# Assessment of visual function in children with multiple disabilities

## Two cases studies of children with cerebral palsy

Nádia Fernandes, BSc and Carla Lança, PhD
Orthoptic Department, Lisbon School of Health Technology, Portugal

There is no actual or potential conflict of interest in relation to this presentation

# Purpose

- Multiply handicapped children have a high incidence of disorders affecting the visual system.
- Assessment and management of visual disorders in this group of children presents a complex challenge.
- This study describes the results of visual function assessment in two children with neurological disability over a one-year period.

# Methods

- The study was conducted in two clinics in Portugal: Topcare Clinic and Portuguese Retinopathy Association.

- After ophthalmologic examination Children underwent an orthoptic evaluation:

  - Visual acuity, contrast sensitivity, confrontation visual field, chromatic vision, cover test, Hirschberg, Krimsky, ocular movements (saccadic and pursuit) and ocular coordination.

# Methods

## Case 1

**Age**: 10 months

**Sex:** female

**Diagnosis**: cerebral palsy

This child had sensory and movement disorders, such as muscle spasticity or rigidity, random movements and lack of balance.

## Case 2

**Age:** 8 years

**Sex:** female

**Diagnosis**: neurological visual loss

| Case | Motor evaluation | Binocular visual acuity | Binocular Contrast sensitivity | Confrontation visual field | Eye-hand coordination | Chromatic vision |
|---|---|---|---|---|---|---|
| 1 | Hirschberg/Krimsky<br><br>Alternant exotropia of 30º | Lea Gratting paddles<br><br>At 86 cm was 12 cpd | Lea Hiding Heidi Low Contrast test<br><br>At 1 m was 10% | Contraction of the lower hemifield (binocular assessment) | Anomalous | --- |
| 2 | Prismatic cover test/ ocular movements<br><br>Infantile right esotropia of 45PD (near and distance)<br><br>Latent/manifest nystagmus with head tilted position<br><br>Null point in down gaze and convergence | Sloan Letters chart<br><br>At 5.80 m was:<br>RE=0.063<br>LE=0.4<br><br>OU=0.2 in primary gaze position and 0.5 with the head tilted position | Sloan Letters Low Contrast test<br><br>At 5.80 m was 1.6% | Normal (monocular assessment) | Normal | Normal |

# Conclusions

- Children needed modifications in the examination techniques to assess visual dysfunction, specially tests standard distances.
- The use of head position it's of extreme value to support the best functional use of vision.
- Models of assessment provide appropriate feedback and explanation to parents, carers and educational professionals.
- Rehabilitation methods need to be tailor made as each child could have it's unique visual and motor deficit.