base out prism |
| BO# | Blow out fracture |
| BSV | Binocular single vision |
| BTXA/BT/BT Tox. | Botulinum toxin A |
| BV | Binocular vision |
| BVA | Binocular visual acuity |
| BVAT | Video acuity tester |
| BVD | Back vertex distance |
| ^BU | Base up prism |
| BW | Birth weight |

# C

| | |
|---|---|
| C | Recession |
| Ca | Carcinoma |
| Canc | Cancelled |
| C by P | Cancelled by patient |
| CC | Cardiff Cards |
| CF | Counting fingers |
| CH | Case history |
| CHP | Compensatory head posture |
| CI | Convergence insufficiency |
| CN | Congenital nystagmus |
| C/o | Complains of |
| COAG | Chronic open angle glaucoma |
| Cong/congen | Congenital |
| Conj | Conjunctiva |

| | |
|---|---|
| Conv | Convergence |
| Conv XS | Convergence excess (esotropia) |
| Cpd | Cycles per degree |
| CPEO | Chronic progressive external ophthalmoplegia |
| CR | Corneal reflections |
| CS/C.Sec/CaesSec | Caesarean section decide on 1abbreviaiton |
| CSM | Central steady maintained (fixation) |
| CT | Cover test |
| CVI | Cert of visual impairment / Cortical visual impairment Certificate of visual impairment |
| Cy/□ | Cycles per degree consider cy/º |
| Cyclo | Cyclopentalate |
| Cyl | Cylinder |

# D

| | |
|---|---|
| D | Dioptre/discharge |
| D&C | Direct and consensual |
| DC/Dcyl | Dioptre cylinder |
| Del. Rec. | Delayed recovery |
| Devn | Deviation |
| DHD | Dissociated horizontal deviation |
| Dis/disch | Discharge |
| Dep/Deprn | Depression |
| Dip | Diplopia |
| Dist ET/DET | Distance esotropia |
| Dist XT/DXT | Distance exotropia |
| Div | Divergence |
| DNA | Did not attend |
| DRS | Duane’s retraction syndrome |
| DS/DSph | Dioptre sphere |

| | |
|---|---|
| DVD | Dissociated vertical deviation/divergence |
| DVM | Delayed visual maturation |

# E

| | |
|---|---|
| E | Esophoria |
| Ecc. Fix. | Eccentric fixation |
| EE | Either eye |
| ECCE | Extracapsular cataract extraction |
| Elev/Elevn | Elevation |
| EMG | Electro-myogram (electro-myography) |
| EOG | Electro-oculogram (electro-oculography) |
| EOM | Extra ocular muscle |
| ERG | Electro-retinogram (electro-retinography) |
| Eso | Eso deviation |
| ET | Esotropia |
| E(T) | Intermittent esotropia |
| Ex | Exercises |
| Extn | Extension (patch) |
| Exo | Exo deviation |

# F

| | |
|---|---|
| F | Father |
| FB | Foreign body |
| FCPL | Forced choice preferential looking |
| FD2 | Frisby Davis distance stereotest |
| FEE | Fixing either eye consider $Fix^{n}$ EE |
| FH | Family history |
| Fixn | Fixation |
| FL/FLE | Fixing left eye |
| Fr/frac | Fractional |

| | |
|---|---|
| FR/FRE | Fixing right eye |
| FS | Fusion slides |
| FT | Full term |
| FTA | Failed to attend |
| FTTO | Full time total occlusion |

# G

| | |
|---|---|
| G/Gutt | Drops (Guttae) |
| Gd. Rec | Good recovery |
| GH | General health |
| Gls | Glasses |
| GF | Grandfather |
| GM | Grandmother |

# H

| | |
|---|---|
| H/A | Headache |
| HES(p)/(1) | Hospital eye prescription |
| HM | Hand movements |
| H | Hyperphoria |
| HT | Hypertropia |
| H/o | History of |
| Ho | Hypophoria |
| Horiz | Horizontal |
| HoT | Hypotropia |

# I

| | |
|---|---|
| ICCE | Intracapsular cataract extraction |
| ICP | Intracranial pressure |
| INO | Internuclear ophthalmoplegia |
| IO | Inferior oblique |
| IOL | Intra ocular lens |
| IOP | Intra ocular pressure |
| IPD | Interpupillary distance |
| IR | Inferior rectus |
| ISQ | In status quo (in the former state) |

# J

| | |
|---|---|
| J | Jaeger test type |

# K

| | |
|---|---|
| KP/Kay Pics | Kay pictures |

# L

| | |
|---|---|
| L | Left |
| LA | Local anaesthetic |
| Lat | Latent |
| LE | Left eye |
| LET | Left esotropia |
| LERS | Lambert-Eaton-Rooke syndrome Known as Lambert-Eaton-Myasthenic syndrome |
| LH | Left hyperphoria |

| | |
|---|---|
| LHT | Left hypertropia |
| LHo | Left hypophoria |
| LHoT | Left hypotropia |
| Lin SG | Linear Sheridan Gardner |
| LN | Latent nystagmus |
| LogMAR | Logarithm of the minimal angle of resolution |
| LPS | Levator palpebral superioris |
| LR | Lateral rectus |
| L/R | Left hyper/right hypo deviation |
| LVA | Low vision aid/left visual acuity |
| LXT | Left exotropia |

# M

| | |
|---|---|
| M | Mother/myectomy |
| MA | Major amblyoscope |
| Man | Manifest |
| MAR | Minimal angle of resolution |
| MBWNL | Muscle balance within normal limits |
| Micro | Microtropia |
| Min | Minimal |
| MLF | Medial longitudinal fasciculus |
| MLN | Manifest latent nystagmus |
| Mkd | Marked |
| Mod | Moderate |
| Mod Rec | Moderate recovery |
| MR | Medial rectus/Maddox rod |
| Mvt/mvmt | Movement |
| MW | Maddox wing |
| Mx | Medication |

# N

| | |
|---|---|
| N | Near test type/near/nerve |
| NAD | Nil abnormal detected/no apparent deviation |
| N&D | Near and distance |
| ND | Normal delivery |
| NP | Near point |
| NPA | Near point of accommodation |
| NPC | Near point of convergence |
| NPL | No perception of light |
| Nr | Near |
| NRC | Normal retinal correspondence |
| Nv | Next visit |
| Nystag | Nystagmus |

# O

| | |
|---|---|
| O/a | Overaction |
| OA | Optic atrophy |
| Obj | Objection/objective |
| O/c | Overcomes |
| Occl/Occln | Occlusion |
| OD | Right eye/orthoptic department |
| OKN | Optokinetic nystagmus |
| OM | Ocular motility/ocular movements |
| OS | Left eye |
| OU | Both eyes |

# P

| | |
|---|---|
| P | Partial / Parent |
| PBD | Prism base down |
| PBI | Prism base in |
| PBO | Prism base out |
| PBU | Prism base up |
| PCT | Prism cover test |
| PD | Pupillary distance |
| PERG | Pattern electro-retinogram |
| PERLA | Pupils equal and reactive to light and accommodation |
| PF/palp fiss | Palpebral fissure |
| PFR | Prism fusion range |
| PH | Pin hole |
| Phenyl | Phenylephrine |
| PHPV | Persistent hyperplastic primary vitreous |
| PL | Perception of light |
| PMT | Post mydriatic test |
| POAG | Primary open angle glaucoma |
| PoH | Previous ophthalmic history |
| PPRF | Paramedian pontine reticular formation |
| Proxy | Proxymetacaine |
| PRT | Prism reflection test |
| Pt | Part/patient |
| PT | Previous treatment |
| PTTO | Part time total occlusion |
| PVD | Principle visual direction |

# R

| | |
|---|---|
| RAF | Royal air force (rule) |

| | |
|---|---|
| Rap. Rec/rr | Rapid recovery |
| RAPD | Relative afferent pupillary defect |
| RBN | Retrobulbar neuritis |
| RC | Retinal correspondence |
| Rc | Recession |
| RE | Right eye |
| Rec | Recovery |
| Rec/recess | Recession |
| Res/resect | Resection |
| Refn/refrn | Refraction |
| RET | Right esotropia |
| Retr/retrn | Retraction |
| RH | Right hyperphoria |
| RHo | Right hypophoria |
| RHoT | R hypotropia |
| RHT | Right hypertropia |
| ROP | Retinopathy of prematurity |
| Rs | Resection |
| R/L | Right hyper/left hypo deviation |
| RVA | Right visual acuity |
| Rx | Prescription |

# S

| | |
|---|---|
| S | Resection |
| SA | Stereoacuity |
| Sacc | Saccades |
| Satis | Satisfactory |
| SFP | Simultaneous foveal perception |
| SG/SGS/SSG | Sheridan Gardner (singles) |
| SG Lin | Sheridan Gardner linear |

| | |
|---|---|
| Sib | Sibling |
| Sl | Slight |
| Sl. Rec | Slow recovery |
| Sm | Small |
| SMP | Simultaneous macular perception |
| Sn | Snellen’s |
| SO | Superior oblique |
| SOTSS | Superior oblique tendon sheath syndrome |
| SP | Simultaneous perception |
| SPEM | Smooth pursuit eye movements |
| Sph | Sphere |
| Spont | Spontaneous |
| SPP | Simultaneous peripheral perception |
| SR | Superior rectus |
| Subj | Subjective |
| Supp/Suppn/Supprn | Suppression |
| SV | Stereovision |
| Syn/Synop/Synopt | Synoptophore |

# T

| | |
|---|---|
| T | Tenectomy/tenotomy/tropia |
| TF | Trial frames |
| tid/td | Three times daily (ter in die/ter die) |
| Tr f | Trial frames consider Tr/F or T/frame |
| Trop/tropic | Tropicamide |

# U

| | |
|---|---|
| U/a | Underaction |

| | |
|---|---|
| Unioc | Uniocular(ly) |

# V

| | |
|---|---|
| V | Very |
| VA | Visual acuity |
| VECP | Visual evoked cortical potential |
| VEP | Visual evoked potential |
| VER | Visual evoked response |
| Vert | Vertical |
| V eso | V pattern esotropia/esophoria |
| V exo | V pattern exotropia/exophoria |
| VF | Visual field |
| VFA | Visual field assessment |
| VOR | Vestibulo ocular reflex |

# W

| | |
|---|---|
| WEBINO | Wall-eye bilateral internuclear ophthalmoplegia |
| WL | Worths lights/waiting list |

# X

| | |
|---|---|
| X pattern | X pattern |
| X | Exophoria |
| XT | Exotropia |
| X(T) | Intermittent exotropia |

## MISCELLANEOUS

| | |
|---|---|
| 1/3m | One third metre testing distance |
| 3m | Three metre testing distance |
| 6m | Six metre testing distance |
| ↑ | Increase/improved |
| ↓ | Decrease |
| ‘ | Minute of arc |
| “ | Second of arc |
| ^ | Prism dioptre/diagnosis |
| | No deviation |
| | No horizontal deviation |
| | No vertical deviation |
| ° | Degree |
| $\bar{C}$ | With |
| $\bar{S}$ | Without |
| > | Greater than |
| < | Less than |
| 1/7 | One day |
| 1/52 | One week |
| 1/12 | One month |
| Rx | Prescription |
| Sx | Surgery |
| # | Fracture |

## DIAGRAMMATIC ABBREVIATIONS

| | |
|---|---|
| A | Alternating |
| E | Esophoria |
| ET | Intermittent esotropia |
| E(T) | mainly esotropic |
| E(T) | mainly esophoric |
| ET | Esotropia |
| H | Hyperphoria |
| Ho | Hypophoria |
| Ho(T) | Mainly hypotropia |
| Ho(T) | Mainly hypophoria |
| HoT | Hypotropia |
| H(T) | Mainly hypertropia |
| H(T) | Mainly hyperphoria |
| HT | Hypertropia |
| X | Exophoria |
| XT | Exotropia |
| X(T) | Mainly exotropic |
| X(T) | Mainly exophoric |
| XT | Exotropia |

## CONVERSION CHART

| Sn (metres) | Sn (feet) | MAR | logMAR | Cycles/degree | Decimal |
|---|---|---|---|---|---|
| 6/3 | 20/10 | 0.5 | -0.3 | 60 | 2.0 |
| 6/3.8 | 20/12 | 0.63 | -0.22 | 45 | 1.58 |
| 6/4 | 20/13 | 0.66 | -0.2 | | 1.5 |
| 6/4.5 | 20/15 | 0.75 | -0.13 | | 1.33 |
| 6/5 | 20/16 | 0.83 | -0.1 | 36 | 1.2 |
| 6/6 | 20/20 | 1.0 | 0.0 | 30 | 1.0 |
| 6/7.5 | 20/25 | 1.25 | 0.1 | 24 | 0.8 |
| 6/9 | 20/30 | 1.5 | 0.18 | 20 | 0.66 |
| 6/10 | 20/32 | 1.67 | 0.2 | | 0.6 |
| 6/12 | 20/40 | 2.0 | 0.3 | 15 | 0.5 |
| 6/15 | 20/50 | 2.5 | 0.4 | | 0.4 |
| 6/18 | 20/60 | 3.0 | 0.48 | 10 | 0.33 |
| 6/19 | 20/63 | 3.17 | 0.5 | | 0.32 |
| 6/24 | 20/80 | 4.0 | 0.6 | 7.5 | 0.25 |
| 6/30 | 20/100 | 5.0 | 0.7 | 6.0 | 0.2 |
| 6/36 | 20/120 | 6.0 | 0.78 | 5.0 | 0.16 |
| 6/38 | 20/120 | 6.3 | 0.78 | | 0.15 |
| 6/48 | 20/160 | 8.0 | 0.9 | 3.75 | 0.125 |
| 6/60 | 20/200 | 10 | 1.0 | 3.0 | 0.1 |
| 6/76 | 20/252 | 12.67 | 1.1 | | 0.08 |
| 6/96 | 20/320 | 16 | 1.2 | 1.875 | 0.06 |
| 6/120 | 20/400 | 20 | 1.3 | 1.4 | 0.05 |
| 6/151 | 20/500 | 25 | 1.4 | | 0.04 |
| 6/190 | 20/632 | 31.67 | 1.5 | 0.96 | 0.03 |

**Suggested websites for other medical dictionaries:**

Diagrammatic Abbreviations:
Diagrammatic abbreviation article
BIOS Guidelines for Diagrammatic notation

Ophthalmology
http://www.peckareyeclinic.co.uk/ophthalmicdictionary.htm#d
https://www.eyeglossary.net/

General medical
http://medical-dictionary.thefreedictionary.com/
http://www.medterms.com/script/main/hp.asp

**DIAGRAMMATIC ABBREVIATIONS**

O'Flynn EA. Strabismus documentation: an alternative approach. British Orthoptic Journal, 1994; 51: 10-14**.**
Diagrammatic-Rep-of-Ocular-Movements-paper_rev-Nov2015.pdf (orthoptics.org.uk)

**Links to free online books and resources:**

http://www.kellogg.umich.edu/theeyeshaveit/index.html

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