

## NeuroDevelopmental Movement Consultants, Seattle, Washington

### Neurological Development – Birth to Age Twelve

Brain Stages		Time Frame (in Months)	Visual Competence	Auditory Competence	Tactile Competence	Mobility	Language	Manual Competence
VII	Sophisticated Cortex	36-144 mos.	<p><b>Reading with total understanding</b></p> <p><i>Sophisticated human understanding</i></p>	<p><b>Understanding of complete vocabulary and proper sentences</b></p> <p><i>Sophisticated human understanding</i></p>	<p><b>Tactile identification of objects</b></p> <p><i>Sophisticated human understanding</i></p>	<p><b>Using a leg in a skilled role which is consistent with the dominant hemisphere</b></p> <p><i>Sophisticated human expression</i></p>	<p><b>Complete vocabulary and proper sentence structure</b></p> <p><i>Sophisticated human expression</i></p>	<p><b>Using a hand to write which is consistent with dominant hemisphere</b></p> <p><i>Sophisticated human expression</i></p>
VI	Primitive Cortex	18-72 mos.	<p><b>Identification of visual symbols and letters within experience</b></p> <p><i>Primitive human understanding</i></p>	<p><b>Understanding of 2000 words and simple sentences</b></p> <p><i>Primitive human understanding</i></p>	<p><b>Ability to determine characteristics of objects by tactile means</b></p> <p><i>Primitive human understanding</i></p>	<p><b>Walking and running in complete cross pattern</b></p> <p><i>Primitive human expression</i></p>	<p><b>2000 words of language and short sentences</b></p> <p><i>Primitive human expression</i></p>	<p><b>Bimanual function with one hand in a skilled role</b></p> <p><i>Primitive human understanding</i></p>
V	Early Cortex	9-36 mos.	<p><b>Differentiation of similar but unlike simple visual symbols</b></p> <p><i>Early human understanding</i></p>	<p><b>Understanding of 10 to 25 words and two word couplets</b></p> <p><i>Early human understanding</i></p>	<p><b>Tactile differentiation of similar but unlike objects</b></p> <p><i>Early human understanding</i></p>	<p><b>Walking with arms freed from primary balance role</b></p> <p><i>Early human understanding</i></p>	<p><b>10 to 25 words and two word couplets</b></p> <p><i>Early human understanding</i></p>	<p><b>Cortical opposition bilaterally and simultaneously</b></p> <p><i>Early human understanding</i></p>
IV	Initial Cortex	6-24 mos.	<p><b>Convergence of vision resulting in simple depth perception</b></p> <p><i>Initial human understanding</i></p>	<p><b>Understanding of two words of speech</b></p> <p><i>Initial human understanding g</i></p>	<p><b>Tactile understanding of the 3<sup>rd</sup> dimension in objects which appear to be flat</b></p> <p><i>Initial human understanding</i></p>	<p><b>Walking with arms used in a primary balance role most frequently at or above shoulder height</b></p> <p><i>Initial human expression</i></p>	<p><b>Two words of speech used spontaneously and meaningfully</b></p> <p><i>Initial human expression</i></p>	<p><b>Cortical opposition in either hand</b></p> <p><i>Initial human expression</i></p>
III	Midbrain	3.5-14 mos.	<p><b>Appreciation of detail within a configuration</b></p> <p><b>Vertical eye movement</b></p> <p><i>Meaningful appreciation</i></p>	<p><b>Appreciation of meaningful sounds</b></p> <p><i>Meaningful appreciation</i></p>	<p><b>Appreciation of Gnostic sensation Proprioception</b></p> <p><i>Meaningful appreciation</i></p>	<p><b>Creeping on hands and knees, culminating in cross pattern creeping</b></p> <p><i>Meaningful response</i></p>	<p><b>Creation of meaningful sounds</b></p> <p><i>Meaningful response</i></p>	<p><b>Prehensile grasp</b></p> <p><i>Meaningful response</i></p>
II	Pons	1-5 mos.	<p><b>Outline perception</b></p> <p><b>Horizontal eye movement</b></p> <p><i>Vital perception</i></p>	<p><b>Vital response to threatening sounds</b></p> <p><i>Vital perception</i></p>	<p><b>Perception of vital sensation, heat, cold, pain, and hunger</b></p> <p><i>Vital perception</i></p>	<p><b>Crawling in the prone position culminating in cross pattern crawling</b></p> <p><i>Vital response</i></p>	<p><b>Vital crying in response to threats to life</b></p> <p><i>Vital response</i></p>	<p><b>Vital release</b></p> <p><i>Vital response</i></p>
I	Medulla and Cord	Birth-2 mos.	<p><b>Light reflex</b></p> <p><i>Reflex reception</i></p>	<p><b>Startle reflex</b></p> <p><i>Reflex reception</i></p>	<p><b>Babinski reflex</b></p> <p><i>Reflex reception</i></p>	<p><b>Movement of arms and legs without bodily movement</b></p> <p><i>Reflex response</i></p>	<p><b>Birth cry and crying</b></p> <p><i>Reflex response</i></p>	<p><b>Grasp reflex</b></p> <p><i>Reflex response</i></p>