



Case Study

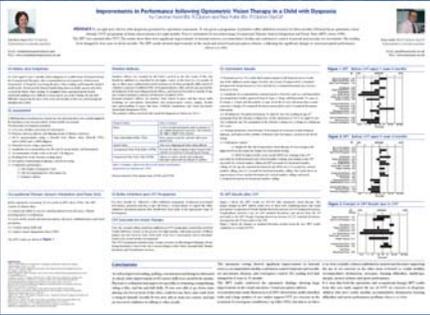
- Why publish?
- Where can I get the full paper?
- History, symptoms, initial assessment.
- THE RESULTS.



Improvements in Performance following Optometric Vision Therapy in a child with Dyspraxia

Hurst, Caroline M. F.,
Van de Weyer, Sarah,
Smith, Claire &
Adler, Paul M. (2006)
Ophth. and Phys. Opt. 26 (2),
199-210.

Poster, Paper – email candahurstoptics@aol.com



O.T. Referral - Subtle dyspraxia

- Poor proprioception,
- Delayed bilateral integration,
- Poor visual perception.



Praxis

- Means 'action based on will'.
- From the *Greek* meaning, doing, acting, deed and practice.
- Primarily the planning of a motor act.
- Requires knowledge of action and objects, plus motivation and intent on the part of the person.

Apraxia

- An inability to perform a learned action, or
- An impeded ability to learn a new action,

in the absence of paralysis, sensory loss or disturbance of muscle tone.



Dyspraxia

- Motor planning defects that are developmental rather than acquired.



Skill Difficulties in Dyspraxia

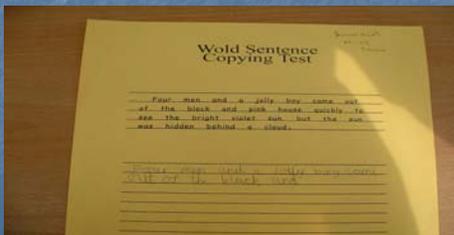
- A continued misjudgement of distance and time e.g. bumping into objects / people, failing to catch balls etc,
- An inability to co-ordinate complex movements for sports e.g. running, kicking, catching and throwing,
- Poor balance and postural control,
- Low self esteem and confidence.

Skill Difficulties in Dyspraxia

- Difficulties in manipulative skills e.g. writing copying, drawing, dressing and eating,
- Slow reaction times, and inefficient, poorly timed movements lacking rhythm,
- Poor physical fitness, and are often less physically active,
- Poor fitness can prevent optimal performance and can compound movement difficulties.

Sam's difficulties

- Losing his place when reading, especially in the middle of the line.
- His handwriting, with poor use of the line, letter crowding, and frequent reversals.



Sam's difficulties

- Copying from the board
- Sequencing days, months, alphabet and can't do multiplication tables.
- Unable to use graph paper.
- Spellings are both difficult to learn, and to use when writing.

Initial Assessment

Convergence - near pt	10 cm
effort needed	Effort ++
Accommodation	
- amplitude	R 10, L 10, Bin 10cm
- facility	R 9, L 9, Bin 7½ cpm
AC/A	+1.00 on 7 Δ/DS +1.00 off 5 Δ/DS -1.00 on 4 Δ/DS -1.00 off 2 Δ/DS

Initial Assessment

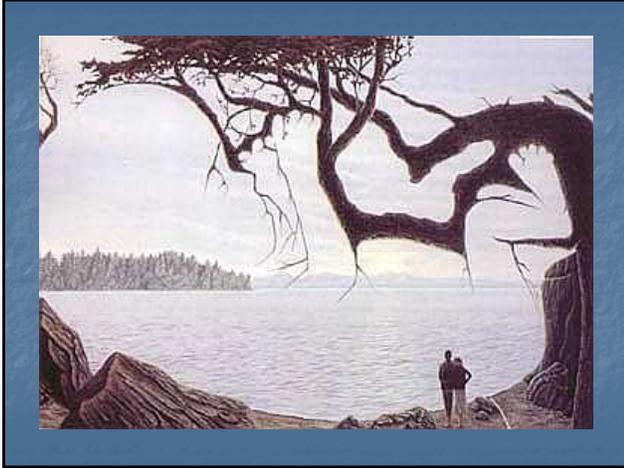
Fusional Reserves	Blur/Break/Recovery
Distance - base in	- / 6Δ / 4Δ
Distance - base out	- / 4Δ / 2Δ
Near - base in	- / 15Δ / 12Δ
Near - base out	- / 8Δ / 6Δ

Initial Assessment

Reading (Maclure chart)	N5, age 6/7
Physiological Diplopia	Poor
Brock String	Not aware of where he is looking

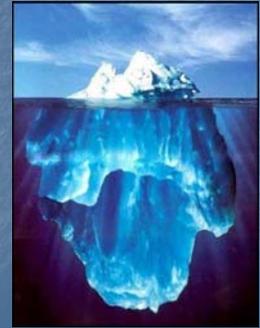
Initial Assessment- Maples + DEM

Pursuits	Ability	5
	Accuracy	1
	Head Movement	1
	Body Movement	1
Saccades	Ability	5
	Accuracy	1
	Head Movement	1
	Body Movement	1
DEM	Vert Perc Rank	25th
	Horiz Perc Rank	25th
	Ratio Perc Rank	40th



Retained Primitive Reflexes can interfere with:-

- Control of gross and fine motor skills including eye movements.
- Kinaesthetic and proprioceptive senses.
- Timing, rhythm and the understanding of space and time.
- Vestibular integration.
- Visual perception.



Primitive Reflexes

The primitive reflexes involved with visual development are :-

- Moro
- Tonic Labyrinthine Reflex (TLR)
- Spinal Galant
- Asymmetric Tonic Neck Reflex (ATNR)
- Symmetric Tonic Neck Reflex (STNR)

Primitive Reflexes

Retained primitive reflexes therapy - a reflex inhibition programme of physical stereotyped movements, practised each day, to give the brain a 'second chance' to register the reflex inhibitory movement patterns that should have been made at the appropriate stage of development.



(Goddard 1996)

Primitive Reflex Inhibition and Integration Programme - 3 months



Retained Primitive Reflexes

	Initial 18.9.02	Post Reflex 13.12.02
Moro	0	0
TLR	4	0
SG	1	0
ATNR	4	1
STNR	3	1 just

Optometric Vision Therapy 8 months



Optometric Results

Fusional Reserves	Initial 18.9.02	Post Reflex 13.12.02	Final 15.8.03
Distance Base in	- / 6Δ / 4Δ	- / 6Δ / 4Δ	- / 12Δ / 10Δ
Distance Base out	- / 4Δ / 2Δ	- / 15Δ / 6Δ	- / 20Δ / 15Δ
Near Base in	- / 15Δ / 12Δ	- / 15Δ / 8Δ	- / 20Δ / 15Δ
Near Base out	- / 8Δ / 6Δ	- / 20Δ / 15Δ	- / 25Δ / 20Δ

Accommodative facility



Optometric Results

	Initial 18.9.02	Post reflex 13.12.02	Final 15.8.03
Reading (Maclure chart)	N5, age 6/7	N5, age 7/8	N5 age 10+
Physiological Diplopia	Poor	Accurate	Accurate
Brock String	Not aware of where he is looking.	Beginning to make a cross in the string at each bead.	Can make 9 jumps there and back easily on the string.

Optometric Results - Maples

	Initial 18.9.02	Post Reflex 13.12.02	Final 15.8.03
Pursuit Ability	5	5	5
Accuracy	1	3	5
Head Movement	1	3	5
Body Movement	1	3	5
Saccades Ability	5	5	5
Accuracy	1	2	5
Head Movement	1	1	5
Body Movement	1	2	5

DEM - Percentile Rank

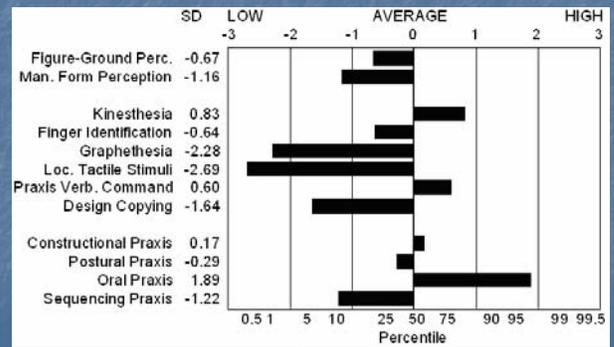


SIPT

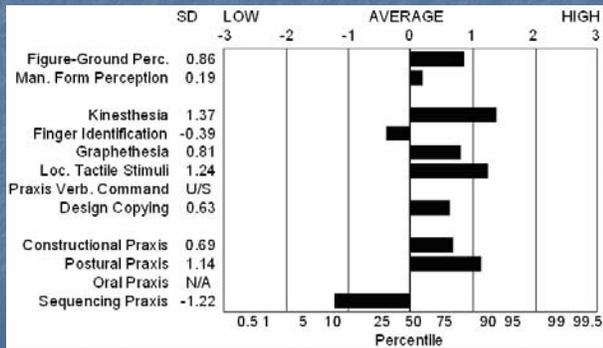
A test battery containing tests for :-

- Visualisation and visual perception, without involving motor co-ordination
- Combined motor and visual perception,
- Evaluation of praxis skills,
- Sensory Integration.

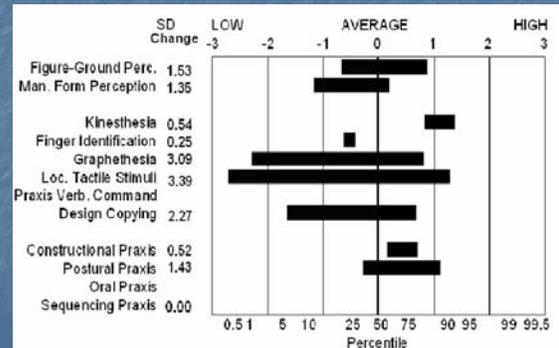
SIPT Results 28/3/02 Aged 7y 9m



SIPT Results 28/7/03 Aged 9y 2m



SIPT Results due to OVT



Life Skills

- Can now go down stairs one foot after the other, and can become dizzy.
- Physical co-ordination improved especially swimming, trampolining, bike riding, ball skills.



Life Skills

- Improved reading, spelling, concentration and less distracted at school.
- Socially now able to make eye contact, and has increased confidence.



Conclusions

Improvements in optometric skills:-

- fixation,
- spatial and peripheral awareness,
- convergence control,
- fusional reserves,
- accommodative facility,
- oculomotor control of pursuit and saccadic eye movements.



'Sam refused to abseil down frontwards as he could see how high he was, whereas before he never had the depth perception to realise how dangerous something was.' (C.Smith)



Conclusions

- Reading Level
- Optometric results reinforced by Occupational Therapy SIPT results.



Rawstron J.A., Burley C.D.,
Elder M.J. (2005)

A systematic review of the applicability and efficacy of eye exercises.

J Pediatr Ophthalm Strabismus. 2005
March-April; 42 (2): 82-88.

Rawstron J.A., Burley C.D.,
Elder M.J. (2005)

- Convergence insufficiency
- TBI
- Ocular motility, accommodative dysfunction, stereopsis, learning difficulties, amblyopia, myopia, motion sickness and sports performance.

Hurst C.M.F., Van de Weyer S.,
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- ocular motility,
- accommodative dysfunction,
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