

# What do Neuropsychologists mean by the term Nonverbal Learning Disorder?


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# Aims of presentation:

- To outline the origins of the term NLD and how it has come into widespread use across the psychology community.
  - To examine how NLD can be related to the universally accepted diagnostic criteria of Asperger Syndrome and Developmental Coordination Disorder
  - What the research in the area of NLD's indicates we should be adding to the current remediation therapies for children.
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# Other terminology used to describe this group of children

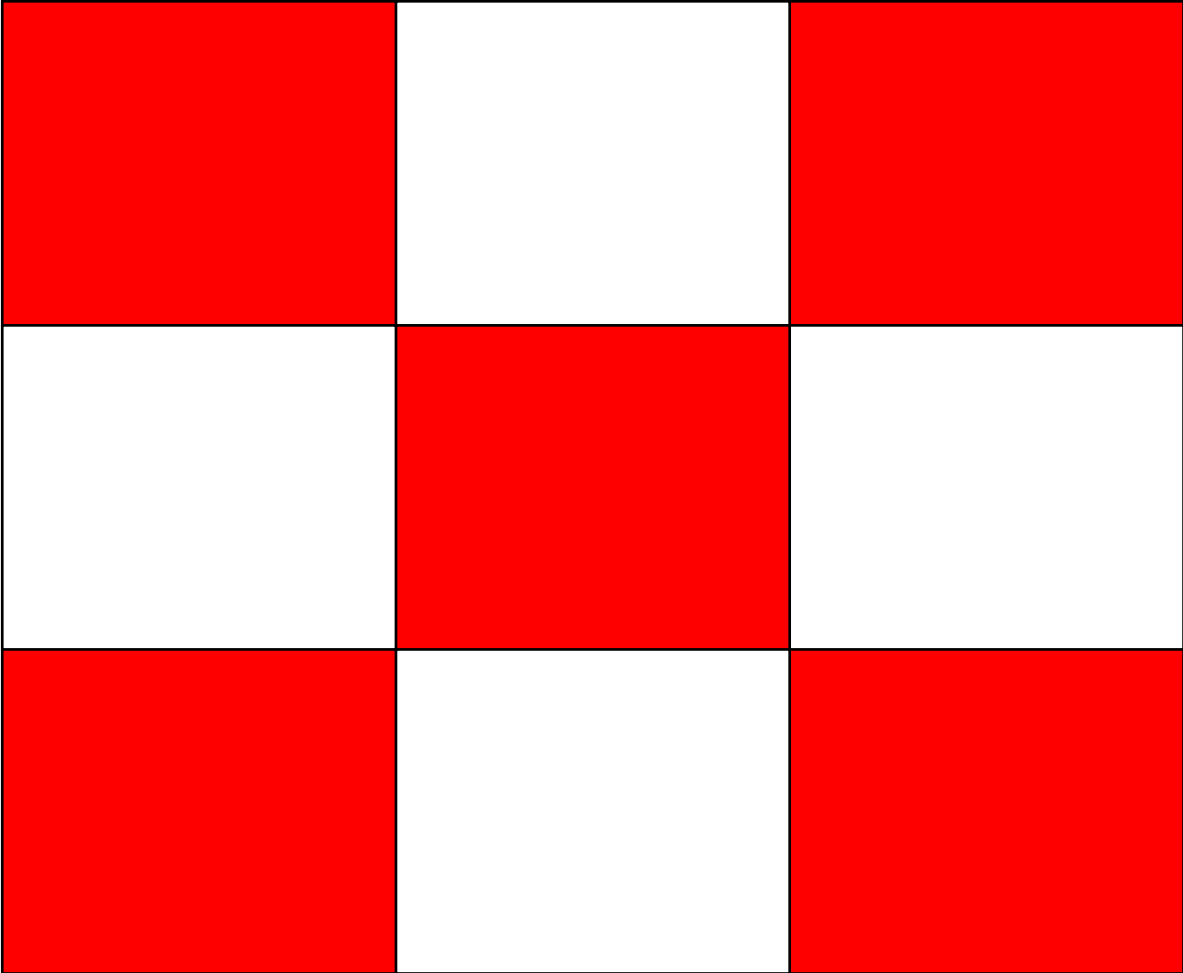
- Clumsiness or the clumsy child syndrome
  - Minimal Brain Dysfunction
  - Dyspraxia
  - DAMP or disorder of attention motor control and perception.
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# Problem areas of children with nonverbal learning difficulties (Mycklebust and Johnson, 1967)

- body orientation
- following directions
- learning to tell the time (analogue clock)
- playing music, following rhythm
- understanding meaning as conveyed in art

# Rourke's Features of NLD (2000)

- WISC Verbal IQ exceeds Performance (nonverbal) IQ by at least 10 points (40%).
- WISC Vocabulary, Similarities and Information are the highest of the Verbal Scales on the WISC III
- Two of the WISC Block Design, Object Assembly and Coding subtests are the lowest of the Performance scales (76%)



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# Rourke's Features of NLD (2000)

- WRAT Standard Score for Reading is at least 8 points greater than the score for Arithmetic (72%)
- Normal to superior grip strength but mildly to moderately impaired Grooved Pegboard speed (59%)
- The Tactual Performance Test times for Right, Left and Both hands become progressively worse (66%)
- No or very minimal simple tactile imperception and suppression versus very poor finger agnosia, finger dsygraphesthesia and astereognosis composite (90%)

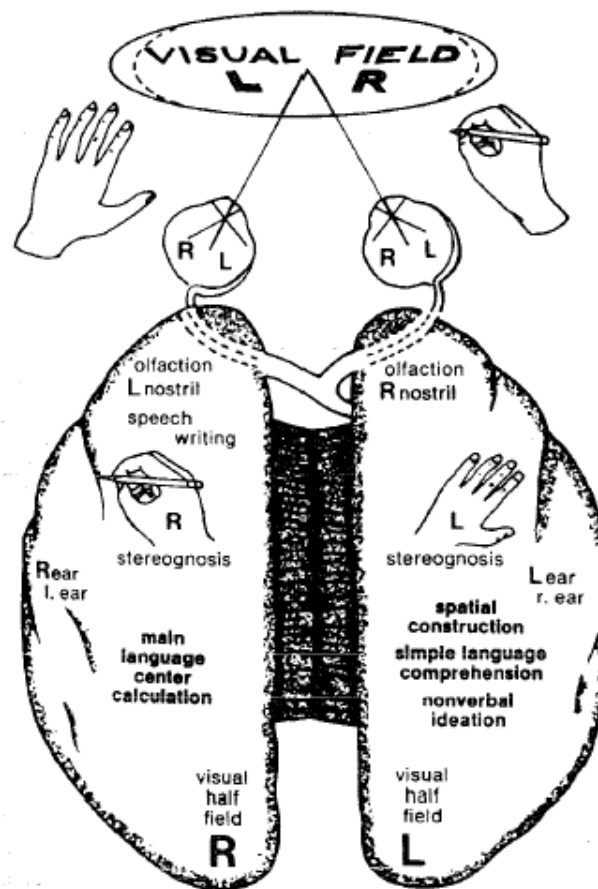
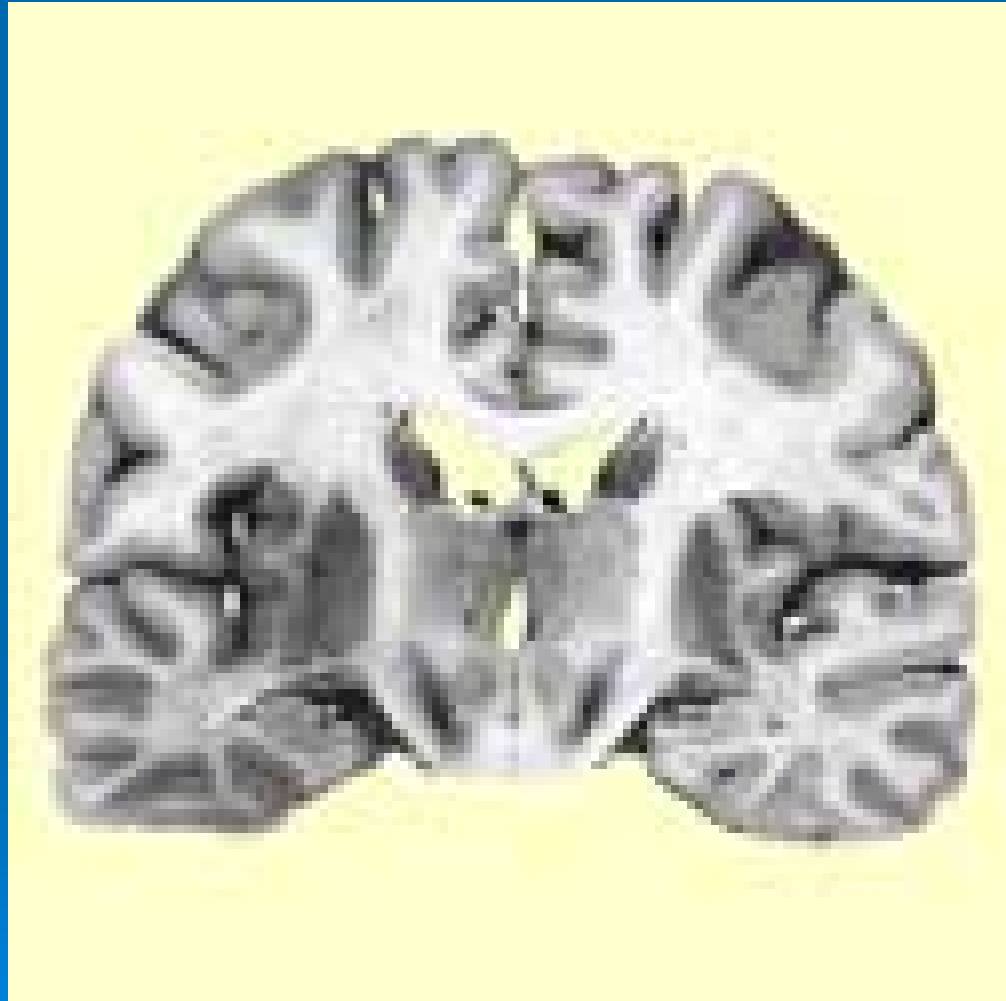


FIGURE 3.7 Schematic diagram of visual fields, optic tracts, and the associated brain areas, showing left and right lateralization in humans. (From Sperry, 1984)

## Many of the children in Rourke's studies had:

- sustained moderate to severe closed head injuries
- suffered hydrocephalus with delays in appropriate treatment or unsuccessful treatment
- received large doses of radiation therapy to treat ALL
- congenital absence of the corpus callosum with no other demonstrable neurological disease
- significant surgical removal of tissue from the right cerebral hemisphere



# Overlap with Asperger Syndrome

Rourke has addressed this issue stating that

*"virtually all people with asperger syndrome exhibit definite or probable NLD"*

# Developmental Coordination Disorder

- A. Performance in daily activities that require motor coordination is substantially below that expected given the person's chronological age and measured intelligence. This may be manifested by marked delays in achieving motor milestones (eg walking, crawling, sitting), dropping things, "clumsiness", poor performance in sports, or poor handwriting.
- B. The disturbance in Criterion A significantly interferes with academic achievement or activities of daily living.
- C. The disturbance is not due to a general medical condition (cerebral palsy, hemiplegia, or muscular dystrophy) and does not meet the criteria for a Pervasive Developmental Disorder.

# A summary of sorts: If a patient presents with

- Significant impairment of motor skills
- Social skills difficulties
- Visuospatial difficulties
- Possibly a significant difference between verbal and nonverbal IQ scores
- No restricted range of interests or repetitive routines, rituals or stereotypical behaviour

- Then they have Developmental Coordination Disorder.
- They would also meet the criteria for NLD
- They could also have an intellectual disability if they meet the separate criteria for that diagnosis

# If a patient presents with

- Significant impairment of motor skills
- Social skills difficulties
- Possibly some learning difficulties
- Possibly a significant difference between verbal and nonverbal IQ scores
- Definite restricted range of interests or repetitive routines, rituals or stereotypical behaviour

- The patient has Asperger Syndrome. By definition they cannot have an intellectual disability.
- They can also be described as having NLD



# Some researchers argue that NLD is a superfluous diagnosis:

*" As many people with Asperger syndrome have this disability; a primary diagnosis of Asperger syndrome is often preferred and is certainly the most clinically useful. This is an example of excessive diagnostic splitting, although non-verbal learning disability can occur with other disorders."*

Fitzgerald and Corvin (2001)

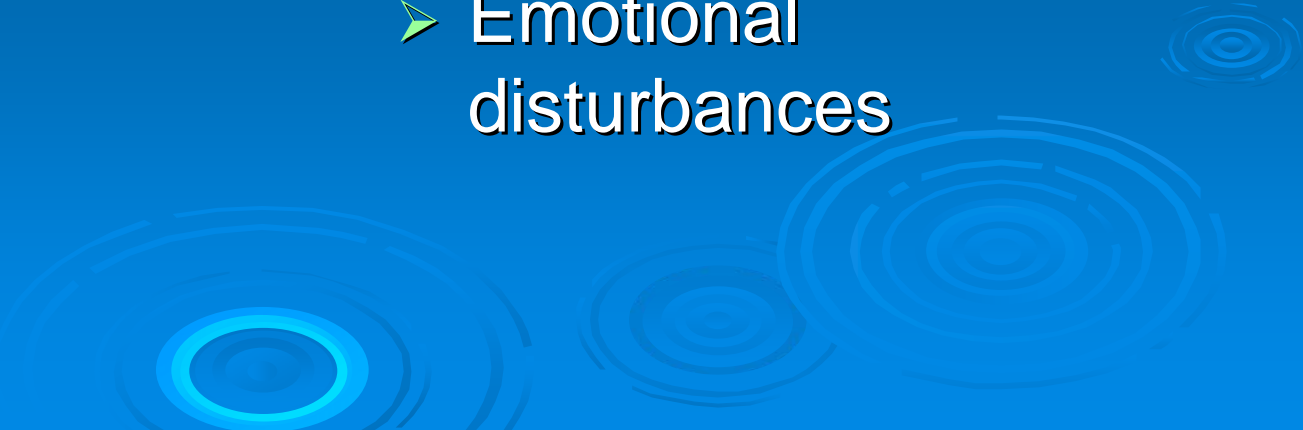
# Disorder Inflation

- Medical and therapy benefits can be dependent on the diagnosis given.
- “Disorder Inflation” is driven by several factors including obtaining necessary support for children.

Professor Nicholas Rosenlicht



# Implications for my work

- When assessing the needs of a child with motor difficulties consider whether they also have problems in related areas
  - Calculation
  - Spatial reasoning
  - Reading emotional information
  - Sensory sensitivities
  - Low Self esteem
  - Emotional disturbances
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# Implications for my work

- Learn more about how visuospatial abilities develop in the “normal” population
  - Learn more about the impact on skill development of lack of environmental opportunity and obesity
  - Advocate for services in communities
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