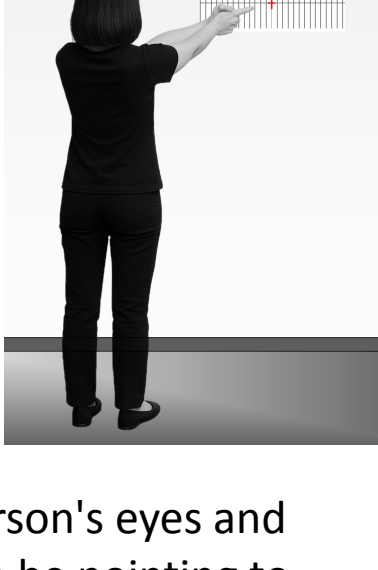


5 modern methods for quantifying the eye dominance

Traditional methods classify eye dominance as either left or right. But in clinical settings and sports vision, it's often important to **quantify the relative strength of dominance**.

To do this, several newer methods have been developed. These include: Guillon's Pointing test, Domitest-M, Binocular Sighting test, Freiburg Ocular Prevalence test, 2Cameras Ocular Dominance.

All these techniques involve **aligning two objects placed at different distances**.



Guillon's pointing test

- The test uses a chart marked with horizontal lines spaced one prism diopter apart. A red cross placed at the center (zero position) serves as the target.
- The person clasps their hands together and, with both eyes open, aligns their index fingers with the target.
- The examiner alternately covers one of the person's eyes and asks which number on the chart they appear to be pointing to.
- Eye dominance score is the sum of the two numbers obtained with right and left eye occluded.

Pros

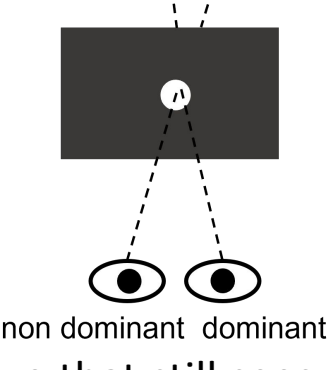
- Quick and easy to administer;
- Allows measurement of eye dominance at different distances

Cons

- Relies on self-report without external verification or objective record, making it vulnerable to subjectivity and consistency bias
- Perceived alignment can shift if the person moves their head during the test
- Difficult to standardize testing condition including posture and hand position.

- The method is described in *Ho et al. (Clin. Exp. Optom. 2018)*

Domitest – M (Tetra platform)



- This is a modern adaptation of the hole-in-the-card method. The card is held halfway between the person and a screen displaying a horizontal graduated scale with a central target.
- The examiner alternately covers each eye; the eye that still sees the target through the hole when viewing monocularly is identified as the dominant eye.
- The number visible on the chart **when viewing with the non-dominant eye** provides a measure of the strength of eye dominance.

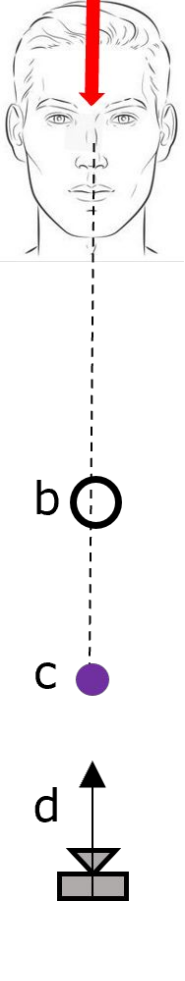
- Quick and easy to administer

Cons

- Does not take into account the monocular view of the dominant eye
- Relies on verbal self-report, which may introduce subjectivity and consistency bias

Binocular sighting test (BST)

- The test uses small bead (b) and a ring (c), each 15 mm in diameter, suspended from the ceiling at a distance of 45 cm apart.
- A camera (d) is positioned so that its visual axis is aligned with the center of the bead and the ring.
- The person sits 155 cm away from the ring, with a pointer (a) mounted above their head to indicate the direction of their line of sight.
- The person is asked to adjust their head position until the bead and the ring appear visually aligned.
- A photo is then taken, and the direction indicated by the pointer is used to calculate an eye dominance score.
- The method is described in *Johansson et al. (J.Vis. 2015)*



Pros

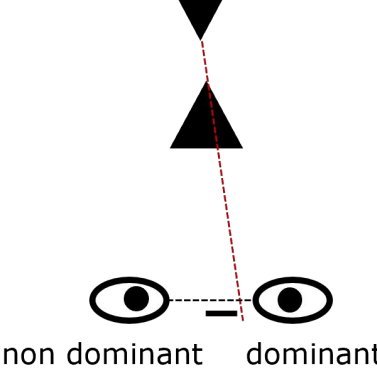
- Not influenced by hand or arm dominance
- Provides an objective measure, independent of self-report

Cons

- Shows little correlation with the classic hole-in-the-card test
- Head posture can affect the outcome
- Setup impractical for routine clinical use

Freiburg Ocular Prevalence Test

- A pair of shutter goggles, synchronized with a display positioned 4.5 meters away, produces separate visual inputs to the right and left eyes.
- The stimulus is a stereogram presenting two triangles. The one pointing downward appears farther, and the one pointing upward that appears closer.
- The person adjusts the position of the triangles until they appear visually aligned.
- A virtual line connecting the two triangles intersects the interocular axis at a point between the eyes.
- The location of this intersection provides a measure of eye dominance.
- This method is described by *Kommerell et al. Vis. Res. 2003*



Pros

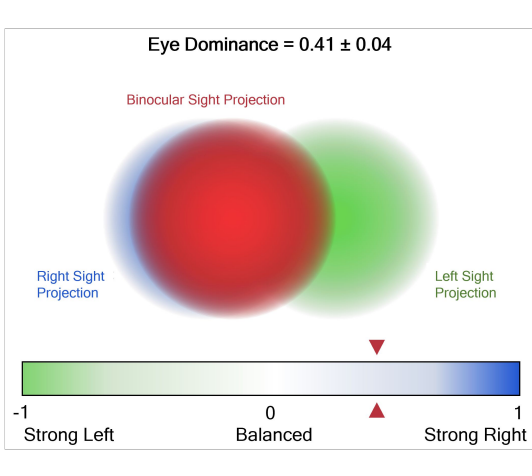
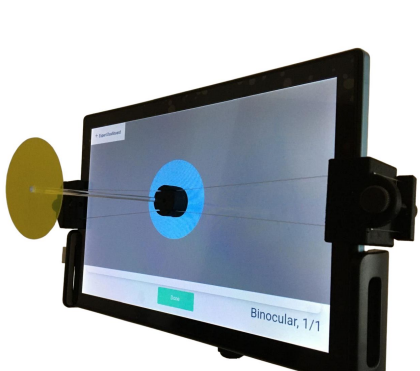
- Not influenced by manual habits such as hand or arm dominance
- Provides an objective, non–self-reported measure

Cons

- Difficult to set for different distances.
- Requires specialized hardware, including shutter goggles and synchronized display

Two cameras ocular dominance (2COD)

- A mechanical setup holds a circular transparent target positioned 10 cm in front of a display and 50 cm away from the person being tested.
- The person uses a mouse to adjust the position and size of an alignment disc shown on the display.
- The person aligns the transparent target with the on-screen alignment disc under three viewing conditions: one binocular and two monocular.
- From the positions of the alignment circles across conditions, a precise, continuous eye dominance score is calculated, with positive values indicating right-eye dominance.
- The method is described in *Notaro et al. Behav Res 2025*



Pros

- An objective, non–self-reported measure
- Easy to use with children
- Based on a computational model of visual processing
- Has a high precision and reliability

Cons