



Reflex Functions

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The Role of Reflexes

- Reflexes give infants learning experiences that build the foundation for motor development and sensory integration in an adult.
- Hypo-, Hyper-active, or non-integrated reflexes can interfere with cortical processing and impede development.
- At any age we can replicate missed stages of development by returning to the natural movement patterns to reconnect or build new neural pathways.
- A child/adult who is free from conscious cortical control over their sensory-motor automatism is free to learn, interact and grow naturally and easily.



Reflex and Protection

Dual Purpose 1: Protection

- Activate sympathetic nervous system and/or
- Avoid harm; signal need for help

Positive Protection:

- Reflexes have matured neurologically
- Sensory system functions well
- Brain “recognizes” stimuli and organizes protective motor responses
- No disturbance to reasoning ability and overall development

Negative Protection:

- Reflexes have failed to mature or function properly
- Sensory system functions poorly
- Brain is confused by stimuli: motor responses are hyper-, hypo-, absent, or pathological
- Reasoning ability and overall development are compromised



Reflex Development

Dual Purpose 2: Development

- Maturation of the nervous system
 - Synaptogenesis
 - Myelination
 - Brain plasticity
 - Sensory-motor integration
 - Emotional maturation, self-regulation
 - Cognitive development
 - Skillful, intentional behavior
- Prenatal – emerging from 9 weeks in utero
 - Natal – during birth process
 - Postnatal – first two years of life
 - Maturation – purpose fulfilled
 - Integration – usually by age 2
 - Serve as foundation for further development
 - Remain available for positive protection
 - Regression with trauma – negative protection



Reasons for Failure to Emerge or Integrate

- Heredity
- Difficult or premature birth
- Disease
- Physical or psychological trauma, PTSD
- Toxicity
- Sensory-motor deprivation

Consequences of Reflex Abnormalities

- Hyper- or hypotonic muscles
- Vestibular dysfunction
- Aberrant motor development
- Difficulties with auditory and visual processing
- Poor sensory motor integration
- Delayed language development
- Delayed cognitive development
- Poor social/emotional development



MNRI® Principles

- “The Missing Link”
- Simple is profound
- Connect sensory stimulation with specific motor response
- Find the “Key”
- Build on the positive rather than fix the negative
- Safety (feeling of protection and survival) are the basis of growth and development
- Awaken innate intelligence

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Reflex Structure and Dynamics

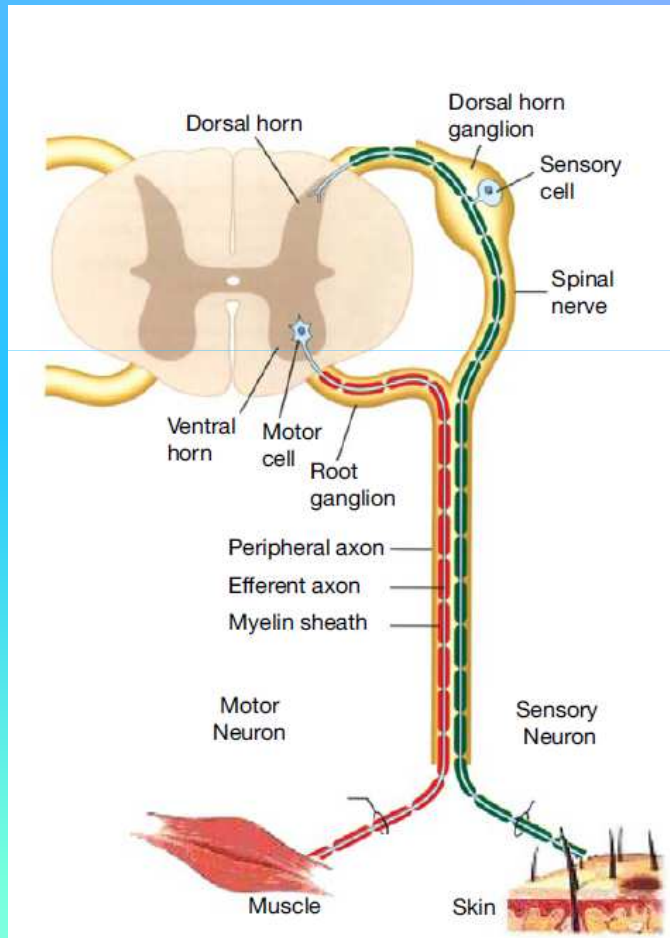
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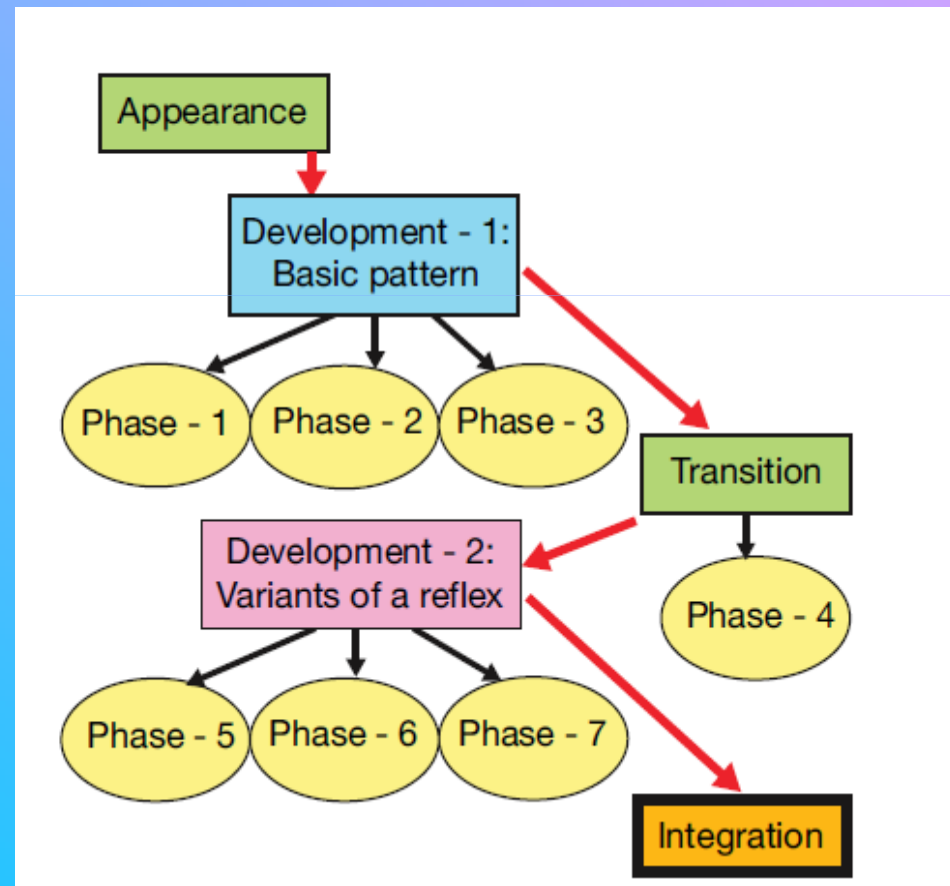


MNRI® Concept

Sensory information is perceived by the brain, which determines the type of response.



In the dynamics of healthy integration each reflex emerges at a specific time and develops its own basic patterns during the first three of seven phases.



Corpus callosum
Nerve fibers located on the bottom of the connection of two brain hemispheres

Right Brain Hemisphere
The biggest part of the forebrain

Ventriculus
Fulfilled by the fluid

Thalamus
Transmits sensory information from sensory organs to certain areas of the cortex

Visual Nerve
(*Nervus opticus*)
Brings the visual information from the eye to brain

Hypophysis
(not presented in the picture).

Hypothalamus
Responsible for feeling and arousal, hunger thirst, helps to control body temperature and balance of fluid-electrical activity in blood.

Gyrus precentralis

Sulcus centralis

Gyrus postcentralis

Corpus pineale
part of hypothalamus - synthesises melatonin

Gyrus parieto-occipitale-potyliczna
(*Sulcus parietooccipitalis*)

Sulcus calcarinus
location of the major part of the visual cortex

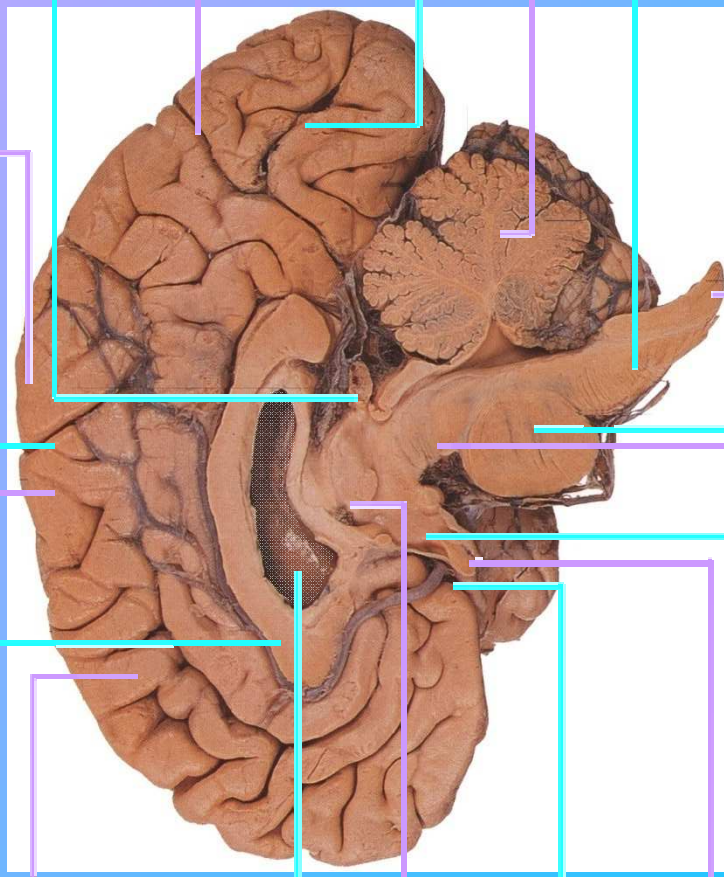
Cerebellum
Controls body movements and balance; contains the grey matter (externally) and white matter (internally)

Midbrain
(*Mesencephalon*)
Important for vision; connects front brain with brain stem.

Pons
Part of brain stem

Medulla spinalis

Medulla oblongata
Controls life functions - breathing, circulation, heart rhythm regulation





Moro Embrace Reflex

(6 months in utero to 3-4 months)

Position: Supine - lying on back.

Sensory Stimulus: Kinesthetic stimulus caused by the body position in space.

(The Moro Reflex may inappropriately be presented as the response to auditory, visual, or tactile stimuli = negative compensation for a non-integrated Fear Paralysis Reflex).

Proprioceptive Stimulus: tilting of the head backwards 30 degrees or a sudden downward movement of the whole body. Triggered by any unexpected movement and changes in body position.

Motor Response:

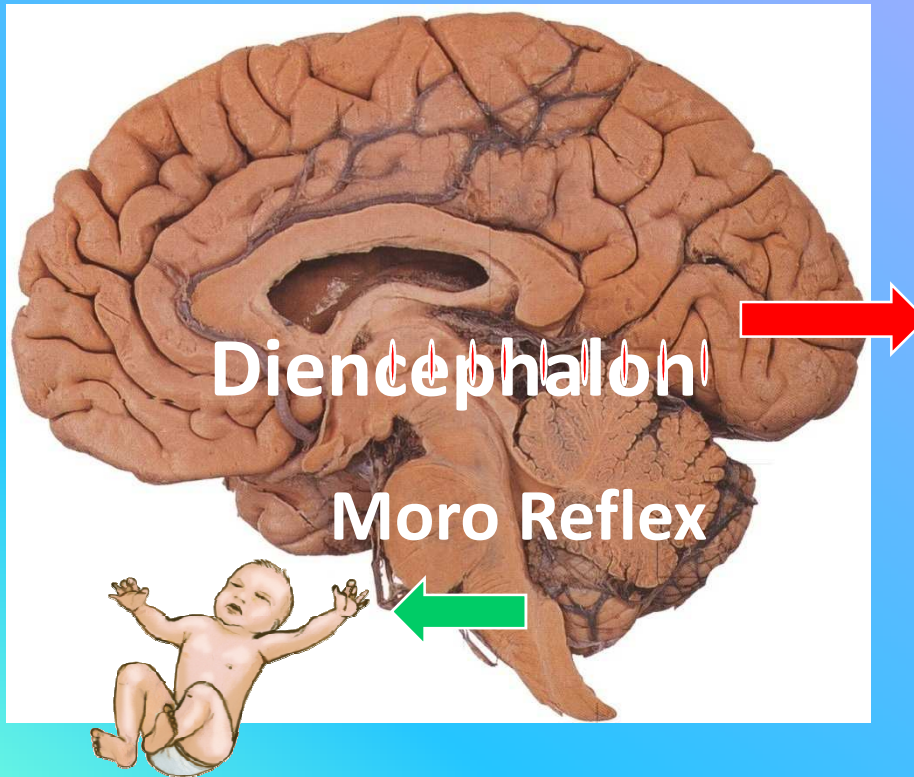
1. Phase 1: Body and limbs open and extend the core - fingers open - inhalation of breath.
2. Phase 2: Body and limbs close and flex the core - fingers clench into fist - exhalation and possibly associated crying.

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Moro: Nonintegrated Reflex – Response of the Diencephalon



Consequences of delayed or retained Moro:

- Poor processing of vestibular-proprioceptive, auditory and visual input
- Tendency for emotional instability
- Over-protection
- Phobia
- Fear
- Aggression
- Depression



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