

Non Strabismic Binocular Vision Anomalies: Whoosh the Diagnosis

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Perception of any single object as a single is achieved by the simultaneous use of both the eyes. This perception is termed as binocular single vision. If bifoveal fixation and normal retinal correspondence is involved, it is a normal binocular single vision but if there is the absence of the bifoveal fixation, which is usually with the abnormal retinal correspondence then it is the abnormal binocular single vision [1].

Orthophoria is the condition wherein the visual axis of both the eyes directs to the point of fixation and do not show any deviation on being dissociated. In case wherein the visual axis of the two eyes fixates the point but shows deviation on being dissociated, it is termed as heterophoria or Non Strabismic Binocular Vision anomalies (NSBVA) [1].

Mitchell Scheiman and Bruce Wick in their book on the Clinical Management of Binocular Vision fourth edition have included certain NSBVA low AC/A conditions namely convergence insufficiency and divergence insufficiency, high AC/A conditions namely convergence excess and divergence excess, normal AC/A ratio namely fusional vergence dysfunction, basic esophoria and basic exophoria, accommodative dysfunction, cyclo vertical heterophoria and fixation disparity [2].

When non-strabismic anomalies occur, the daily activities of the individual get hampered. It is accompanied with tormenting symptoms like eye strain, headache, blurry vision which makes individual unable to perform the task [3-5].

If left undiagnosed it will increase and if left untreated or improperly treated can increase and turn into strabismic as well [6].

There are no data available about the knowledge base of the eye care practitioners practicing in India about the diagnosis and the treatment of the NSBVA.

NSBVA is an engorging anomaly and various researches are coming worldwide.

In India we have BAND (Binocular vision Anomalies and Normative Data) report 2 revealing the prevalence and BAND report 3 unveiling the minimum test battery for the diagnosis of binocular vision anomalies. These studies are the great contribution to the practice of BV and VT (Binocular Vision and VT) in the India.

Report 2 of Binocular Vision Anomalies and Normative Data (BAND) study reveals the prevalence of NSBVA in the age of 12.7 ± 2.7 years, which was 31.5 and 29.6 per cent in the urban and rural population respectively [3].

To make the diagnosis easy here is a Flash Back of the findings of the diagnostic tests that we do assess any binocular vision anomaly.

I hope this helps the optometrists to deal with the patient in a time and quality efficient way.

The required diagnostic test towards the correct diagnosis of NSBVA includes Cover test, NPC, NPA, AC/A ratio, NFV, PFV, NRA, PRA, MEM, AF and VF [2,3].

Sr. no.	Anomalies	Cover test	NPC	NPA	AC/A ratio	NFV	PFV	NRA	PRA	MEM	AF	VF
1	Convergence Excess	Esophoria N>D	Normal	Binocular: Receded Monocular: Normal	High	Reduced	Normal to high	High	Low	Lag of Accommodation	Binocular: Receded (Difficulty with minus Lens) Monocular: Normal	Difficulty with BI
2	Divergence Excess	Exophoria D>N (Intermittent to Constant)	Receded	Binocular: Receded Monocular: Normal	High	Normal to high	Reduced	Low	High	Lead of Accommodation	Binocular: Recede (Difficulty with plus Lens) Monocular: Normal	Difficulty with BO
3	Convergence Insufficiency	Exophoria N>D	Receded	Binocular: Receded Monocular: Normal	Low	Normal	Reduced	Low	Normal to high	Lead of Accommodation	Binocular: Recede (Difficulty with plus Lens) Monocular: Normal	Difficulty with BO
4	Divergence Insufficiency	Esophoria D>N	Normal	Binocular: Receded Monocular: Normal	Low	Reduced at distance	Normal	High	Low	Lag of Accommodation	Binocular: Receded (Difficulty with minus Lens) Monocular: Normal	Difficulty with BI
5	Fusional vergence dysfunction	Orthophoria	Recedes after Repeated measurements	Normal	Normal	Reduced	Reduced	Low	Low	Normal	Binocular: Fails ±2 Monocular: Normal	Reduced
6	Basic Esophoria	Esophoria D=N	Normal	Binocular: Receded Monocular: Normal	Normal	Reduced	Normal to high	High	Low	Lag of accommodation	Binocular: Receded (Difficulty with minus Lens) Monocular: Normal	Difficulty with BI
7	Basic Exophoria	Exophoria D=N	Receded	Binocular: Receded Monocular: Normal	Normal	Normal to high	Reduced	Low	High	Lead of accommodation	Binocular: Recede (Difficulty with plus Lens) Monocular: Normal	Difficulty with BO

8	Accommodative Insufficiency	Orthophoria	Normal	Receded	Normal	Reduced blur	Reduced blur	High	Low	Lag of accommodation	Binocular: Fails - 2 Monocular: Fails - 2	Normal
9	Accommodative Excess	Esophoria at Near	Normal	Normal	Normal to high	Reduced break	Normal to high	Low	High	Lead of accommodation	Binocular: Fails + 2 Monocular: Fails + 2	Difficulty with BI
10	Accommodative Infacility	Orthophoria	Normal	Normal	Normal	Reduced to blur	Reduced to blur				Binocular: Fails ± 2 Monocular: Fails ± 2	Normal
11	Ill-Sustained Accommodation	Orthophoria	Normal	Recedes after Repeated measurements	Normal	Normal	Normal	High	Low	Lag of accommodation	Binocular: Fails - 2 Monocular: Fails - 2	Normal

Table 1: Deduce of the diagnostic test in NSBVA.

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