

Royal Dutch Visio

Centre of expertise for blind and visually impaired people
The Netherlands



- Visual Functioning in Persons with Profound Intellectual and Multiple Disabilities with specific reference to Cerebral Visual Impairment

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Visual Assessment Scales as a base for intervention on CVI in children with PIMD



- 2-year project

Subsidised by the PROGRAMMARAAD, a government-funded council

In cooperation with:

- University of Groningen, department of Special Needs Education and Youth Care, Annette van der Putten
- Radboud University Nijmegen, department of Special Education: Learning and Development, Bert Steenbergen
- Bartimeus, specialist centre for blind and visually impaired people in the Netherlands, Mies van Genderen

Two-tiered project



- Research analysing existing data of children with PIMD
- Developing and implementing Visual Assessment Scales as a base for intervention in case of CVI in persons with PIMD

First aim of the project



- To analyse data from visual assessments of children with a developmental age up to 24 months in 3 special schools/daycare centres
- Combining the outcome of the VA with observations on visual behaviour and characteristics of CVI

Cerebral Visual Impairment CVI



■ Working definition:

1. An eye examination cannot fully explain the child's use of vision
2. A history or presence of neurological problems, even when the child's brain imaging studies may appear normal
3. The presence of the behavioural or visual responses of CVI

(Roman e.a.2010)

CVI is an umbrella diagnosis, it does not give information about a person's level of visual functioning or form a base for intervention

Visual Assessments



- Orthoptist does formal testing
- Data used in research to date:
 - Visual acuity for distance viewing
 - Contrast sensitivity

Observations



- Child Psychologist or Occupational Therapist observe visual functioning
- Observations are labeled in 2 categories:
 - Level of visual behaviour
 - Characteristics of CVI

Levels of Visual Behaviour



1. No reaction to visual stimuli ever
2. Only reaction to visual stimuli in darkened room and/or staring into light sources
3. Reaction to strong visual stimuli in normal lighting, no sign of recognition, only of reacting
4. Actively searching for visual stimuli, short moments of looking, starting to recognise familiar objects or faces
5. Is visually alert and improved recognition, visual activities remain short and tiring
6. Normal visual behaviour and processing

Characteristics of CVI in Children with PIMD



- No visual curiosity
- Looking away when reaching or handling
- cursory looks and short visual behaviour
- Variable visual behaviour
- Cannot use vision simultaneously to other senses, like hearing or touching
- Looking is tiring
- Familiarity gives better visual behaviour and/or recognition

- Permission is granted by parents for 74 children
- Gender: Male 55.4% and female 44.6%
- First Visual Assessment was at ages:
 - Between 0.7 and 20.7 years
 - Mean age: 9.8

Preliminary sample of research



- 10 children of 1 daycare centre, last VA
- Visual Acuity
- Contrastvision
- Level of visual behaviour

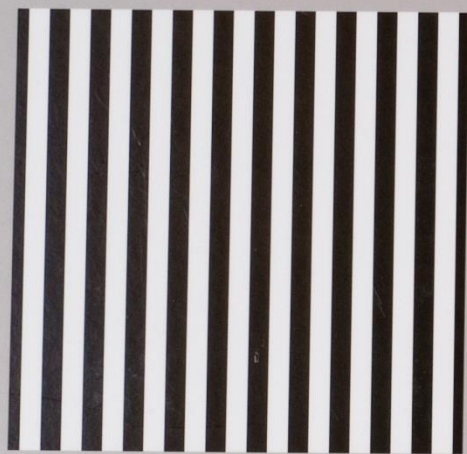
- Gender: m=5 f=5

- Age at last VA:
- Between 4.6 and15.9, mean 9.8

Visual acuity



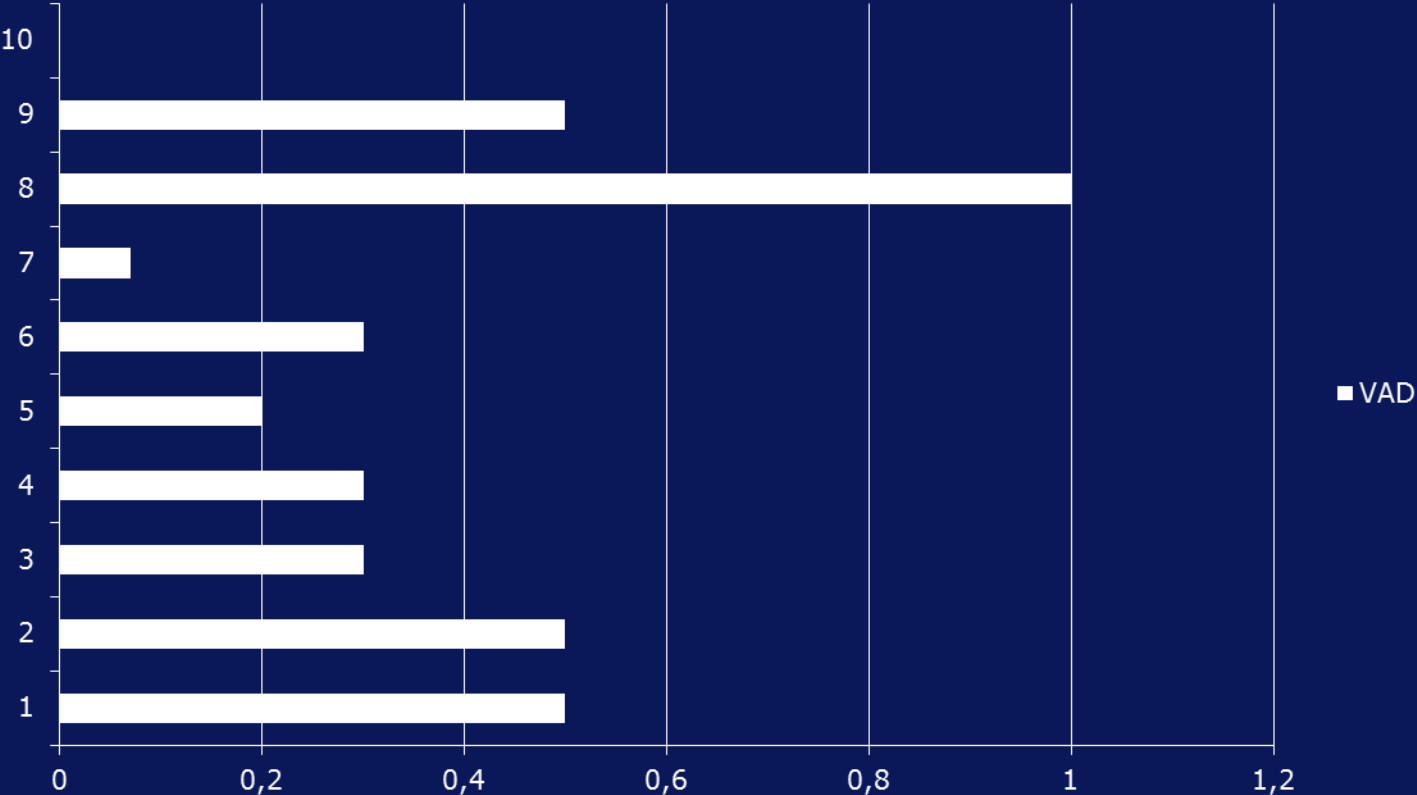
- Teller Acuity cards, preferential looking



Visual Acuity



VAD

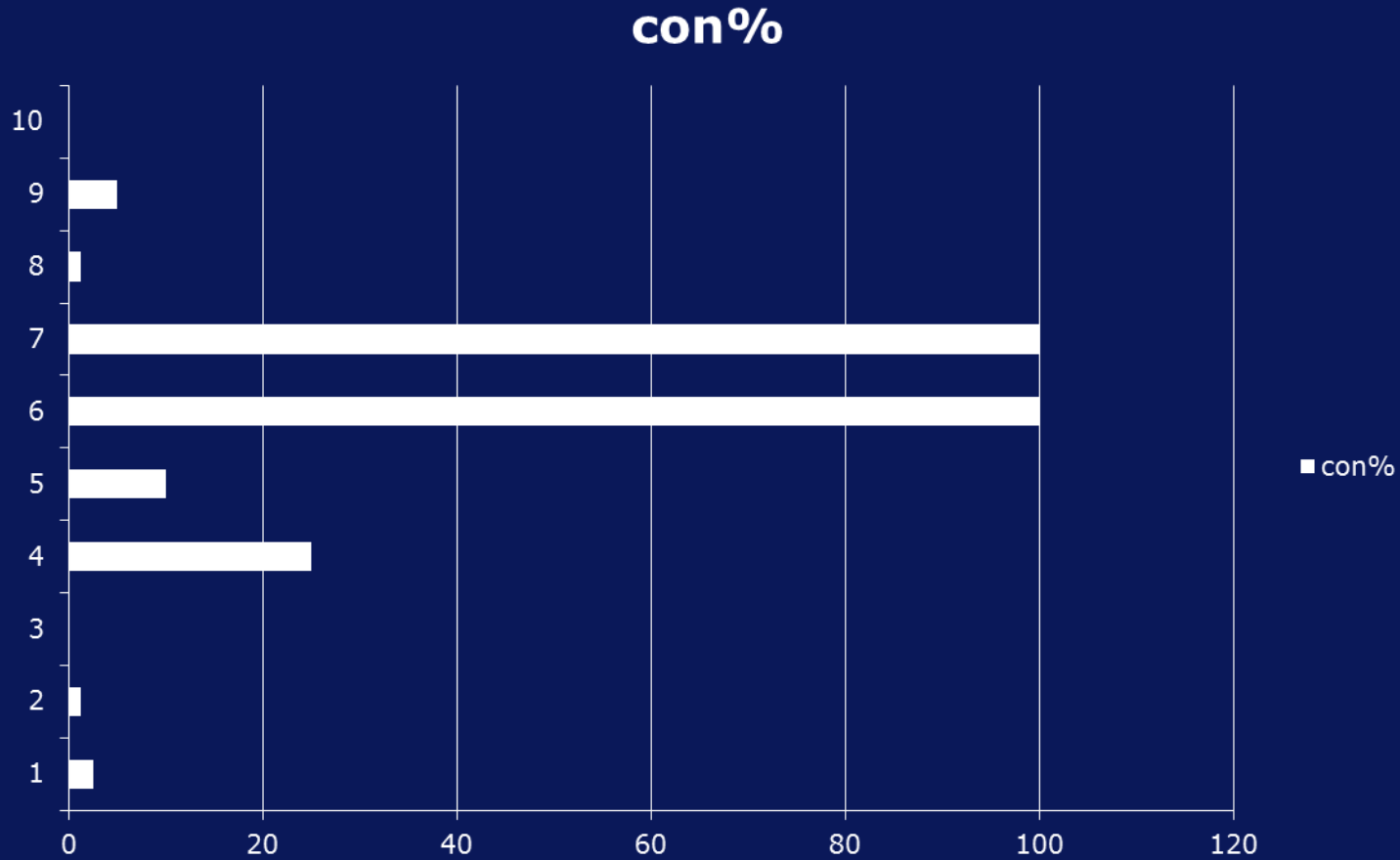


Contrast sensitivity

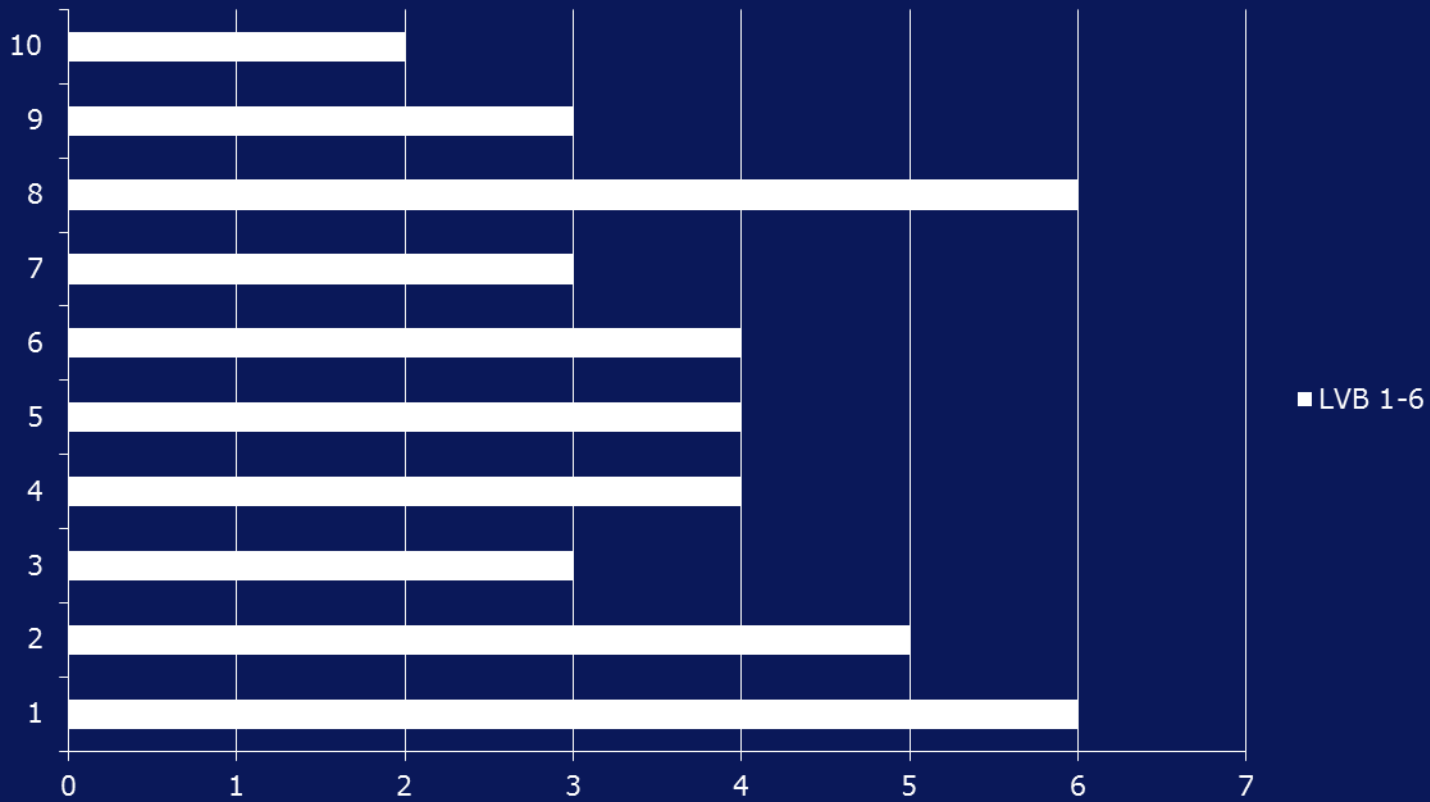
- Heiding Heidi, preferential looking



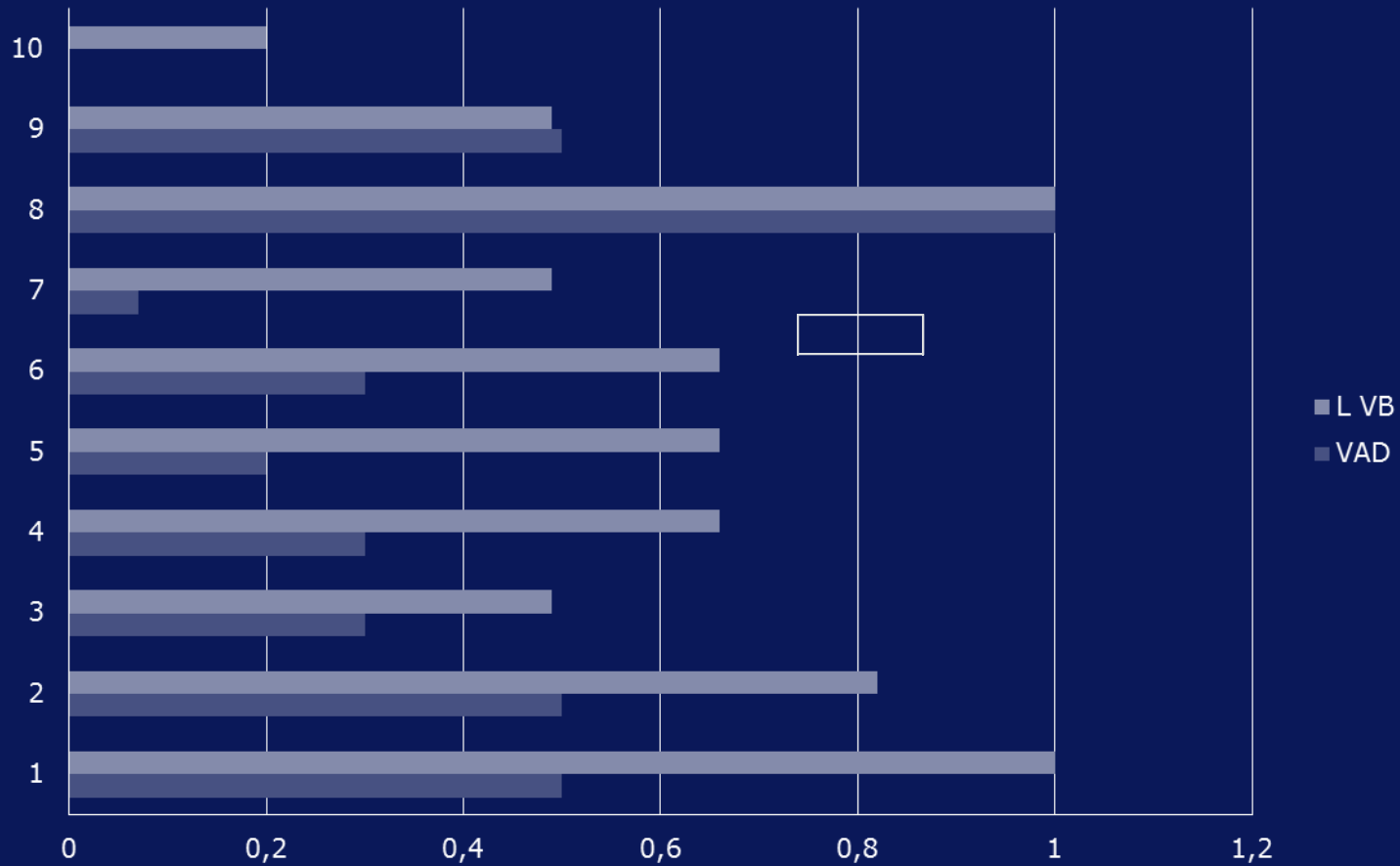
Contrast sensitivity % needed



LVB 1-6



Comparison of Visual Acuity and Level of Visual Behaviour



Further analysis to come



- Level of visual functioning:
 - age
 - level of motor functioning
 - developmental level of functioning
 - characteristics of CVI
- Role of comorbidity
- Role of ophthalmological findings
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Our Message to take home:



- Children with PIMD have a high risk of visual impairment, ocular and /or cerebral
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- Visual assessment of children with PIMD, including observation for signs of CVI, should be included in the care given

Thank you for your attention

- Cortical Visual Impairment, a handbook for parents and professionals
- RBS 1989 Australia, 1994 The Netherlands
- Weet jij wat ik zie? Visio 2007 The Netherlands
- Vision and the Brain, Understanding Cerebral Visual Impairment in Children,
- Ed. Amanda Hall Lueck & Gordon N.Dutton, 2 chapters, 2015 AFB Press USA