

## Strabismus Terminology and Abbreviations

Original Article Contributed by: Joshua Porter, BS

All Contributors: Eugene Rho, BS

Faculty Editor: Natalie Kerr, MD, FACS

Strabismus is a condition involving a misalignment of the eyes. This includes horizontal deviations (around the y-axis), vertical deviations (around the x-axis), torsional deviations (around the z-axis), or a combination of these deviations way from ortho, where both eyes are aligned in the same direction (Figure 1). The terminology and recording of strabismus can be complex, but follows a simple sequence: which eye is affected, which direction the deviation occurs, what conditions the deviation occurs under, whether the deviation is intermittent, and whether the deviation occurs at near or at a distance.<sup>1</sup> Below you will find a guide, presented in order, for analyzing and recording strabismus in patients.

- Age at onset
  - If the strabismus is diagnosed before 6 months of age, it is termed “infantile”.
  - If the strabismus is diagnosed after 6 months of age following a period of normal alignment, it is termed “acquired”.
- Variation of deviation size with gaze
  - If the size of the deviation remains the same in different positions of gaze, it is termed “comitant”.
  - If the size of the deviation varies with different positions of gaze, it is termed “incomitant”.<sup>2</sup>
- Initially, strabismus can be described in the right eye, left eye, or alternating between eyes.
  - Conditions affecting the right eye are abbreviated as “R”.<sup>3</sup>
  - Conditions affecting the left eye are abbreviated as “L”.<sup>3</sup>
  - Horizontal conditions alternating between right and left eyes are abbreviated as “alt”, or are not labelled as “R” or “L”.<sup>3</sup>
- Next, the classification of strabismus involves a prefix and a base word. The prefix describes the direction of the eye deviation:
  - “Eso-” refers to a nasal or inward deviation relative to the fixating eye. Abbreviated with an “E”.<sup>3</sup>
  - “Exo-” refers to a temporal or outward deviation relative to the fixating eye. Abbreviated with an “X”.<sup>3</sup>
  - “Hyper” refers to the eye that is upward in vertical deviation, regardless of which eye is fixating. Abbreviated “H”. The convention is to label the eye that is hyper-deviated, even if the origin of the deviation or non-preferred/non-fixing eye is in the hypo-deviated eye.<sup>3</sup>
  - “Hypo” refers to the eye that is deviated downward relative to the fixating eye. This can usually be related to a restrictive cause. Abbreviated “h” or “Ho”.<sup>3</sup>

- “Cyclo” or cyclotorsional deviations refer to torsional strabismus or when the eye is deviated by rotating around the anterior-posterior axis. This is recorded in degrees of deviation.<sup>1</sup>
- The base word describes the conditions under which the deviation is present:
  - “Phoria” describes a latent strabismus or strabismus that is present only when binocular fusion is disrupted by the examiner (when one eye is covered). For abbreviations, no additional characters are used.<sup>3</sup>
  - “Tropia” describes manifest strabismus, which is strabismus that is present spontaneously and does not require disruption of binocular fusion by the examiner to be present. Manifest strabismus can be constant or intermittent. Manifest strabismus can be unocular (deviations always involve the same eye) or alternating (either eye may deviate). Abbreviations add a “T” to the prefix modifier.<sup>3</sup>
  - Orthophoria describes perfect ocular alignment under all conditions.
- If the strabismus occurs when focusing at near, it is modified with an apostrophe, or ‘.<sup>3</sup>
- If the strabismus is intermittent, a parenthesis is added: “(T)”.<sup>3</sup>
- Additionally, vertical and horizontal deviations are measured in prism diopters or an arbitrary standard of prismatic deflection equal to that of a prism that deflects a beam of light one centimeter on a plane placed at a distance of one meter.<sup>4</sup> Abbreviated “PD”.

Examples:

- Esophoria: E
- Alternating Exotropia: XT, or alt XT
- Left hypotropia: LHoT, or LhT
- Right Intermittent Exotropia: RX(T)
- Exophoria at near: X’
- Right hyperphoria: RH

References:

1. UpToDate: Evaluation and management of strabismus in children, Armsby, Carrie, Coats, David K, Olitsky, Scott E, Paysse, Evelyn A, UpToDate, Waltham, MA, 2020.
2. Oystreck DT, Lyons CJ. Comitant strabismus: Perspectives, present and future. *Saudi J Ophthalmol.* 2012;26(3):265-270. doi:10.1016/j.sjopt.2012.05.002
3. Rupp JD. Learning the Lingo: Ophthalmic Abbreviations. *American Academy of Ophthalmology.* June 2018. <https://www.aao.org/young-ophthalmologists/yo-info/article/learning->

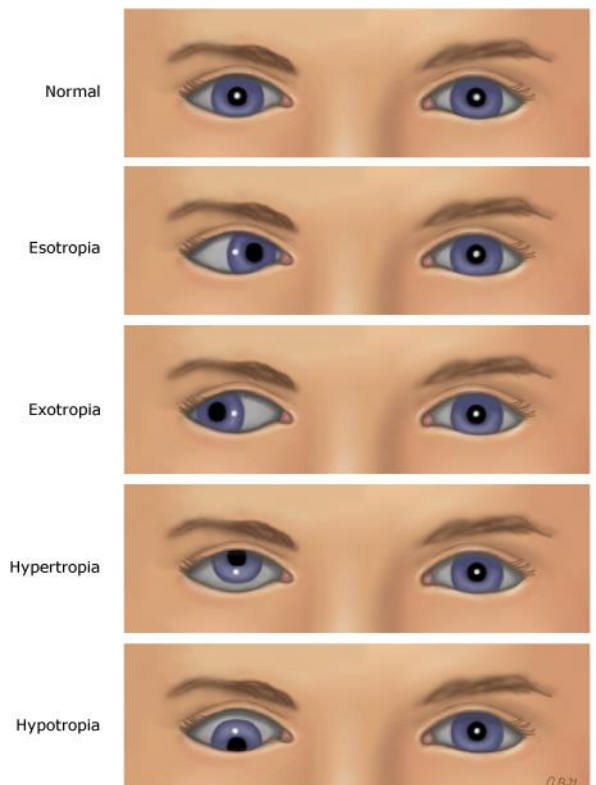


Figure 1: Direction of eye deviation in different types of strabismus<sup>1</sup>

lingo-ophthalmic-abbreviations. Accessed December 17, 2020.

4. Merriam-Webster. (n.d.). Prism diopter. In Merriam-Webster.com medical dictionary. Retrieved December 20, 2020, from <https://www.merriam-webster.com/medical/prism%20diopter>