NeuroConnexions

6 Areas E-Guide

Understanding neurodevelopment & stages of development

Understanding the 6 Areas & 9 Stages of Neurodevelopment

	MOTOR OUTPUT			SENSORY INPUT		
TYPICAL AGE RANGE	**GROSS MOTOR**	**EXPRESSIVE LANGUAGE**	**FINE MOTOR**	**VISUAL**	**AUDITORY**	**TACTILITY**
0-1 Months	Random Movement Random motion of arms and legs - reflex	Birth Cry Birth cry and crying - reflex	Grasp Reflex Ability to grasp object - reflex	Light Reflex Pupillary response to light - reflex	Startle Response to sudden loud noise - reflex	Babinski Babinski - reflex
1-3 Months	Crawling Syncronized cross pattern on stomach	Threat Vital crying in response to threatening events	Release Ability to release grasped object	Outline Outline perception Horizontal tracking	Threat Response to threatening sounds	Pain Perception of painful stimuli
3-6 Months	Creeping Synchronized cross pattern on hands and knees	Meaningful Creation of meaningful sounds	Prehensile Purposeful prehensile grasp	Detail Detail perception Vertical tracking	Meaningful Awareness of change in tonality	Gnostic Responsive to gnostic sensation
6-12 Months	Walk P/B Walking with hands at or above waist - 10 steps +	Words Meaningful use of two words or more	Cortical Opposition Cortical opposition with either hand	Stereopis Convergence of eyes Simple depth perception	Words Ability to understand two words	3rd Dimension Tactile discrimination of third dimension
12-18 Months	Walk Walking with hands below waist Proper structure	Phrases 25 words of speech and several two word couplets	Bi-Corticol Opposition Bilateral simultaneous Cortical opposition	Picture Identification Differentiation of similar/ dissimilar pictures	Phrases Understanding of 25 words and couplets	Trigeminal/Temperature Interpretation of temperature and sensory input
1.5 - 3 Years	Walk C/P Walking/running in synchronized cross pattern	Sentences Beginning understanding of simple sentences and abstract	Bi-Manual Bilateral simultaneous bimanual function	Symbol Identification Identification of visual symbols within experience	Sentences Beginning understanding of simple sentences and abstract	Olfactory/Gustatory Proper discrimination of smells, tastes, and oral motor function
3-6 Years	Control Dominance Laterality complete Coordination	Conversation 2nd grade vocabulary with proper syntax	Manual Dominance Laterality complete 2nd grade writing	Reading Dominance Laterality complete 2nd grade reading and math	Auditory Dominance Laterality complete Conversation/Abstract	Stereognosis I Tactile differentiation of medium sized objects
Advanced	Endurance Sustained ability to jog 1 mile or walk 3 miles	Bilingual Conversational in two or more languages	Accelerated Manual Stereognosis II complete Cursive complete	Accelerated Visual Accelerated processing Jr. High word recognition	Accelerated Auditory Accelerated processing Jr. High comprehension	Stereognosis II Tactile differentiation of small sized objects
Advanced	Mobility Mastery Proficiency in skilled movement	Language Mastery Proficient in oration	Manual Mastery Proficient in fine movement	Visual Mastery Superior processing Sr. High word recognition	Auditory Mastery Superior processing Sr. High comprehension	Proprioception Manual laterality est. Tactile id of objects

The neurodevelopmental profile is a tool we use to determine a person's current developmental stage in each of six areas. The left side of the profile lists the age a typical child reaches each of the stages. We use a person's current level to develop a program of activities designed to either move the person forward from one stage to the next or to complete a stage they are doing but not in an excellent way.

The profile was developed after the study of children in a wide variety of environments and countries enabled researchers to determine which of the many milestones that children go through are critical to their neurodevelopment.

We take in information through three areas of sensory input – visual, auditory, and tactility. It is crucial that we receive accurate information from our eyes, ears, and our body if we expect to be able to produce accurate output.

In addition to the areas of input, we are looking at a child's stage of development in three areas of output – gross motor, express language, and fine motor. These are the ways we express the information we have gathered through the areas of input.

There are two areas we work in that are not reflected on the profile. As a child reaches the appropriate stages it is important that they take in information dominantly all on one side - through either their right eye, right ear, right hand, and right foot or all on the left side. If a person if mixed dominant, it will be difficult for them to retrieve the information they have stored. So, we help make sure their dominance is lined up. Finally, a person's metabolic state has a huge impact on their ability to take in, retain, and output what they've learned.

The neurodevelopmental approach allows us to be unconcerned about labels and chronological age. It also makes it unnecessary to put limits on what a person is expected to be able to achieve. Whether we're evaluating a newborn with a genetic abnormality, a teenager with unspecified learning disabilities, or an eighty-something year old recovering from a stroke, the process is the same – measure the current state of development, recommend a program of activities for the family to do with the person over the next four months, and then repeat the process – and see how far they can go!

A person who is functioning at the seventh level in each of the six areas without any incomplete areas above that is a person who is ready to go out and learn anything they want. That's our goal with each of our clients.

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