

Background

About INPP

At INPP, we have pioneered research into Neuro Developmental Delay (NDD) and provided help for effected children and adults since 1975. All treatments are drug-free and non-invasive; instead we administer remedial programmes using physical movements, which are naturally present in early development. The INPP movement programmes have been designed to correct underlying and previously undetected causes.

Peter Blythe, founder of INPP, has been researching NDD since 1969 when he was a senior lecturer in Applied Psychology (Education) at the College of Education in Lancashire. He established INPP to investigate the links between physical development and problems with reading, writing, spelling, coordination, behaviour and emotional functioning in both children and adults.

In 1988, Peter was joined by Sally Goddard Blythe MSc, FRSA who is currently Director of INPP and INPP's international training division.

What is NDD / Neuro-Developmental Delay?

The term **NDD** or **Neuro-Developmental Delay** describes the omission or arrest of a stage of early development.

Every normal, full-term baby is born with a set of primitive or survival reflexes that are inhibited or controlled by higher centres in the brain during the first year of life.

If these are not inhibited at the correct time, they remain active in the body and can interfere with balance, motor control, eye functioning, eye-hand coordination and perceptual skills. They can result in behavioural symptoms such as frustration, hyperactivity and hypersensitivity, and failure to match performance to ability.

Diagnosing NDD / Neuro-Developmental Delay

Standard neurological tests will reveal the continued presence of aberrant Primitive and Postural Reflexes.

Individual reflexes affect specific areas of functioning: one reflex can interfere with the control of the hand when writing; another can affect balance and control of eye movements so that the eyes 'play tricks' on the brain, making the letters appear to move on the page.

A full **Neuro-Developmental assessment** will detect the presence of primitive reflexes and balance problems. Detailed tests assess Central Nervous System maturity. Both types of test aid INPP in the diagnosis of NDD / Neuro-Developmental Delay.

These are the medical facts which form the basis of our work at INPP:

- During life in the womb a group of reflexes called the primitive reflexes emerge.
- Primitive reflexes should be present at birth in the baby born at full term.
- Primitive reflexes are inhibited by the developing brain during the first year of life.

- Primitive reflexes are gradually replaced by Postural reflexes.
- Postural reflexes develop in the first 3½ years of life to provide the basis for automatic (unconscious) control of balance, posture and voluntary movement.
- It is an accepted medical fact that retained primitive reflexes beyond the first 6–12 months of post natal life indicate immaturity in the functioning of the Central Nervous System.

Primitive & Postural Reflexes

As the infant brain develops during the first year of life connections to higher centres in the brain become stronger and increasingly take over the functions of primitive reflexes. As this occurs, early survival patterns are inhibited or controlled to allow more mature patterns of response (postural reflexes) to develop in their place.

The postural reflexes support control of balance, posture and movement in a gravity based environment. Postural reflex development is mirrored in the infant's increasing ability to control its body, posture and movements.

Some children fail to gain this control fully in the first year of life and continue to grow up in a reflexive 'no man's land', where traces of the primitive reflexes remain present and the postural reflexes do not develop fully. These children continue to experience difficulty with control of movement affecting coordination, balance, fine motor skills, motor development and associated aspects of learning such as reading, writing and physical education.

Retained primitive reflexes can also affect a child's sensory perceptions, causing hypersensitivity in some areas and hyposensitivity in others.

Abnormal Primitive Reflexes

Primitive reflexes develop during uterine life and should be fully present at birth. They are gradually inhibited by higher centres in the brain during the first six to twelve months of post-natal life.

If they continue to be elicited by minor stimuli in the environment in the school age, they can interfere with the development of more complex skills.

[Asymmetrical Tonic Neck Reflexes](#)

[Symmetrical Tonic Neck Reflexes](#)

[Spinal Galant Reflexes](#)

[Tonic Labyrinthine Reflexes](#)

[The Moro Reflex](#)

Info taken for INPP Website. More info on individual reflexes on www.inpp.org.uk