


# understanding DEVELOPMENTAL MILESTONES

What are developmental milestones really telling us? This is the first in a series of articles that will look at movement milestones and the important information they provide.

 Generally one relies on people to tell you how they feel and how they are doing, but a baby does not yet have the ability to communicate verbally. In the absence of speech a baby uses movement and a variety of cries to tell us whether all is well or not.

## MOVEMENT AND MILESTONES

Rosemary Boon of the Learning Discoveries Psychological Services in Australia believes that every moment is a sensory-motor event (**sensory** – using the senses of touch, smell, taste, hearing and sight; **motor** – using muscles). A sensory-motor event involves movement, and that is why some type of movement activity is required to indicate development. Early in life, movement activities such as the ability to breathe and to suck, and then to roll, to sit and to crawl, indicate that the brain and body are developing. Later in life movement activities such as the ability to balance, sit still, concentrate, hold a pencil, read and write are also indications that all is well ... or not.

## DEVELOPMENTAL MILESTONES ACT AS BEACONS OF PROGRESS

Progressive development or its absence is routinely measured during fetal life, at birth (Apgar) and when the baby reaches each milestone in sequence during infancy.

**'The human body was designed to move. It is the early experiences that lay the foundation of what follows' (C Krebbs).** It is the movements of the fetus and later the baby that develop and maintain neural networks in the brain and body. Every movement generates dendrite formation, which creates new connections (wiring) in the brain. These networks are constantly being structured and pruned. Networks are **structured** through repetitive movements and pruned when not reinforced. The **pruned** networks are literally reabsorbed by the cell body, so the brain only spends energy on networks that are actually being used. Research by Ornstein and Thompson<sup>1</sup> indicates that if a two-year-old child has an infection on an eyelid and the doctor decides to patch the eye for as little as two weeks, the neural network between the patched eye and the visual cortex will be reabsorbed and the visual field permanently impaired. They base this statement on the fact that the movement of light across the retina is necessary stimulation for dendrite growth and reinforcement of those connections within the visual cortex. (However, it's my opinion that two weeks is too short a time to cause permanent impairment.)

## ARE MILESTONES CARVED IN STONE?

Every baby is unique and develops at his or her own pace. Milestones are general



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trends and offer guidelines to indicate the progressive development of the brain and sensory-motor apparatus needed for learning. Motor milestones have been found to have considerable significance with regard to future learning ability. Skipping a milestone can therefore influence future learning.

The table on page 24 shows the typical milestones that a baby should reach in sequence, to indicate developmental progress.

We will now look at the first milestone, an essential part of nourishment and nurturance, in more detail.

#### ROOTING AND SUCKLING

A **sucking** baby is content because sucking calms and relaxes; it is a way of self-soothing and feeling that all is well. Sucking for nourishment is called **suckling**. A suckling

Because the baby has an online food supply while in the uterus, it does not have to suck to be fed until it is born. But like all other skills, the skill to suckle takes time and at 24 - 28 weeks' gestation the baby starts making suckling movements to prepare to suck for nourishment after birth.

#### Suckling is life- and relationship-saving.

A suckling baby is a sure sign that all is well and that the first milestone has been reached. Mom feels great and baby is content, feeling fed and ready to sleep.

#### HOW DOES SUCKLING DEVELOP?

Sucking only starts once a baby's skin and nervous system have been woken up by the startle responses. The startle responses alert the baby to any contact, movement, smell or taste or sound, to move away for self-protection. Initially the baby responds to all

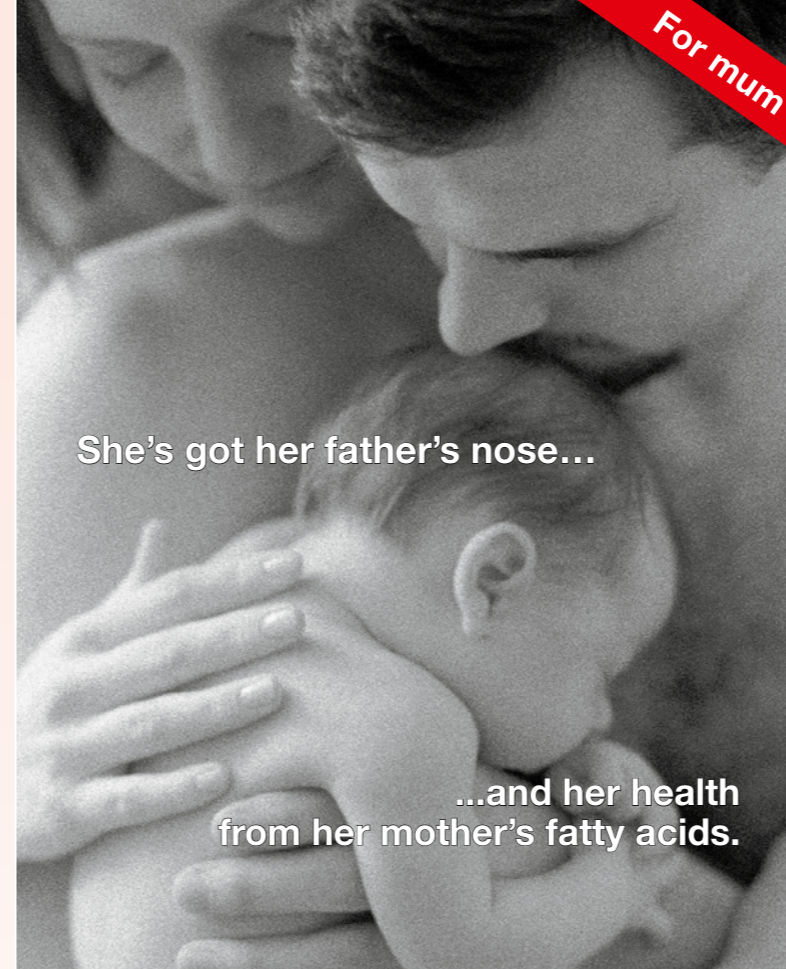
‘A suckling baby is a sure sign that all is well and that the first milestone has been reached’

baby is fed and developing, and suckling is very different in action and effect from sucking.

Sucking starts as early as 10 weeks in the womb, when the baby instinctively starts to self-soothe to counteract the effect of the startle response. The startle response is needed to wake up the brain and nervous system, and uses adrenaline to fuel the waking-up process. Too much adrenaline is not healthy, so the baby instinctively starts sucking to dissolve the excessive adrenaline when the feel-good hormones are secreted by the tongue or thumb moving against the palate.

contact as if it is a potential threat by moving away. A pregnant woman will welcome the baby by touching her tummy – the baby senses her acceptance and moves towards her hand. This welcoming action transforms the instinctive withdrawal from touch to a positive association with touch.

Any touch around the mouth area involuntarily results in the mouth opening in search of the source of contact, which is most often the thumb. Once the searching mouth has found the thumb, the baby involuntarily starts sucking. This is a major step towards the first developmental milestone, suckling.



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Age	Gross motor skills		Fine motor skills	
	Locomotor skills	Non-locomotor skills	Manipulative skills	Hand-eye co-ordination
<b>Birth</b>	Prefers prone/fetal position	Turns head Latches and suckles	Kneads hands and moves legs while suckling	Eyes are unfocused but searches to make eye contact
<b>1 month</b>	Stepping reflex Prefers lying supine	Lifts head slightly Follows slowly moving objects with eyes	Grasps reflexively when an object is placed in hand	Looks at an object held directly in visual field Eyes begin to co-ordinate
<b>2 - 3 months</b>	When in prone position can lift head to 45° and extend legs	Lifts head up to 90° when lying on stomach	Begins to 'swipe' at objects in view	Follows an object within a limited range
<b>4 - 6 months</b>	When in prone position can lift head to 90° and extend arms and legs Rolls from back to side Sits with some support	Holds head erect in sitting position	Brings objects to the mouth	Follows an object 180° with eyes Reaches for and grasps objects
<b>7 - 9 months</b>	Sits without support Rolls over	Head rotates with ease When supine lifts feet to mouth Bounces when held in standing position	Voluntarily grasps an object without involvement of thumb and forefingers Sometimes holds own bottle	Cannot pick up a tiny object, but does reach for it
<b>10 - 12 months</b>	Moves on hands and knees – crawls Walks while grasping furniture ('cruising') Walks without help	Sits indefinitely Squats and stoops Pulls him/herself to standing May sit from standing position	Transfers objects from one hand to the other May uncover a toy that was hidden under material	Can pick up a tiny object Pokes at objects using forefinger Starts using a pincer grip
<b>13 - 18 months</b>	Walks backwards and sideways Runs	Rolls ball to adult	Signs of hand preference Stacks blocks Grasps a spoon across palm but has poor aim of food to mouth	Turns pages of a book Enjoys putting objects in containers and taking them out Loves dropping objects

While in the uterus the baby is surrounded by amniotic fluid that smells and tastes like the mother's food. The positive association with touch and the developing sense of smell and taste prepares the baby to become aware of flavours and prepares him for the food of his culture. This awareness of touch and the mother's smell and taste is a crucial step towards the baby later being able to find the nipple when the eyes can't see properly yet.

**SUCKING IS PRIMITIVE SIGHT**

Sucking is crucial to boost the immune system and to release brain growth hormones, but suckling is needed for survival. Around 24 - 28 weeks' gestation the baby starts sucking and swallowing amniotic fluid. This prepares him for the 'terrific trio' – suck,

swallow and breathe. These three skills work simultaneously to establish the sense of rhythm needed for effective feeding. The tongue joins the trio by learning to groove instead of protrude in readiness to grasp the nipple in the groove.

**WHY DOESN'T MY BABY WANT TO SUCKLE?**

Sometimes a newborn baby doesn't suckle well, and a mother can feel desperate and helpless. There are many reasons for suckling problems. Some of them are:

- a negative association to touch, so that the baby pulls away from the mother and the nipple
- a negative association to the smell of the surroundings, or the mother's body bathed in antiseptic or perfume



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- bright lights
- mother's anxiety
- a premature birth
- a difficult birth
- a neuro-developmental delay
- problems with breathing or a lack of oxygen.

#### WHAT CAN I DO?

The following BabyGym exercises have been found effective in stimulating the sucking reflex in babies.

- Simulate contractions around the crown of the head by rhythmically applying and releasing pressure. Promotion of the sucking reflex is important for babies who have had an assisted birth.
- To promote the sucking reflex, gently move baby's chin forward and touch it with one hand and baby's belly button with your other hand. Gently massage both points simultaneously. Remember that the umbilical cord was the original source of nourishment, and stimulating both points simultaneously encourages the transition from being fed to feeding.
- You can also gently and simultaneously massage between the top lip and nose with the one hand and baby's coccyx (tail-bone) with the other hand to stimulate the sucking reflex and promote metabolism.
- Gently draw the outline of the lips with your finger, a cotton bud or a feather.
- Also use your finger to outline the inside of the mouth. This helps to close baby's lips and promote sucking.

#### WHAT WILL HAPPEN IF MY CHILD NEVER LEARNS TO SUCKLE PROPERLY?

If your child does not suck properly it does not necessarily mean that he or she will have problems later. However, research

at the Mind Moves Institute, Linden, Johannesburg, has found that many children who battle with the following did not suck properly:

- hypersensitivity around the lips
- heavy/lazy tongue, poor articulation
- delayed speech development
- dribbling
- sensitivity to food with different textures
- messy eater
- overeats
- prolonged thumb-sucking; hair or clothes sucking
- chews sweets, can't suck sweets
- chews on pencils
- puts objects in the mouth
- mouth or tongue works with hand when drawing, cutting or writing
- slow handwriting
- clumsy handwriting
- poor fine motor skills
- finds it difficult to self-calm
- slow task completion
- emotionally immature behaviour and constantly in need of reassurance.

#### What can I do if my child displays any three or more of these behaviours?

**Tongue workout.** Give the tongue a workout by lifting it high in the mouth, pulling it back as far as possible, sticking it out as far as possible and moving it from left to right. This stimulates the muscles necessary for speech, saliva control and neat eating.

**Lip massage.** Simultaneously rub the areas above the top lip and below the bottom lip in a horizontal direction. In a baby this triggers the sucking reflex, but in a schoolgoing child it promotes perception skills and thought and lowers impulsive expression or the need to eat or suck.

**Jaw dropper.** Open the mouth wide by dropping the jaw, feeling the jaw joint just above the molars and all the way up in line with the ears. Gently massage the joint to loosen tension and promote muscle control and expression. This helps with both verbal and written communication, since the hands and the mouth are involved in the movement.

#### Other things to try:

- Lick a lollipop without putting it in the mouth.
- Lick an ice cream without putting it in the mouth.
- Drink water or juice through a thin straw or from a nozzle bottle.
- Imagine eating something 'yucky' and pretend to spit it out.
- Use finger toothbrushes with different textures to brush the tongue, teeth and gums.
- Eat something cold before eating food with an unfamiliar texture.
- Eat biltong, carrots or popcorn to create a feeling of resistance in the mouth.
- Blow bubbles and catch them.
- Blow a flute or a mouth organ.
- Use a straw and blow paint to form different patterns on paper.
- Roll little paper balls and create goals with three pencils. Use a straw to play soccer, blowing the paper balls to score a goal. Increase the distance from the goal to encourage deep breathing and firm lip control.
- Use lip balm to trace the outline of the lips.

Stimulating sucking in a baby or child promotes emotional development and a healthy self-esteem – it is worth the effort to see the glow of self-acceptance! ●

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#### Reference

1. Ornstein R, Thompson RF. 1984. The Amazing Brain. Boston: Houghton Mifflin, 1984.

#### Bibliography

1. Boon R. Sensory-Motor Integration and Learning. Sydney: Learning Discoveries Psychological Services.
2. De Jager M. Mind Moves – Moves that Mend the Mind. Johannesburg: Mind Moves Institute, 2009.
3. De Jager M. BabyGym. Welgemoed: Metz Press, 2008.
4. De Jager M. Mind Moves – Removing Barriers to Learning. Welgemoed: Metz Press, 2009.
5. Goddard Blythe S. What Babies and Children Really Need. Gloucestershire: Hawthorn Press, 2008.