

## **DEVELOPMENT OF MILESTONE IN CHILDREN AND ITS SIGNIFICANCE**

A developmental milestone is an ability that is achieved by any child by a certain age and thereby indicating the typical/healthy growth and development. Developmental milestone are comprised of Physical, cognitive, speech-communication and Socio-emotional skills. These different domains are closely related. Development in one domain influences and is influenced by the development in other domains. Hence delay or breach in any of these areas should be observed keenly and taken seriously so that ultimate output in the form of “typical development” is not affected.

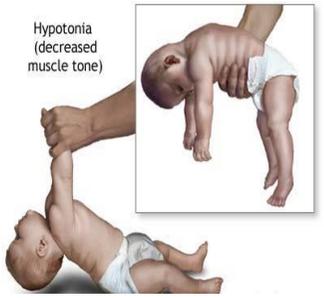
At any point of infancy and toddlerhood if delay in developmental milestone is observed, they are considered as “Red Flags” and indicate the immediate need for “early intervention”. The first 3 years of life is considered as “critical period” in child’s life. The sensory experiences, stimulation and language exposure during this period may determine synaptogenesis, myelination and neuronal connectivity. The brain develops by an “experience dependant” process where experiences activate certain pathways in the brain, thereby organising the brain’s basic structure and creating the foundations for all subsequent development and behaviour. The principal is “Use it or lose it” and “use it and grow it”.

The child is considered to be at risk because of adverse genetic, pre- natal, peri- natal, neonatal and environmental influences that may lead to subsequent developmental delay. Early intervention during this critical period has its own rationale because:-

- All motor milestones are achieved during 0-5 years.
- Speech and language development is rapid during this period.
- Myelination gets completed.
- Brain has maximum neuroplasticity.
- Major personality traits gets established.

So, it is essential to observe the development of each child closely and catch them at the earliest and start intervening so that the child is rescued from entering the field of mental retardation. The following Chart throws light on “normal developmental milestone” and “Red flags” in different domains so that early identification and intervention is made possible.

**AGE: 0-3 MONTHS**

<b>DEVELOPMENTAL MILESTONES</b>		<b>WHEN TO BE CONCERNED</b>	
<b>Gross Motor</b>	 	<ul style="list-style-type: none"> <li>• A new born baby is in a flexed (Bent) position.</li> <li>• When put on their back the head is not in midline.</li> <li>• Child is able to lift head up to 45° when placed on their tummies between 15 days-2 months.</li> <li>• The child gets a complete head control by 3 months.</li> </ul>	<ul style="list-style-type: none"> <li>• The child cannot lift the head off the couch by 3 months.</li> <li>• Have stiff legs that move very little.</li> <li>• Child will be very floppy/loose when suspended by hips →</li> </ul>  <p>Hypotonia (decreased muscle tone)</p>
<b>Fine motor</b>		<ul style="list-style-type: none"> <li>• New born baby's hands are fisted.</li> <li>• Child holds a placed rattle by 2 months.</li> <li>• Child can bring both hands together in the centre by 2.5 to 4 months of age.</li> </ul>	<ul style="list-style-type: none"> <li>• Hands are not in midline and turned outwards.</li> </ul> 
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Child responds to different sounds.</li> <li>• Child will develop differential cry.</li> <li>• Will make cooing sound.</li> </ul>	<ul style="list-style-type: none"> <li>• Child will not respond to loud sounds.</li> <li>• Child will be dull and seems to be mute →</li> </ul>
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Child develops eye contact and indicates different needs.</li> <li>• Watches hands.</li> <li>• Explores environment by looking around.</li> <li>• Anticipates routines.</li> <li>• Looks to find for caregiver.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not notice hands by 2 months.</li> <li>• Does not follow objects by 3 months.</li> </ul>
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• Can be comforted by a familiar adult.</li> <li>• Respond positively to touch.</li> <li>• Smile and show pleasure in response to social stimulation.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not make eye contact when spoken to.</li> <li>• Does not engage in social smiling by 3 months</li> </ul>

**AGE: 3-6 MONTHS**

		<b>DEVELOPMENTAL MILESTONES</b>	<b>WHEN TO BE CONCERNED</b>
<b>Gross Motor</b>		<ul style="list-style-type: none"> <li>• Child pulls self to sitting position between 3.5 to 5 months of age.</li> <li>• Child is able to sit in a tripod position by 4.5 to 6 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Child has not attained sitting position.</li> <li>• Does not push down with legs against a firm surface.</li> <li>• Child is very stiff with exaggerated trunk curve, head and legs are bent backwards →</li> </ul>
<b>Fine motor</b>		<ul style="list-style-type: none"> <li>• Child can shake a rattle.</li> <li>• Holds cube between two hands.</li> <li>• Can hold one cube in each hand.</li> <li>• Transfers object from one hand to another.</li> </ul>	<ul style="list-style-type: none"> <li>• No hand to mouth activity.</li> <li>• Child does not try to reach the objects, drops it when given in hand.</li> <li>• Does not transfer objects from 1 hand to another.</li> </ul>
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Child recognizes mother's voice.</li> <li>• Looks toward person talking to him.</li> <li>• Laughs.</li> </ul>	<ul style="list-style-type: none"> <li>• Child is not keen to observe the speaker.</li> <li>• No initiation of babbling.</li> </ul>
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Repeats hitting at dangling objects.</li> <li>• Applies Trial and error method of problem solving.</li> <li>• Looks for dropped object.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not show interest in the toys presented.</li> </ul>
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• Play peek-a-boo.</li> <li>• Pays attention to own name.</li> <li>• Smiles spontaneously.</li> <li>• Laugh aloud.</li> <li>• Pats mirror image.</li> <li>• Stretches arm to be picked up.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not pay attention, or seems frightened by new faces or environment.</li> </ul>



**AGE GROUP: 6-9 MONTHS**

<b>DEVELOPMENTAL MILESTONES</b>		<b>WHEN TO BE CONCERNED</b>	
<b>Gross Motor</b>		<ul style="list-style-type: none"> <li>• Child Rolls from back to tummy and tummy to back, both ways between 6- 8.5 Months.</li> <li>• The child is able to sit well between 6.5 to 8 months.</li> <li>• Child Creeps on the abdomen.</li> </ul>	<ul style="list-style-type: none"> <li>• Child is not able to sit independently →</li> <li>• Not able to roll bilaterally.</li> </ul>
<b>Fine motor</b>		<ul style="list-style-type: none"> <li>• Holds objects using the thumb side of the hand.</li> <li>• Points at object using index finger.</li> <li>• Hold an object using thumb and first 2 fingers.</li> </ul>	<ul style="list-style-type: none"> <li>• Child has difficulty in grasping the objects.</li> <li>• Child can only bang and plays.</li> </ul>
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Turn head to the side from where the sound is coming.</li> <li>• Child responds to name call.</li> <li>• Understands the word “no”</li> <li>• Produces early babbling, frequently heard sounds like “ baba, dada”</li> </ul>	<ul style="list-style-type: none"> <li>• Child has poor babbling</li> <li>• Child does not develop the habit of playing with the tongue.</li> </ul>
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Searches for hidden toy.</li> <li>• Drops one or both objects held in hand to obtain a third object.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not search for objects when hidden.</li> <li>• Fails to comprehend the simple commands.</li> </ul>
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• Express several clearly differentiated emotions.</li> <li>• Distinguish friends from strangers.</li> <li>• Respond actively to language and gestures.</li> <li>• Show displeasure at the loss of a toy</li> </ul>	<ul style="list-style-type: none"> <li>• Shows very poor stranger anxiety.</li> <li>• Does not cry when parents are not around.</li> </ul>



**AGE GROUP: 9-12 MONTHS**

<b>DEVELOPMENTAL MILESTONES</b>		<b>WHEN TO BE CONCERNED</b>
<b>Gross Motor</b>	 	<ul style="list-style-type: none"> <li>• The child is able to sit up from lying position between 9 to 11 months.</li> <li>• Child starts Crawling between 9 to 11 months.</li> <li>• Child pulls himself/ herself to standing between 8 to 10 months.</li> <li>• Walks with one hand held at 9 months.</li> <li>• Catches rolling ball at 9 month.</li> </ul>
<b>Fine motor</b>	 	<ul style="list-style-type: none"> <li>• Turns 2-3 pages of a book at a time.</li> <li>• Holds crayon or chalk and attempts fist scribbling.</li> <li>• Voluntary cube release into a cup.</li> <li>• Holds bottle.</li> </ul>
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Starts following simple commands like “come here”, “Put that Down”.</li> </ul>
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Pushes button of switches, toys, gadgets.</li> <li>• Shows interest in picture books.</li> <li>• Watches activities of others with interest.</li> </ul>
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• Claps hands and waves good-bye.</li> <li>• Offers something to an adult but will not let go.</li> <li>• Hugs doll or animal.</li> <li>• Mimic simple actions.</li> <li>• Show anxiety when separated from primary caregiver.</li> </ul>



**AGE GROUP: 1-2 YEARS**

		<b>DEVELOPMENTAL MILESTONES</b>	<b>WHEN TO BE CONCERNED</b>
<b>Gross Motor</b>		<ul style="list-style-type: none"> <li>• The Child Gets to standing and can walk alone between 11.5–14.5 months.</li> <li>• Child Walks up (15–16 months) and down (17–18 months) the Stairs with railing.</li> <li>• Child starts Running between the ages of 19–20 months.</li> <li>• Jumping between 23–24 Months.</li> </ul>	<ul style="list-style-type: none"> <li>• Poor balance on standing or walking.</li> <li>• Involuntary body movements.</li> <li>• Cannot push a toy with wheels.</li> <li>• Walks only on toes →</li> <li>• Child having excessively flat feet → (Second image)</li> </ul>
<b>Fine motor</b>		<ul style="list-style-type: none"> <li>• The child picks up small objects like rice grain, thread with thumb and index finger between 12-14 months.</li> <li>• Scribbles spontaneously between 12-14 months.</li> <li>• Turns pages, 1 at a time between 22-25 months.</li> <li>• Turns door knobs between 22-25 months.</li> <li>• Builds tower of 6 blocks.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not prefer to pick up smaller objects.</li> <li>• Cannot release an object once grasped.</li> <li>• Child having preference of using one hand.</li> </ul>
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Imitates animal noises.</li> <li>• Produces approximately 50 words by 16-18 months.</li> <li>• Speaks in 2 word combination between 19-24 months.</li> <li>• Identifies body parts, surrounding objects and family members by 19-24 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not follow simple instructions.</li> <li>• Does not speak two word phrases.</li> <li>• Speaks only few single words.</li> </ul>
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Functional object use like brushes own hair with brush, pushes toy car by 12-15 months.</li> <li>• Imitates using real props like sweeps with broom, bangs with hammer by 15–18 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not imitate word or simple actions.</li> <li>• Does not display understanding of functions of simple household objects (phone, brush, and cup).</li> </ul>
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• Show intense feelings for parents and show affection for other familiar people.</li> <li>• Play by themselves and initiate their own play.</li> <li>• Express negative feelings.</li> <li>• Imitate adult behaviours in play.</li> <li>• Begin to be helpful, such as by helping to put things away.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not enjoy being around with other children.</li> <li>• Does not respond to touching or cuddling.</li> </ul>



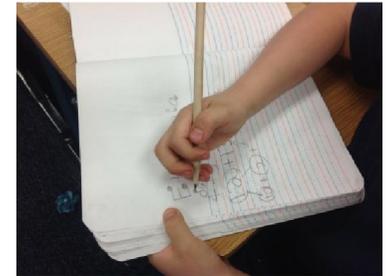
**AGE GROUP: 2-3 YEARS**

		<b>DEVELOPMENTAL MILESTONES</b>	<b>WHEN TO BE CONCERNED</b>
<b>Gross Motor</b>		<ul style="list-style-type: none"> <li>• The child Pedals a tricycle between the ages of 24–30 months.</li> <li>• Walks down the stairs with no railing between 25–26 months.</li> <li>• Walks up the stairs by alternating feet and no railing between 35–36 months.</li> <li>• Stands on 1 foot for few seconds.</li> <li>• Walks on tip of their toes for few seconds.</li> </ul>	<ul style="list-style-type: none"> <li>• Walks with crossed legs (scissoring gait)→( <b>Left Image</b>)</li> <li>• Frequent falling and difficulty with stairs.</li> <li>• Walks with more distance between the feet (wide gait)→( <b>Right Image</b>)</li> </ul>
<b>Fine motor</b>		<ul style="list-style-type: none"> <li>• Imitates vertical and horizontal lines.</li> <li>• Unscrews lids of container.</li> <li>• Copies a circle.</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty in manipulating small objects.</li> <li>• Inappropriate pencil grasp→</li> </ul>
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Child starts telling three-to-four word sentences by 24–36 months, sequential narratives by 30–36 months</li> <li>• Starts asking what, who, where, why? by 24–36 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Persistent drooling.</li> <li>• Very unclear speech.</li> <li>• Inability to communicate in short phrases.</li> </ul>
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Recognizes missing part of a picture/ toy by 24-28 months.</li> <li>• Beginning of concept formation e.g. “big- small”, “more- less” comes between 28-32 months</li> <li>• Matches box or marbles that are of same colour.</li> </ul>	<ul style="list-style-type: none"> <li>• Inability to copy a circle by 3 years.</li> <li>• Failure to understand simple instructions.</li> </ul>
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• Show awareness of gender identity.</li> <li>• Indicate toileting needs.</li> <li>• Help to dress and undress themselves</li> <li>• Be assertive about their preferences and say no to adult requests</li> <li>• Begin self-evaluation and develop notions of themselves as good, bad, attractive, etc.</li> <li>• Show awareness of their own feelings and those of others, and talk about feelings</li> </ul>	<ul style="list-style-type: none"> <li>• No involvement in pretend play.</li> <li>• Little interest in other children.</li> </ul>



**AGE GROUP: 3-4 YEARS**

		<b>DEVELOPMENTAL MILESTONES</b>	<b>WHEN TO BE CONCERNED</b>
<b>Gross Motor</b>		<ul style="list-style-type: none"> <li>• Child starts to hop between the ages of 47–48 months.</li> <li>• Child starts Walking down the stairs with alternating feet and no railing between 43–44 months.</li> <li>• Walks backward in line between 45–46 months</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot jump in place.</li> <li>• Cannot ride tricycle.</li> <li>• Difficulty in backward walking.</li> <li>• Needs Support for walking→</li> </ul>
<b>Fine motor</b>		<ul style="list-style-type: none"> <li>• Copies cross, draws two-to-four-part person.</li> <li>• Cuts paper in half.</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty in scribbling/ Writing→( <b>Second image</b>)</li> <li>• Doesn't feed self by hand/spoon.</li> </ul>
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Follows three-step commands by 36–48 months.</li> <li>• Speaks complex sentences by 42–48 months.</li> <li>• Reports on past events, creates imaginary roles (42–48 months).</li> <li>• Word play, jokes, teasing by 36–48 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not use sentences of more than 3 words.</li> <li>• Doesn't use “me” or “you” appropriately.</li> </ul>
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Child starts Self-talks to problem-solve by 3–4 years.</li> <li>• Counts four objects, understands opposites (3–4 years).</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulty in stacking objects</li> <li>• Shows no interest in interactive games.</li> <li>• Has a poor concept formation like big/small, concept of “one”</li> </ul>
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• Share toys, taking turns with assistance.</li> <li>• Initiate or join in play with other children and make up games.</li> <li>• Begin dramatic play, acting out whole scenes (such as travelling, pretending to be animals etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Ignores other children.</li> <li>• Does not engage in fantasy play.</li> <li>• Still clings/ cries when parents leave.</li> <li>• Doesn't respond to people outside the family</li> </ul>



**AGE GROUP: 4-5 YEARS**

<b>DEVELOPMENTAL MILESTONES</b>		<b>WHEN TO BE CONCERNED</b>		
<b>Gross Motor</b>		<ul style="list-style-type: none"> <li>• The child Catches ball between 33–52 months.</li> <li>• Child Balances on one foot for 10 s between 59–60 months.</li> <li>• Does a somersault at 5 yrs of age.</li> <li>• Does Sit-ups and skips between 59–60 Months.</li> </ul>	<ul style="list-style-type: none"> <li>• Have lots of accidents like trips, bumps into things while walking/running.</li> <li>• Poor coordination on either side of body →</li> <li>• Avoids more physical games.</li> </ul>	 
<b>Fine motor</b>		<ul style="list-style-type: none"> <li>• Copies square, draws 10-part person,</li> <li>• Colours within the borders with tripod pencil grasp.</li> <li>• Washes and dries hands thoroughly.</li> </ul>	<ul style="list-style-type: none"> <li>• Difficulties holding and manipulating a pencil.</li> <li>• Dependence on caregivers for everyday activities such as dressing → (Second Image)</li> <li>• Frustration and/or avoidance of pencil based tasks.</li> </ul>	
<b>Speech-language</b>		<ul style="list-style-type: none"> <li>• Recalls parts of a story.</li> <li>• Narratives have plot (48–60 months).</li> <li>• Speaks using future tense by 48–60 months.</li> <li>• Speech is 100% intelligible 48–60 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Repeats non-communicative phrases.</li> <li>• Speech cannot be understood more than 50% of the time.</li> <li>• Takes a long time to respond or is unresponsive when spoken to.</li> </ul>	
<b>cognitive</b>		<ul style="list-style-type: none"> <li>• Names four colours.</li> <li>• Starts meaningful counting up to 10 objects.</li> <li>• Copies written word.</li> <li>• Starts telling rhymes between 2–5 years.</li> <li>• Writes name between 2–5 years.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not follow 3 step command.</li> <li>• Difficulties learning to write name and other letters of the alphabet.</li> <li>• Has difficulty with simple interlocking puzzles.</li> <li>• Scribbles, does not make representational drawings.</li> </ul>	
<b>Social-emotional</b>		<ul style="list-style-type: none"> <li>• The child develops friendships.</li> <li>• Express more awareness of other people's feelings.</li> <li>• Show interest in exploring sex differences.</li> <li>• Enjoy imaginative play with other children, like dress up or house.</li> <li>• Bring dramatic play closer to reality by paying attention to detail, time, and space.</li> </ul>	<ul style="list-style-type: none"> <li>• Cannot calm down after a tantrum.</li> <li>• Excessively aggressive.</li> <li>• Avoids eye contact while talking.</li> <li>• Does not like to share things.</li> </ul>	