

Table A: overview of the ophthalmologic examinations that were performed in the included studies

Symptoms	Results (if available) in children with CVI
1. Visual acuity	
	<ul style="list-style-type: none"> - Lower/suboptimal visual acuity (Fazzi, 2007; Fazzi, 2012) - Smaller inter-ocular differences in visual acuity - grating acuity (Cavascan, 2014) - - Vernier acuity, in keeping with good recognition acuity in both groups, was not different, in children with CVI with good visual acuity versus controls (Chandna, 2021)* - Lower preferential looking acuity – <i>lower than “normal”</i> (Lim, 2005) - Lower grating acuity and Vernier acuity - <i>Vernier acuity was more diminished than the grating acuity and therefore more sensitive for the detection of CVI</i> (Skoczinski, 2004) - Contour-related forms responses were not different (Chadna, 2021)*
2. Refraction	
	<ul style="list-style-type: none"> - 7% of children had significant refractive error requiring glasses (Howes, 2022) - 20% of children had significant refraction anomalies (Khetpal, 2007) - 54% of children wears glasses (Itzhak, 2023) - 59% of children had presence of refractive error, based on spherical equivalent (Phillip, 2023)
• Hyperopia	<ul style="list-style-type: none"> - Hyperopia present (Fazzi, 2007; Fazzi 2012) - Hyperopia in 2/7 children (Saidkasimova, 2007) - Hyperopia in 17% of children (Bosch 2014)
• Astigmatism	Fazzi, 2007; Fazzi, 2012;
• Accommodation	Reduced accommodation (De Weger, 2020)
• Myopia	Fazzi, 2007; Fazzi, 2012; Bosch 2014 (8%)
3. Discrimination speed	
	Children with CVI seem to have a lower discrimination speed (Barsingerhorn, 2018)*
• Developmental Eye Movement test	<ul style="list-style-type: none"> - Children with CVI or Visual Impairment need significantly more time to read the DEM numbers - compared to normally sighted - Children with CVI needed more time to read the horizontal DEM, but not the vertical DEM. - compared to Visually impaired children (Tanke, 2021)
4. contrast sensitivity	
	<ul style="list-style-type: none"> - Reduction of contrast sensitivity (Fazzi, 2007; Fazzi, 2012) - Children with CVI had lower contrast sensitivity (Mayer, 2020)* - Low contrast sensitivity (Sakai, 2003) - Contrast sensitivity as primary component in PCA in CVI (Philip, 2023)
5. Eye movement	
• Abnormal fixation	<ul style="list-style-type: none"> - Reduction of abnormal fixation (58 of 121 subjects; 48%) (Fazzi, 2007; Fazzi 2012) - 88% of children had fixation disorders (Salati, 2002) - 53% of children had definite fixing and following (Howes, 2022) - 45% fixation abnormalities in children with CVI and low vision (Bosch 2014)
• (optokinetic) nystagmus	<ul style="list-style-type: none"> - 20% of children had nystagmus (Chang, 2024) - Abnormal optokinetic nystagmus (88 of 121 subjects, 73%)(Fazzi, 2007; Fazzi 2012) - 12% of children had nystagmus (Khetpal 2007) - 42% of children had nystagmus (Bosch 2014) - 24% of children had nystagmus (Howes, 2022) - 14% of children had nystagmus (Philip, 2023) - 44% of children had nystagmus (Silveira, 2023)
• Smooth pursuit + saccade quality	<ul style="list-style-type: none"> - Reduction of smooth pursuit + saccade quality (Fazzi, 2007; Fazzi 2012) - 93% of children had defective saccades (Salati, 2002) - The saccade latencies of the children with visual impairment were on average 62.15 milliseconds longer (Barsingerhorn, 2019)*
• Gaze	<ul style="list-style-type: none"> - 50% of children with <i>severe</i> CVI had stable gaze. Of the children with visuomotor dysfunction, but no CVI, respectively 100% and 86% with a normal or abnormal MRI had stable gaze,. Of children with visuomotor dysfunction and metabolic disorder 50% had stable gaze (Kelly, 2021)*
• Eye movement	<ul style="list-style-type: none"> - Abnormal eye movements (Fazzi, 2007; Fazzi 2012 in 35% Bosch 2014) - Ocular alignment as primary component in PCA in CVI (Philip 2023)
• Relative and rotary motion	<ul style="list-style-type: none"> - Significant deficits in cerebral processing of relative and rotary motion was found, but not of absolute motion in children with CVI (Chadna, 2021)

6. Strabismus	
•	<ul style="list-style-type: none"> - 81% of children had strabismus (Chang, 2021) - 66% of children had strabismus (Chang, 2024) - Strabismus present (Fazzi, 2007; Fazzi 2012) - 86% of children had variable angle strabismus (Salati, 2002) - Strabismus present in 4/7 children (Saidkasimova, 2007) - 50% of children with severe CVI had strabismus, compared to 40% in children with visuomotor dysfunction and normal MRI, 57% children with visuomotor dysfunction and abnormal MRI, and 67% of the children with visuomotor dysfunction and metabolic disorder (Kelly, 2021)* - Strabismus is found in 59% of children with CVI (Khetpal, 2007) - 77% strabismus in children with CI and low vision (Bosch 2014) - 62% of children had exotropia (Chang, 2021) - 44% of children had exotropia (Chang, 2024) - 41% of children had exotropia (Khetpal 2007) - 20% of children had exotropia (Howes, 2022) - 38% of children had esotropia (Chang, 2021) - 22% of children had esotropia (Chang, 2024) - 41% of children had esotropia (Khetpal 2007) - 22% of children had esotropia (Howes, 2022)
7. Amblyopia	
	<ul style="list-style-type: none"> - 12% of children had amblyopia (Khetpal 2007) - 12% of children had refractive amblyopia (Silveira, 2023) - 5% of children had strabismic amblyopia (Silveira, 2023)
8. Foveal Crowding	
	<ul style="list-style-type: none"> - Larger effects of crowding (Huurneman, 2012) - Crowding in 8% (Bosch, 2014) - More crowding deficit in children with CVI (van der Zee, 2017)* <p><i>Predictors of the amount of foveal crowding in children with CVI: (Pike, 1994)</i></p> <ul style="list-style-type: none"> - Type of lesions - Presence of nystagmus <p>Low visual acuity</p>
9. Visual field	
	<ul style="list-style-type: none"> - 25% of children had upper or lower visual field defect (Bosch, 2014) - 56% of children had constriction of visual field (Bosch, 2014) - 19% of children had hemianopia (Bosch, 2014) - Reduction of visual field (Fazzi, 2007; Fazzi 2012) - Inferior visual field defect in 3/7 children (Saidkasimova, 2007)
10. OCT and HRT	
	<p>Ruberto (2006)</p> <ul style="list-style-type: none"> - Optic nerve: smaller* - Cup/disk ratio: larger* - Rim: smaller* - RNFL: thinner*
11. Ophthalmoscopy	
	<ul style="list-style-type: none"> - Fundus abnormalities (Fazzi, 2007; Fazzi 2012)
• Optic nerve hypoplasia	<ul style="list-style-type: none"> - 18% of children had optic nerve hypoplasia (Howes, 2022) - 4% of children had optic nerve hypoplasia (Silveira, 2024)
• Optic atrophy	<ul style="list-style-type: none"> - 38% of children had mild atopic atrophy (Chang, 2021) - 29% of children had optic atrophy (Chang, 2024) - 25% of children had mild optic atrophy (Khetpal, 2007) - 27% of children had severe optic atrophy (Khetpal, 2007) - 44% of children had a pale optic disc (Bosch 2014) - 57% of children had optic atrophy (Howes, 2022) - 13% of children had optic atrophy (Silveira, 2023)
• Retinal abnormalities (including dystrophy)	<ul style="list-style-type: none"> - 3% of children had retinal abnormalities (Khetpal 2007;)\ - 4% of children had retinal dystrophy (Silveira, 2023)

*compared to controls (healthy controls, children with visual impairment *DEM* = developmental eye movement test; *PCA* = principle component analysis; *HRT* = Heidelberg Retinal Tomograph; *RNFL*; mean retinal nerve fiber layer thickness