



?CTI ?

Tactual Information Processing
Impairments in blind children born
very prematurely

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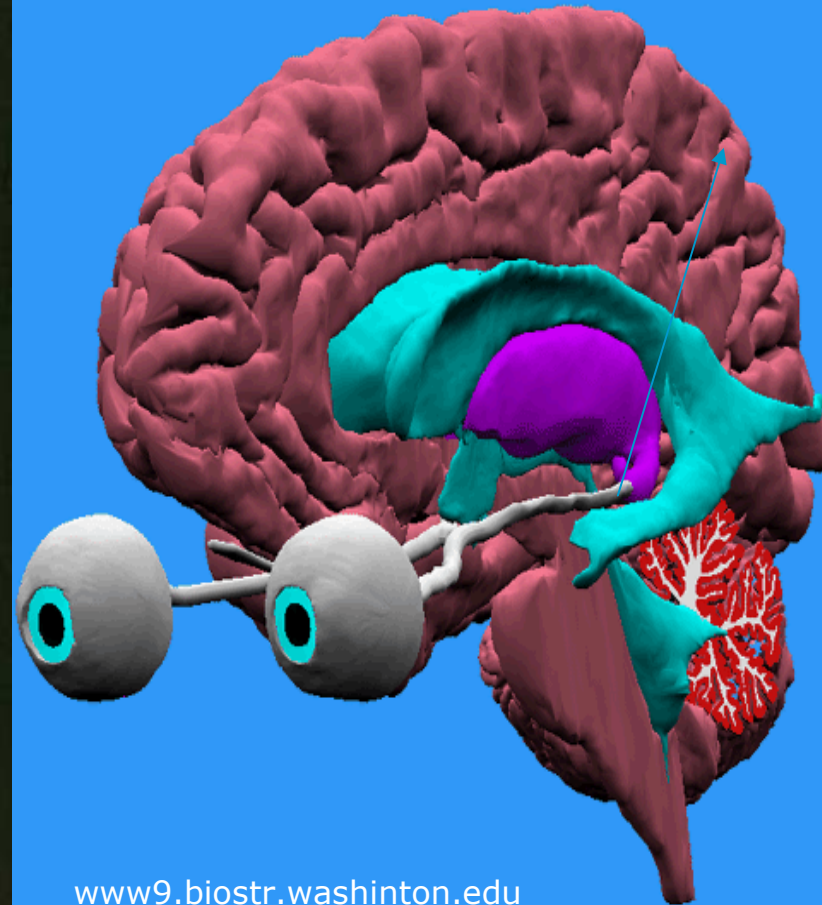
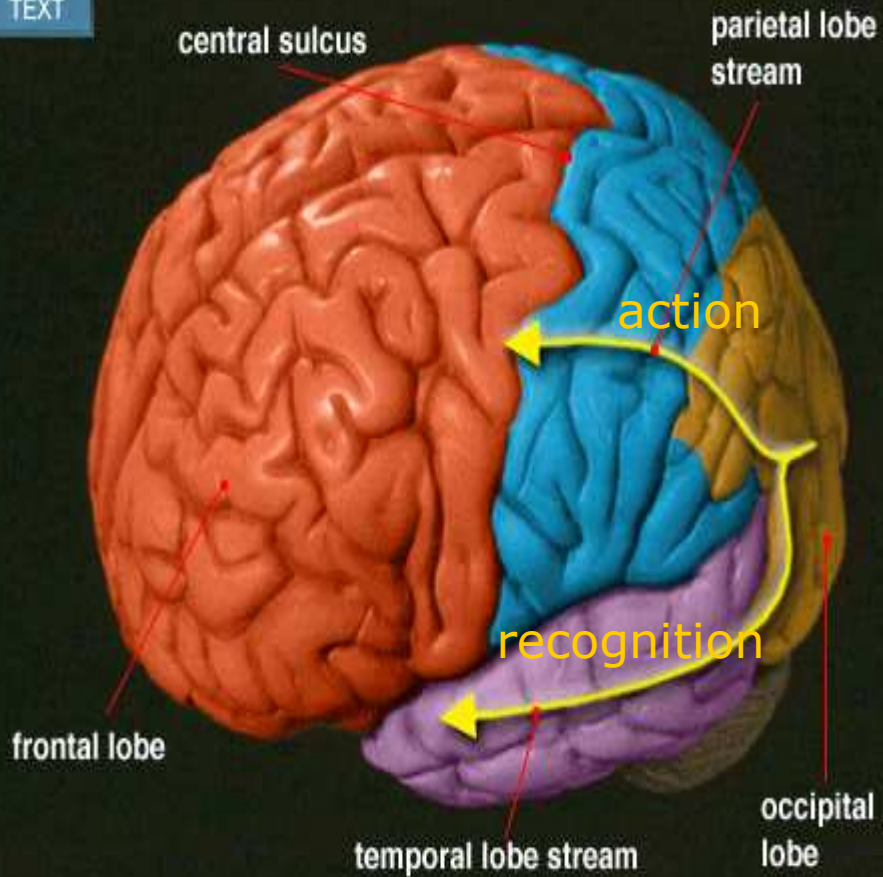
♂'95 premature birth 27wk 935gr (gemelli)
ROP (blind LP+) PVL

- Sensory Information processing problems
- Oversensitive for touch and sound, vestibular ↓
- R bodyside stronger than L
- Verbal IQ (WISCIIIInI) 98; performal much lower,
- personality +, family +

- School history: doubts about cognitve capabilities, possibly dyslexia, severe problems in mobilitytraining and somewhat in arithmetic
- Has just started secondary education Visio

hypotheses

TEXT



Test choices

- *Tactual*
- Letterbox (direction test)
- BLAT (blind learning aptitude test 6-19y)
- Tactual Form Perception (Benton) adapted 8y↑
- Simple Formboard Reitan 5y ↑& drawingmap

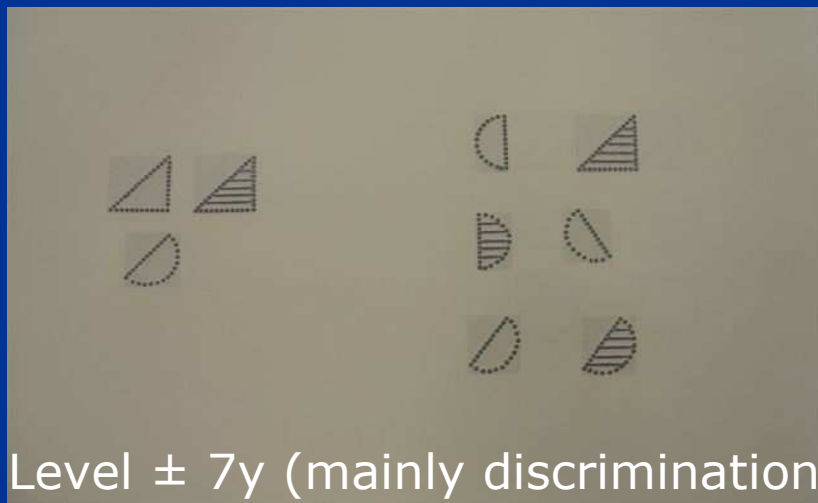
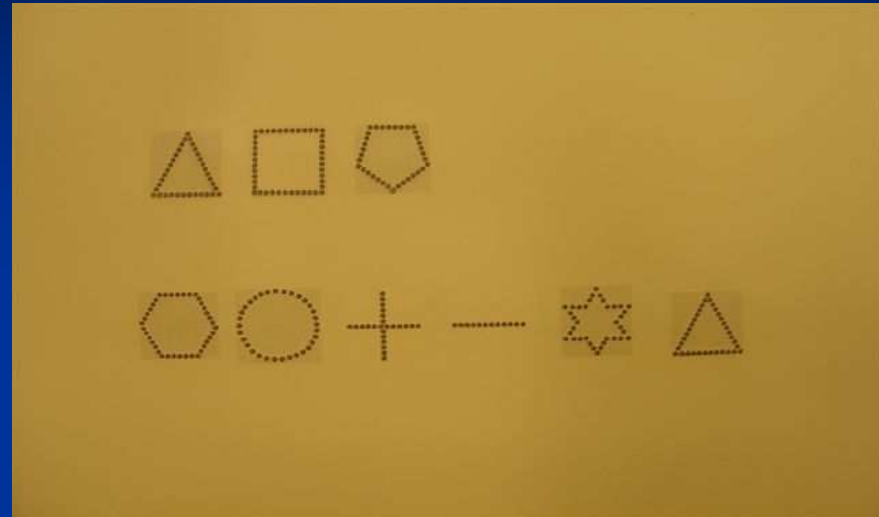
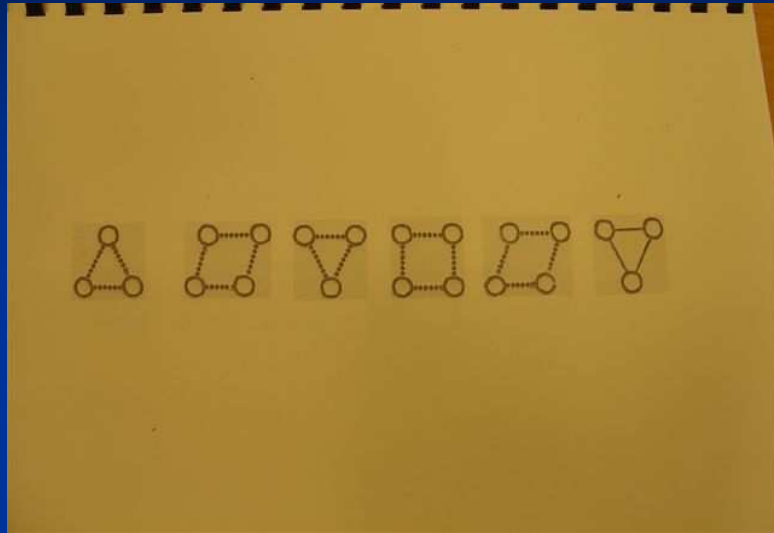
- *Auditory*
- Memory: letters forward (ToMaL5-19y) and 15 words test
- Auditory Attention & Response (Nepsy 5-12y)
- Count! (TEA-CH 5-16y)& double task
- Knock & Tap (Nepsy 5-12y)
- Walk, don't walk (TEA-Ch 5-16y) go,no-go



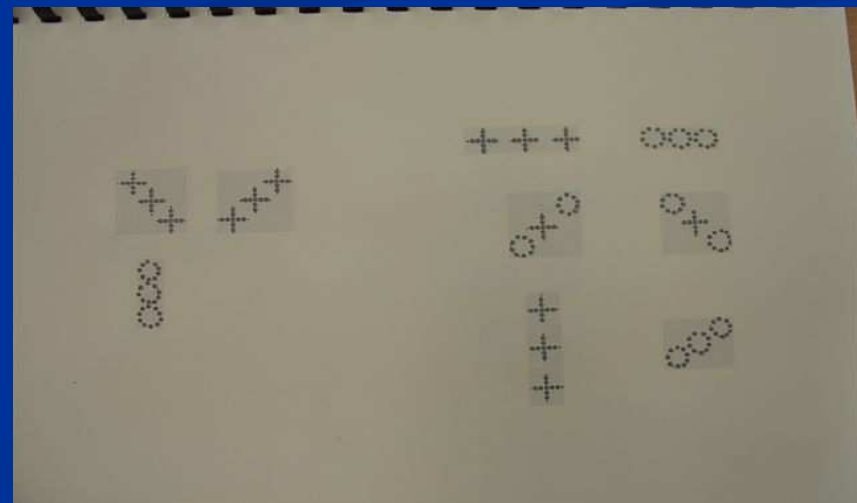
Atkinson & Braddick letterbox .

Fails task

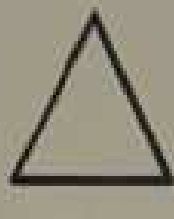
Blind Learning Aptitude Test (BLAT)



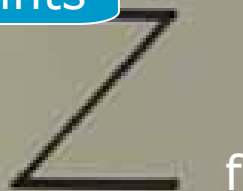
Level \pm 7y (mainly discrimination)



Circle+circle
above



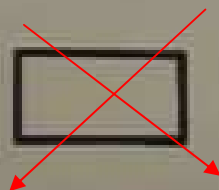
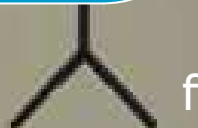
4 points



Collection of
points

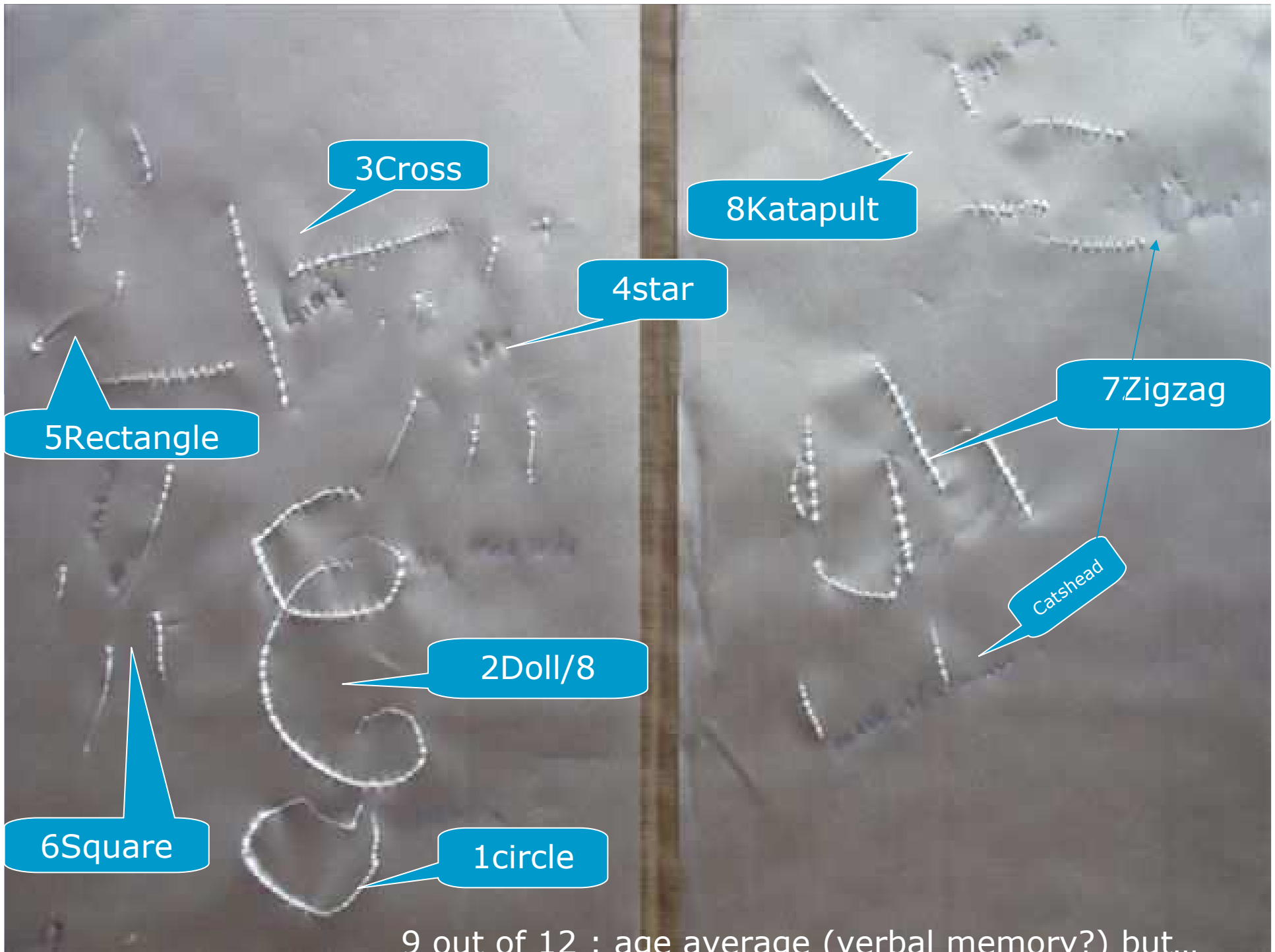


Circle with
2 points



8 found after naming!

(± 8yrs)



9 out of 12 ; age average (verbal memory?) but...

Easy Form Board Reitan



Fits 2: cross, diamond (6/7 yrs)

Auditory alone

- Working memory (ToMal letters forward): age level stsc 10
- Longterm memory (15 words): 11 by second offer and in recall agelevel↑
- Count! (TEA-CH)& double task: st sc 13 (mean 10)
- Very concentrated! Nothing moves.

Auditory+propriocepsis sitting

- Knock & Tap(NepsyI 5-12y): score 28 out of 30
- **Auditory Attention & Response (NepsyI)**
Colours replaced by texture blocks in baskets (wood, smooth, felt/soft, flat rubber) and text read out alive

If not too fast OK



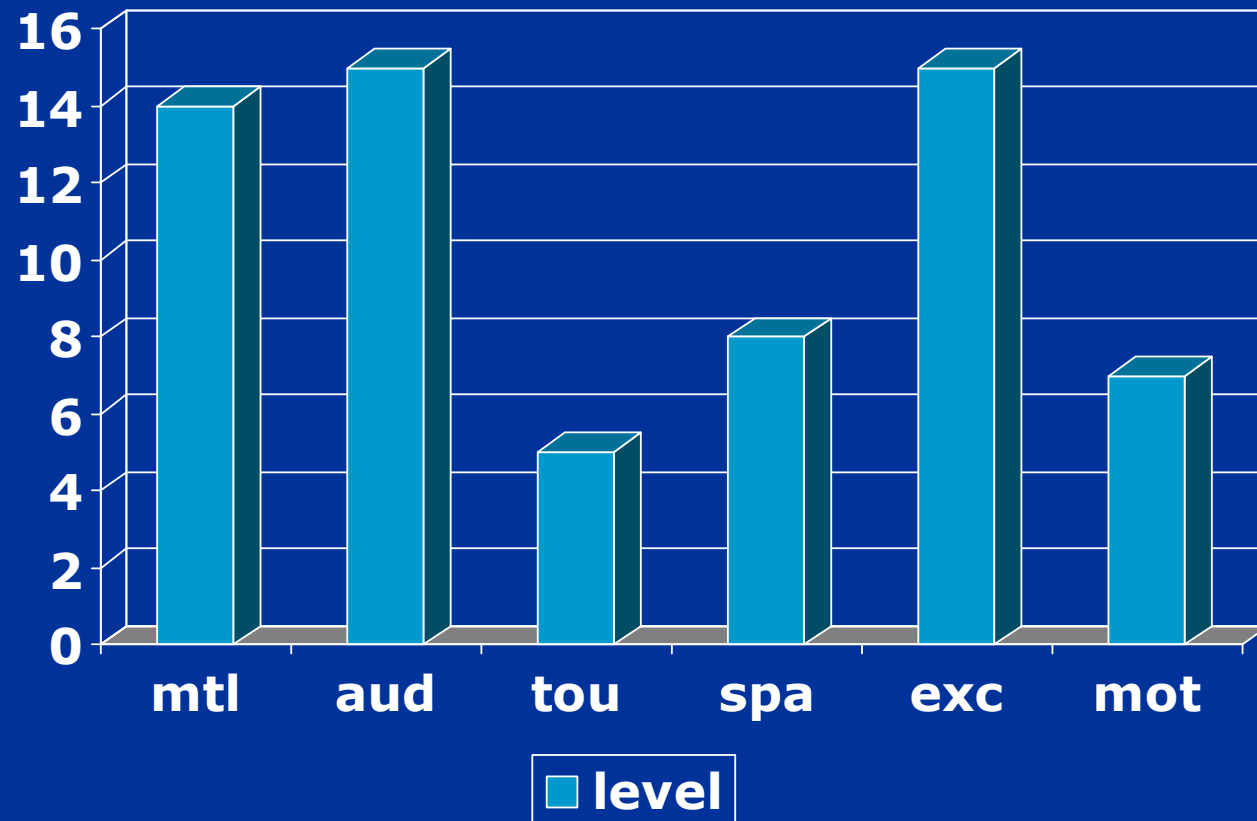
Auditory + proprioception + vestibular

- Walk, don't Walk (TEA-Ch 5-16y)
go, no-go

Adjusted: not as paper/pencil but by starting standing against wall and doing it himself

Troublesome!

Function profile



Attentional field: misses a part in lower field

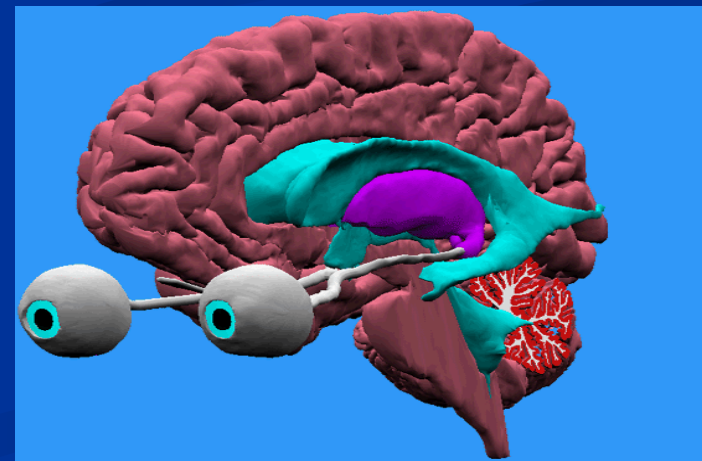
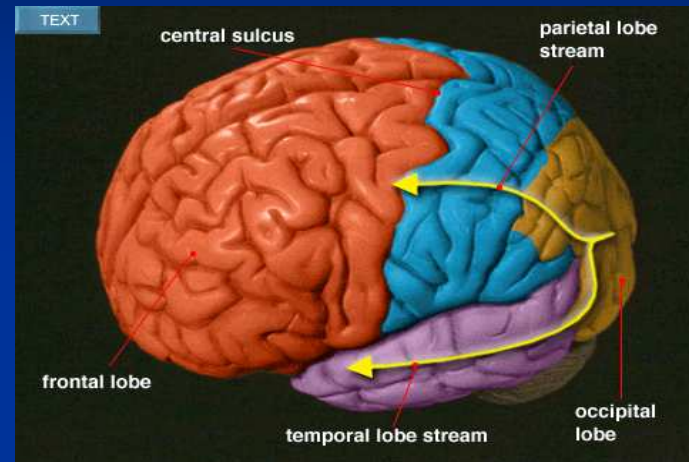
Conclusion 1

In the prematurely born blind group there seems to be a subgroup with

- normal cognition
- and multiple sensory limitations
- mainly living in an auditory world

Asking us

- tell me how the world sounds
- for adjustments in school programs and exams



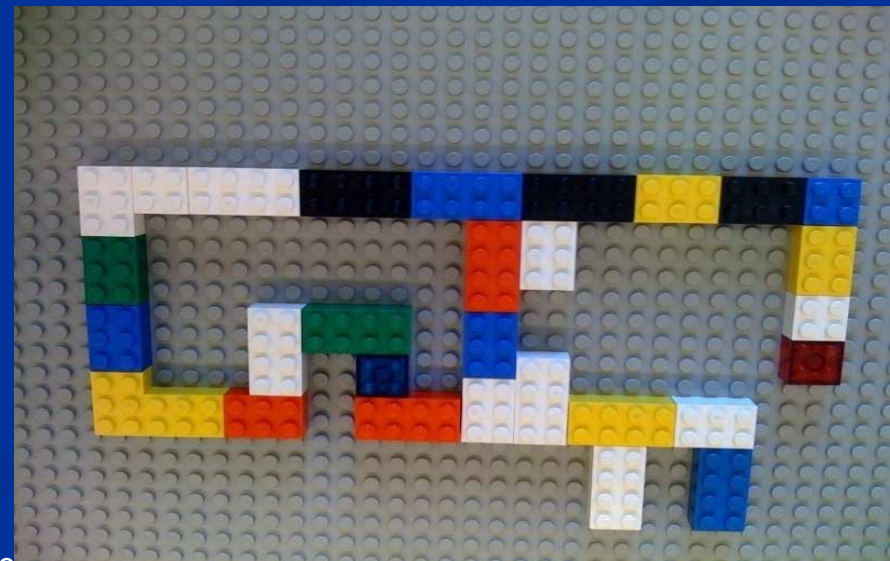
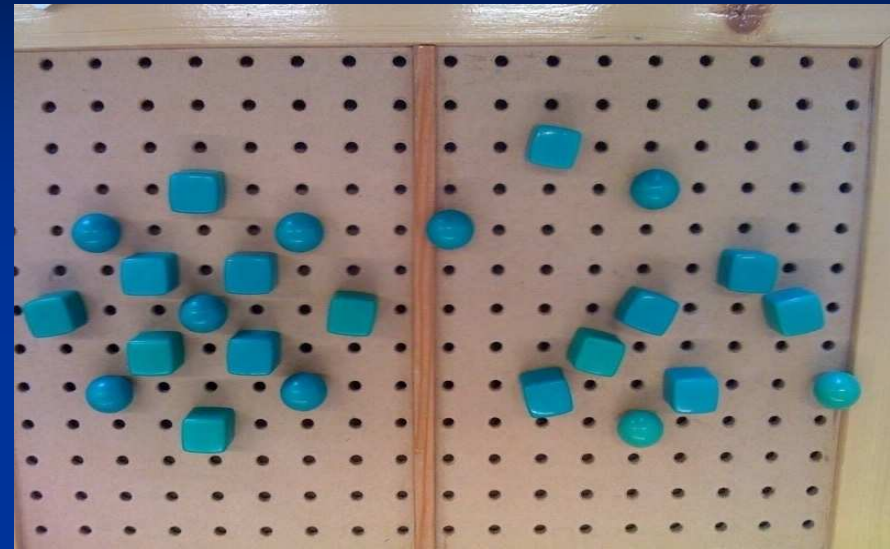
♂ **14 yr ex-pr/dysmature 28wks 740 gr**
ROP SIPP, ADHD, GdIT

School questions

- Is it advisable to go on with tactual training?
- Why is reading out of braille books so difficult?
- What to do about the sloppiness?
- How to offer new tasks?

Problem areas tactual profile

- touch sensitivity
- figure underground
- tactual spatial
- construction /reproduction



Functional data

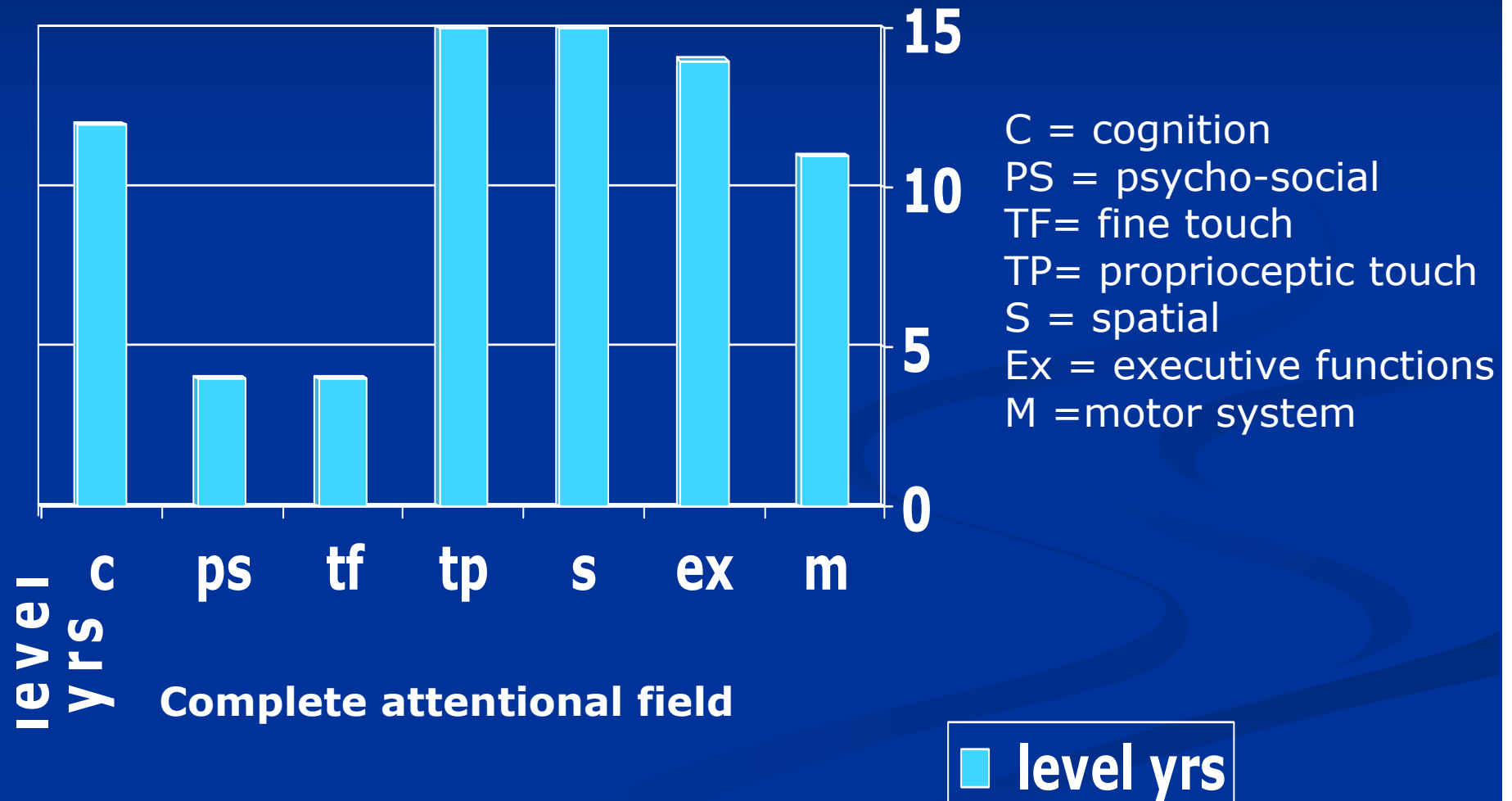
- Known with severe over/under registration problems (SIPP) from the start
- Motor: stiffly, mobility good
- Verbal concepts 88 (WISCIII-nl)
- Auditory memories: mean for age (15wrds)
- Auditory attention: mean for age (Tea-Ch)
- Auditory- motor integration: mean
- Psycho-social

Reitan formboard 2



Excellent with a spontaneous double task

♂ 14 jr ex-pr/dysmature ROP SIPP, ADHD, GdIT



♀ **12 yr premature birth 26 wks &
850 gr
ROP SIPP ASS**

School and parents ask

- Can arithmetic, mobility and spatial orientation possibly be improved?
- Is there more possible in learning?

Tactuell profile problem areas

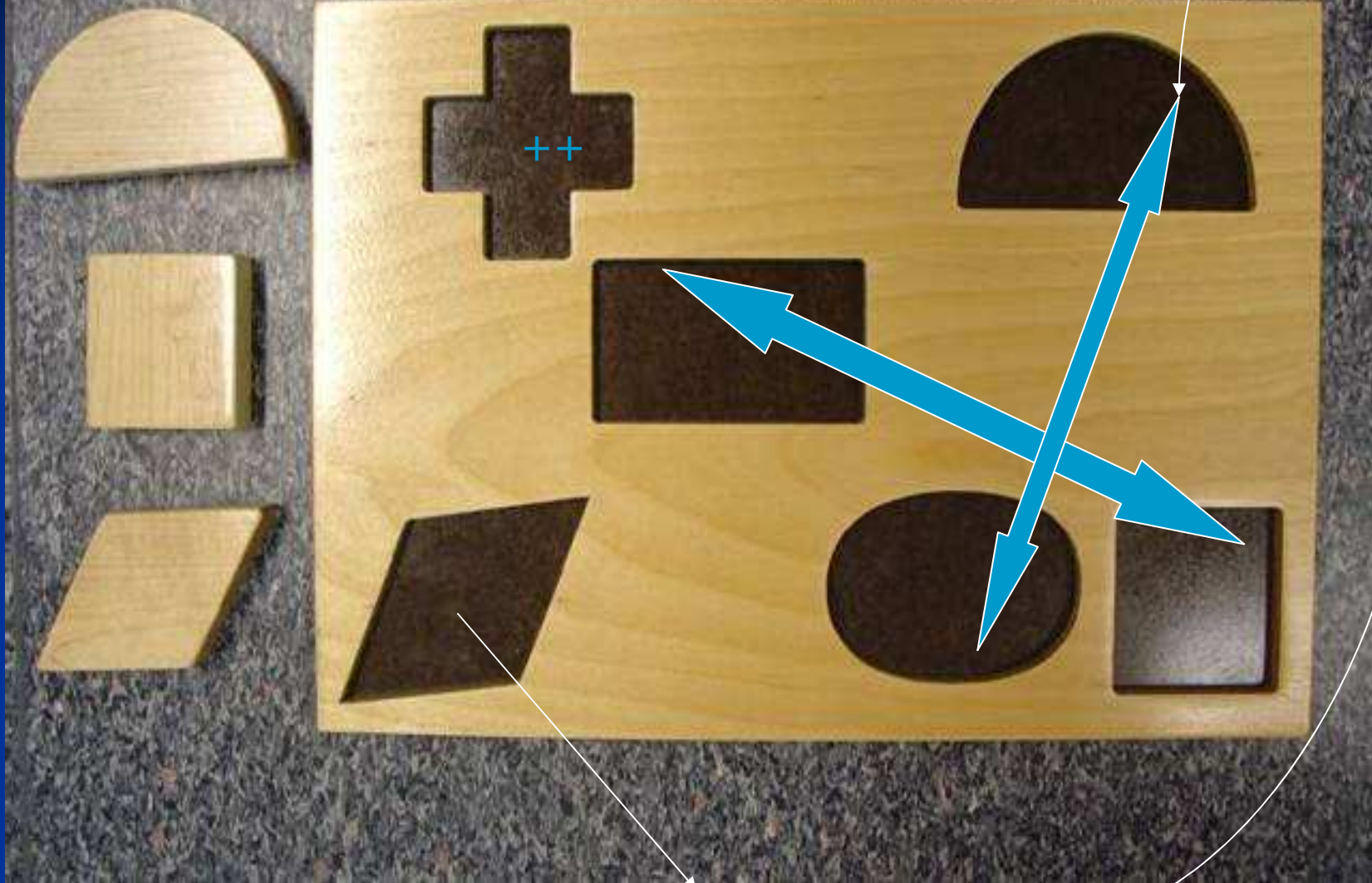
- Proprioception out of own body
- Tactual spatial

Function data

- SIPP:propioception, vestibular and muscle tone low. Alertness changing
- Verbal understanding: 8/9 yr (WISCIIIInI, WPPSI IVnI)
- Social- emotional

- Letterbox : OK
- BLAT: score 12 so without help only discriminatory tasks (6/7yr); misses many items taking up a task
BLAT: score 17 with limit testing 8/9 jr

Easy formboard Reitan



Direct recall: cross T26 ($\pm 5jr$),
After a week 4!!! More comparable to cognition

1 circle, circle



2 dnkn, triangle



f



3 square



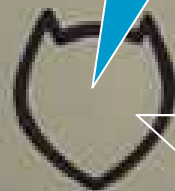
f

4 little way



f ?

5 circle

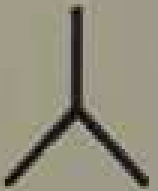


f



?

f



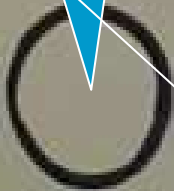
f

6 rectangle



f

7 circle



f

After 7: there are no more!
Looked at and named the rest together
(way+ circle, groupway,
piece of pie, weg, crossing)

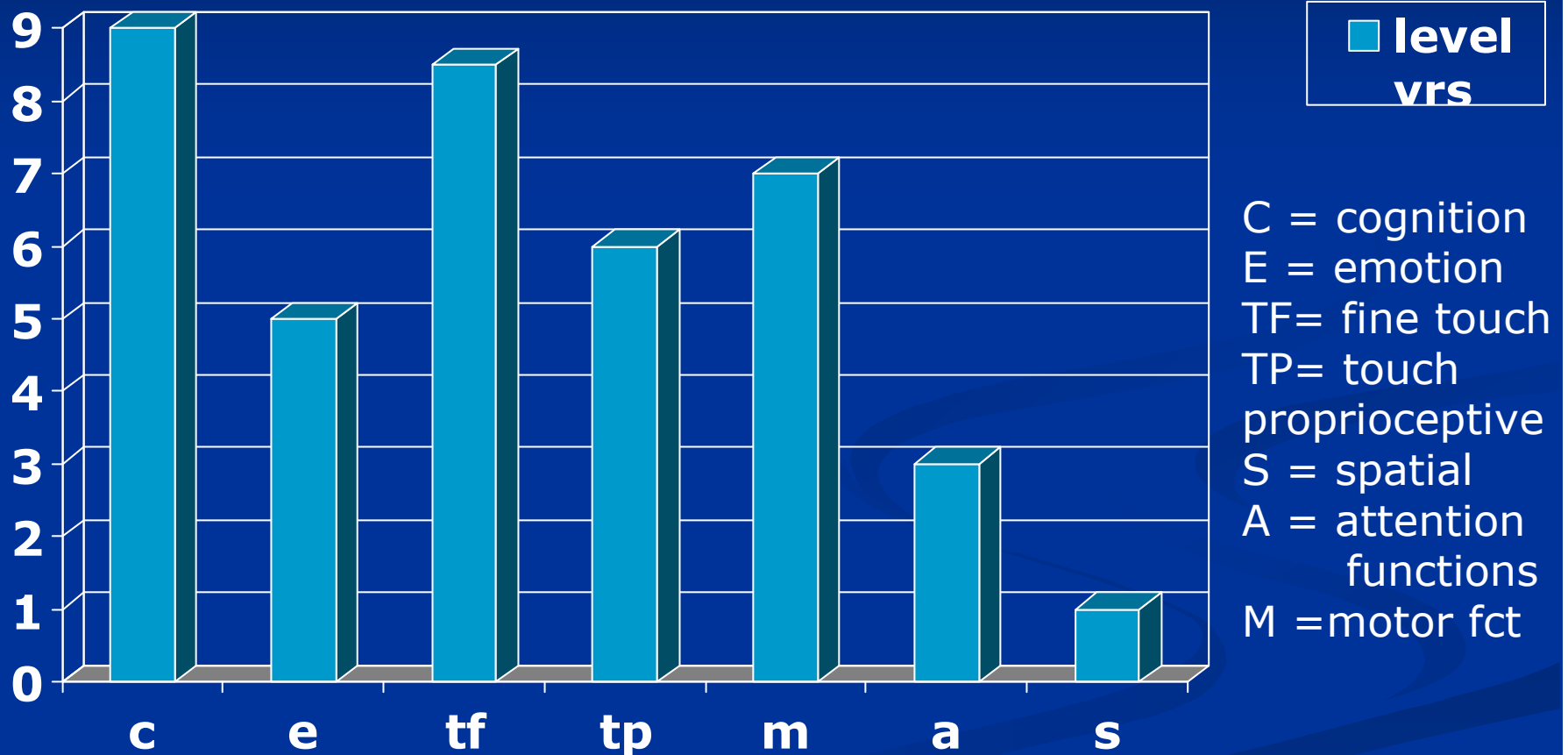


Finds 8 Level ± 6jr

Memory and attention

- Verbal working memory: 7/8 yr with digit span (WISCIIIInI) and 15 wrd test
- Verbal long term with 15 wrd test: Tscore $34 \pm 6/7$ jr. Striking reproduction build up, attention seems to shift
- Attention for the whole haptic field: main problem seems to be haptic "gaze" shifting. Impairment in directing and planning attention
- She remains dependent upon external structured environment.

♀ 12 yr ROP SIPP ASS



Small attentional field, ever shifting (directing attention impairment)

Conclusions 2

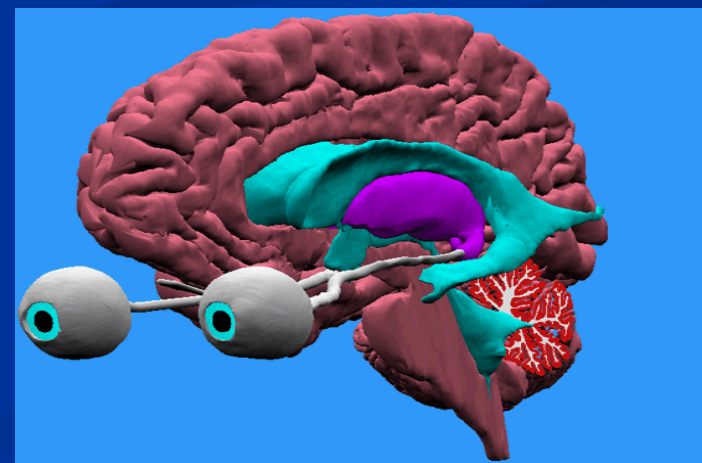
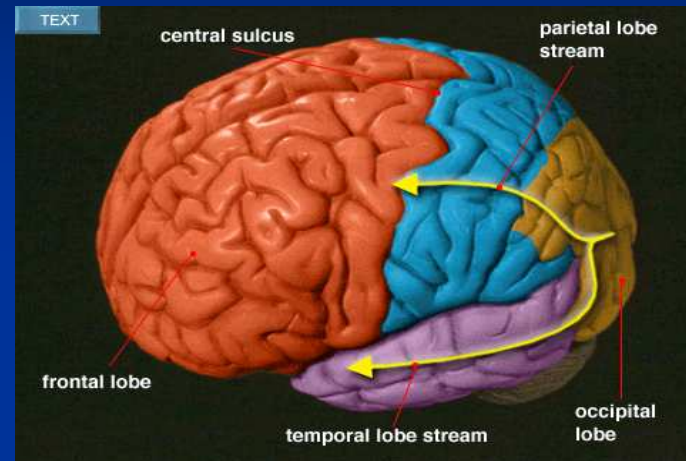
In the prematurely born blind group there seems to be a second subgroup with

- Relatively normal cognition
- Limited psychosocial development
- Some with severe attentional deficits
- Light motor impairments

Also mainly living in a auditory world

Asking us

- tell me how the world sounds
- for adjustments in school programs and exams



Conclusion 3

In haptic information processing a picture as complex as in CVI appears =CTI or tactual information processing impairment