

Vision in Early Intervention

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L V Prasad Hyderabd in January 28.. 2013

Healthy Infants
with
visual symptoms only

Eye contact – starting communication on day 1

Eye contact

and copying facial expressions

Possible at birth
Should be present at 6 weeks of age
Latest at 8th weeks of age

Communication – at 8 weeks

is well developed in typicaly developing infants

Communication with both parents
Using both vision and vocalizing; taking turns is important already at this age.


12 weeks
Visual communication >> bonding

Delay in Eye Contact

Refractive errors

Accommodation problems

Accommodation

can be weak in otherwise normal looking infants

- 4 month old infant
- Dg: Infantile autism?
- ”Avoids eye contact”

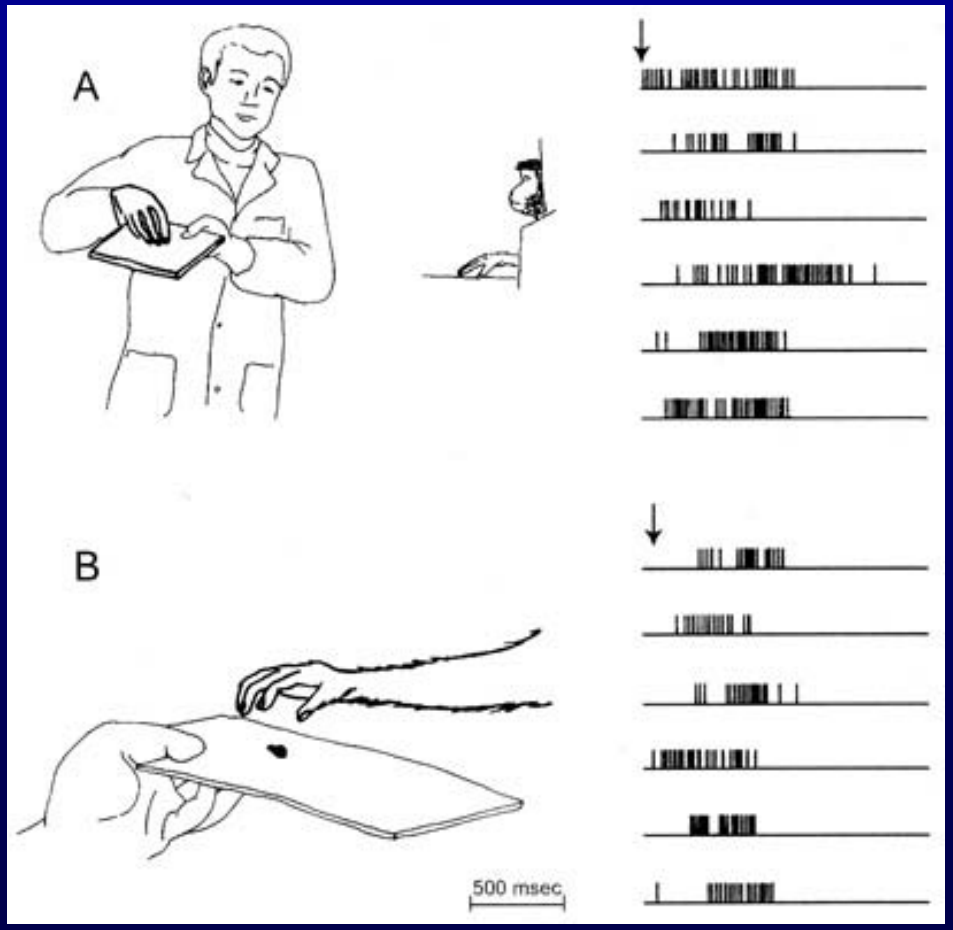
Support for blurred visual information

Early interaction uses:
smell, body contact, voice, Tadoma facial expressions, eye contact.

Vision for communication
is central in early interaction. If vision is impaired, it is supported with tactile and auditory information and bodily contact carryng the infant.

Baby Tadoma technique

Mirror neurons



di Pellegrino 1992

In Pori, Finland

Infant artists

Photo: Päivi Setälä

Tactile and auditory confirmation is important! Multimodal learning.

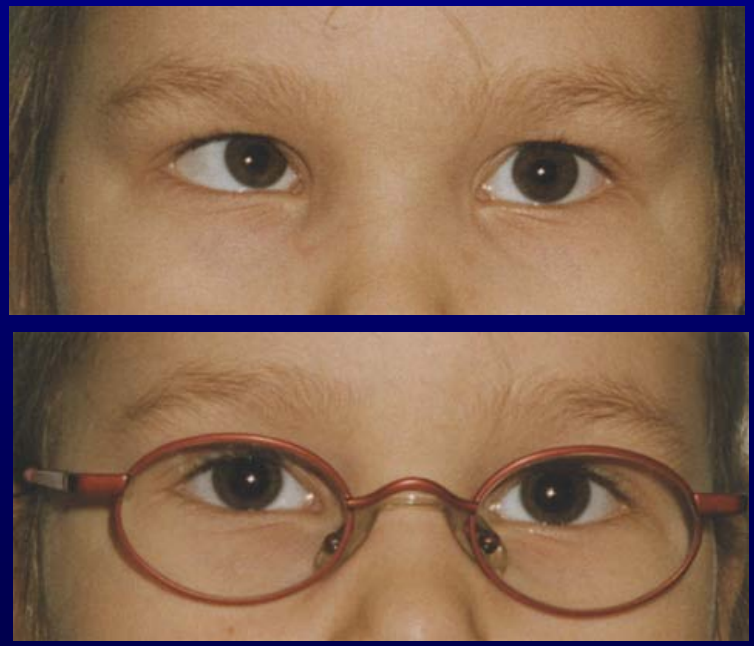
Early Strabismus

Corrective lenses

for esotropia; **prevention of amblyopia**

Optical penalisation = near correction RE blurs the image at distance.

Prevents diplopia, prevents amblyopia



At school age

Recognition of family members

- At the age of 6-8 months, latest at the age of 10 months

Recognition of family members

- At the age of 6-8 months, latest
  at the age of 10 months
- If not; blurred image
  face blindness

Recognition of family members

- At the age of 6-8 months, latest
  at the age of 10 months
- If not; blurred image? Refraction, CS
  face blindness?
- Information to the family

  to persons in early care

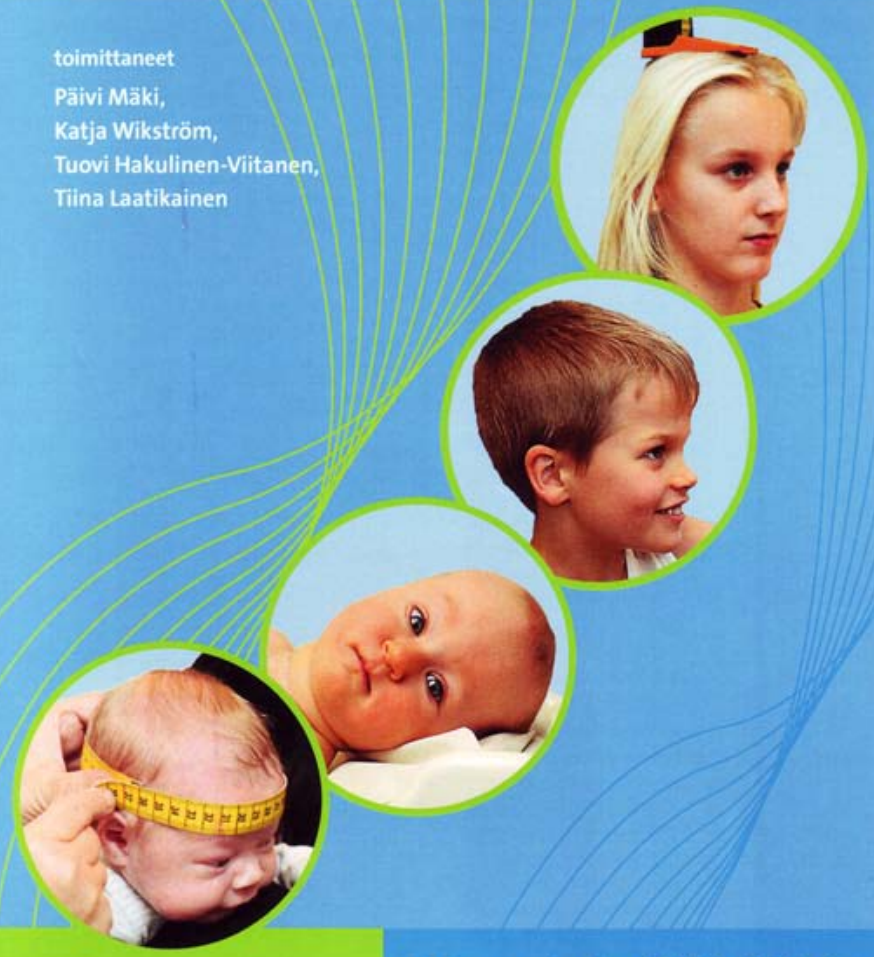
  intervener in groups of infants in early care

  sometimes dark glasses

Terveystarkastukset

lastenneuvolassa & kouluterveydenhuollossa

toimittaneet
Päivi Mäki,
Katja Wikström,
Tuovi Hakulinen-Viitanen,
Tiina Laatikainen



Menetelmäkäsikirja

Vision during the first year

- Visual communication, 4-6-8 weeks, eye contact
- Visual interaction

Hyperopia + poor accommodation

- No eye contact at 8 weeks
- Poor visual interaction
- No interest in following lip and hand movements
- No recognition of family members – ”autistic”
- At 3 years of age dg: Asperger syndrome
  Undercorrected distance correction – no interest
  in near tasks, strategies of blind infants/children
- School age: diplopia, poor near acuity, hyperopia,
  very weak accommodation

Vision during the first year

- Visual communication, 4-6-8 weeks, and interaction
- Vision for recognition of facial features and expresions
- Vision for motor development

Vision during the first year

80% of vision impaired children have other disorders

- Infants with high risk of visual problems
  - Infants with severe birth injury
  - Infants with hypotonia due to Down syndrome or hypotonia due to birth injury
  - Infants with infantile spasms
  - Infants with inflammation/infection of brain

These infants are taken care by the hospitals.

Birth trauma, 3rd nerve palsy> ptosis

movements of all four limbs were atypical

Deformation of head after suction cup

Exotropia – Miosis

lesions in 3rd nerve and Edinger-Westphal nucleus

Ptosis resolved after 2 weeks.
Loss of convergence, accommodation and sluggish pupil reactions remained.

After strabismus operation the child looked normal but was severely visually impaired.

Symptoms of impaired vision

at the age of 8 months

- outward squint operated, poor convergence, alternated;
- the infant brought objects close to the eyes, i.e used **geometric magnification**
- looked at the hair line, not at the eyes , i.e. pushed the **central scotoma up,**
- explored carefully with hands and mouth.
- Later recognised people at 18 months of age (voice?)
- Later moved freely and seemed to know where he was.

Dg: Spasticity in all four limbs, especially hands, severely impaired vision.

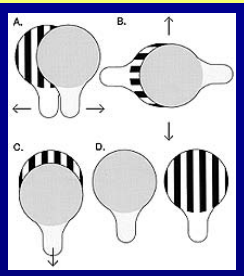
Vision was assessed with Teller Cards only > ”Normal”.

Clinical examination

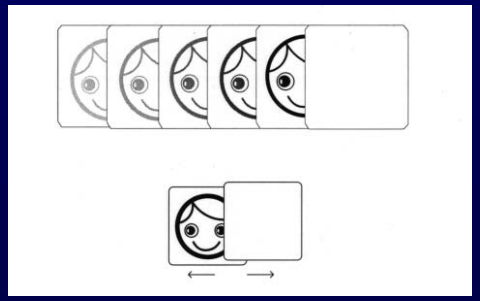
gives the foundation for the assessment of visual functioning

Fixation to penlight, to picture, following, saccades, accommodation, convergence, visual communication, refraction, spectacles

Photo: Miguel G. Alvares, MD Brazil



Detection of gratings



Hiding Heidi test

Contrast sensitivity

Hiding Heidi test for measurement of communication distance

If the infant responds with a social smile,
he must have seen the picture of smiling face,
at low contrast and moving – like the facial
expressions on the face.

Figure-in-motion, Pepi-test

possible often at the age of 4 months

Near correction and head support
are important.
Facial skin can be hypersensitive.

Can be copied @
www.lea-test.fi

Constricted visual field

Illuminated ball used by child’s own therapist.

Assessment >> Early Intervention

Awareness of hands
⇨ Fixation

1. Normal hand
2. Spastic hand

Eye contact

when reading lenses gave a clear image on the retina

Reaction during assessment of her brother

noises and body language to shows disapproval

The infant was aware of her environment, had opinions on activities and could express her opinions.

Vision in motor training

ten weeks later: improved visual and motor functions

Infant’s favourite toy was used to entice her to turn on the stomach.

RE: Grating responses lagging those in LE > training as a part of physiotherapy: patch on LE, stimulus in the right hand.

Impaired vision affects

development of following areas of functioning:

- communication
- interaction
- motor development
- spatial concepts
- orientation in space
- object permanence
- language

Vision loss affects

development of following areas of functioning:

- communication
- interaction
- motor development
- spatial concepts
- orientation in space
- object permanence
- language, content

Delay in any developmental area needs to be investigated.

Fragile baby

Gentle activation of a baby with hydrocephalus. Notice the joy during the play therapy. Comfortable support of posture on the knees of the play therapist (not in a baby sitter) and with good head support.

Low tonus and poor head control

Strong visual stimulus, the LEA doll and illuminated picture of face activate control of motor functions.

Playmat and resonance board

for learning orientation in space and listening skills

Plywood board on 2 inch frame functions as a drum and makes the infant aware of his movements. Echos from the washing basin and the waste basket train listening. Orientation in space supported.

Light coloured surfaces rough, dark surfaces smooth> vision and touch coinside.

”Little room”

made of a brown paper box

Vision, touch, echos, and
measuring space with his own body.
Notice exploration with feet
by this typically developing blind boy.

I moved!

I moved again, the same thing happened!

Start stimulation without delay with coordination of vision and movement.

Leo Video

how to create play situations for motor and spatial experiences









Early vision intervention

means supporting

- Communication: speech, singing, close distance for visual communiction, good contrast on the face = make-up
- Close bodily contact: sling, plenty of ”gymnastics”
- Awareness of hands and body: as a part of play

And structuring the environment: playmat, little room, resonance board

- NOT: black room + penlight or glittering toys

Early Intervention

requires

Early detection of the disorder

Early treatment of treatable conditions

Assessment of Functioning

Early visual intervention should start

as soon as a visual impairment is detected

as an integral part of examinations and treatment

and continue at home as local health care.



Early intervention strategies

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Slides will be @ www.lea-test.fi