



Measures of Visual Sensation ^[1]

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Examination of the different features of visual sensation is necessary in knowing the status of the visual system. Various disorders may affect visual abilities, such as visual acuity. The different measures of visual sensation include visual field, visual acuity, and color vision.

Visual Field

The spatial area that is perceived by a person when his eyes are in a static and fixed position, concentrated straight ahead is called visual field. The two types of visual field are monocular and binocular.

Monocular visual field refers to the spatial area that is visible to one eye. In this visual field, superior, inferior and most of the nasal areas are occluded by the nose, cheeks and brow. Practitioners use perimetry testing in order to provide a detailed map describing the visual field. The perimetry of the monocular visual field shows horizontal and vertical hemifields (half of a visual field), as well as a blind spot. In humans, the blind spot of the monocular visual field is found within the temporal hemifield.

Binocular visual field involves the spatial area that is visible to both eyes. Angling the eyes slightly towards the direction of the nose results to the overlapping of the monocular visual fields of each eye. This is why objects that are located within the binocular visual field are all visible to each eye, but from varying angles. The confrontation field test is a clinical test of the binocular visual field. It helps identify neurological disorders regarding visual sensation by means of defining the outer limits of a person's subjective visual space.

Visual Acuity

Defined as the ability of a person to detect and recognize small objects through vision, visual acuity is one of the most commonly tested measures of visual sensation ^[3]. Visual acuity usually relies on the focusing strength (i.e. refractory power) of both the structure of the retina and the lens system of the eye. This feature of visual sensation is typically measured under high illumination.

The most commonly used clinical test for visual acuity is the eye chart. The patient stands 20 feet away from the chart and reads the letters in the row as instructed by the examiner. Visual acuity is then measured as the ratio of the distance from the eye chart to the distance of the lowest letter row that can be determined by the patient correctly. For example 20 / 70 means

that the patient, standing, 20 feet from the eye chart, can read the letters up to row 3, which is about 70 feet.

Color Vision

Color Vision refers to the capacity of a person to identify the variations in the wavelengths of light. The Ishihara chart is the most commonly utilized tool in the clinical measurement for color vision. The Ishihara chart includes spots of varying colors organized in a manner in which the form numbers that look different for people with normal color vision and for color-blinded patients.

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Links

[1] <https://explorable.com/measures-of-visual-sensation>

[2] <https://explorable.com/users/sarah>

[3] <http://neuroscience.uth.tmc.edu/s2/chapter14.html>