Crawling / Creeping: is it important?

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Movement is so much part of everyday life, that it is very easy to take it for granted. It is equally easy, and even quite serious, to overlook the importance of the role of movement in learning.

To move appropriately is a sign of development - Mollie Davies

Movement involves all kinds of actions like breathing; swallowing; rolling; sitting; standing; cruising; walking; jumping; throwing; catching; gliding; climbing; hopping; skipping; galloping and many more. All these movement activities are important for the child to discover his own body and what it can do. According to Davies (2008:3), the body is an instrument of action with three aspects:

- dynamics which relates to how the body moves;
- space which refers to ways in which the body occupies and uses space;
- relationships that identify ways in which the body interacts with people and objects.

“Did your little one crawl?” For years General Practitioners, teachers and therapists have asked parents this question – most of the time without the parents even knowing why. Because of this, this one question tends to illicit some other questions - What is crawling and creeping? Is crawling important? If it is important, why?

WHAT IS CREEPING AND CRAWLING?
The difference in meaning for creeping and crawling, depends on where in the world you live. For the purposes of this article, the South African layman’s terms will be used:

Creeping is moving along on the stomach
Crawling is raising the body off the ground moving forward on all fours (hands and knees)

IS CRAWLING IMPORTANT?
From movement programs by authors such as Kephart (1960), Cratty (1973), Frostig (1970), Lefroy(1990) and Kiphard (2000), it seems like crawling is important because “many of them (learning programmes) start at the crawling and creeping stages of development” (Goddard, 2002).

Crawling is one of the milestones in the motor development of the child. Even though it is an important milestone, it does not necessarily mean that the child will have problems later on in life if he does not reach this milestone. HOWEVER, if one considers the fact that each motor milestone is also a brain developmental milestone; the importance of reaching every motor milestone cannot be stressed enough. To promote crawling at its best, it is advisable that parents pack away walking rings and any other supporting equipment in favor of natural development on the tummy and on the back. Tummy and back time on a blanket is the ideal position to encourage crawling, as well as brain development.
When a baby is ready to become mobile he starts moaning, pushing and shoving, which is a very good sign because it sparks the need for new neural connections in the brain. These neural connections take a while to develop, which means that baby will continue moaning, pushing and shoving till all the necessary systems and muscle strengths have developed. This will enable the baby to push himself up into an all fours position. Coming to baby’s ‘rescue’ during this period, the parent may just rob him of an opportunity to synchronize the workings of all these systems - ready to do his bidding for the rest of his life.

**WHY IS CRAWLING IMPORTANT?**

Developmental milestones such as crawling develop:

- postural control
- balance
- locomotion
- manipulation

**Postural control**

Postural control (Davies, 2008; Pica, 2000)) is to maintain the alignment of all the body parts, when moving or when still. It requires muscle strength, which for example is developed when a child uses the Symmetrical Tonic Labyrinthine Reflex to ‘break up’ the body into a top and bottom part. Just before baby is ready to crawl around on all fours (around 8 months), bending the neck and lowering the head will make the arms bend and the legs straighten; while raising the head make the arms straighten and the legs bend. The top part is strengthened by raising the head to straighten the arms and the bottom part is exercised by pushing up the bum.

This may continue till one fine day when the head starts moving independently from the arms and legs; and the muscle tone is strong enough to push the body off the ground and the baby is able to hold that position unaided - postural control! Celebration time – baby is one step closer to crawling.

**Balance**

Balance and postural control work as a team to ‘hold the body upright’ when still or moving. With the help of the eyes, sensors (proprioceptors) all over your body and the balance system in your inner ear (vestibule and semi circular canals), the brain knows where the body is and calculates how to move to be able to stay upright (Farndon, 2008; Macintyre & McVitty, 2004).

Before a baby starts to crawl, he stands on all fours and rocks forward and backward. The rocking action synchronizes posture, balance and muscle strength while the baby’s eyes are adjusting to a new position quite a few centimeters higher than what he is used to. The body has to undergo many changes to feel safe in this position before baby can become mobile. If a baby skips the crawling phase, the gradual and progressive integration of the different systems in the body do not get the opportunity to learn to work together, to help develop baby’s balance system. This may lead to serious challenges later.

**Locomotion**

Locomotion means to move (Davies, 2008; Pica, 2000). A baby first learns to move forward when he crawls. Whilst crawling the baby becomes aware of the left and right side of the body and also crosses the midline between the left and right side of the body and brain. This is an important part of a child’s development, since children who cannot cross the body’s vertical midline:

- tend to stay focused on the vertical midline;
- sometimes write or draw down the vertical midline;
- change the pencil to the other hand at the midpoint of the paper;
- or tend to stop reading in the middle of the page.
“Creeping and crawling not only help children cross the midline, but also activates both hemispheres of the brain in a balanced manner” (Hannaford, 1995). This happens because crossing the midline involves both eyes, both ears, both hands and both feet, as well as the core muscles on both sides of the body. This involvement effectively stimulates both hemispheres and all four lobes of the brain - an immensely important milestone in the development of the brain.

According to Goddard (2002), by crawling, babies not only learn to look frontward, but while they are moving the hands forward, the eyes follow the hand movements, teaching the eyes to cross the midline and promoting eye-hand coordination. She says: “Later on this ability will be essential for being able to read without losing the words at the middle of the line and to visually follow the moving hand when writing”.

Crawling along a variety of surfaces also gives the baby a lot of tactile (touch) stimulation. Tactile sense helps to map a body awareness of where the different body parts are in space, without looking at that specific body part. The ability to move without having to look at the part that is moving, is important for all later coordination (Goddard, 2008).

Developing the tactile sense also has a huge influence on vision (Stock, 2005). While crawling, baby is looking forward, to both the left and right hand and up and down, giving his eyes ‘n wonderful workout. Goddard (2002) confirms the importance of crawling in the development of vision, by referring to the focusing distance between eye and hand. Practicing this distance when crawling, baby is preparing himself for learning, because the distance between the eye and the crawling hands is the same distance that the child will later use for reading and writing while sitting at a desk.

Crawling also expands a baby’s personal space, beyond the zone-restricted space of the carrycot, high chair and rug on the carpet (Davies, 2008), by looking and reaching for things and people. In expanding his personal space, baby learns about social interaction and social rules. Children who have trouble with personal space might line up too close to others and usually write letters in a similar way (Pica, 2000). Eye contact is another form of development that starts during this stage. Eye contact is one of those important social skills that inadvertently improve, while baby crawls about.

It is obvious that the locomotion aspect of crawling helps with synchronising the eyes, maintaining the posture, balance, movement, tactile sense, muscle tone and crossing the midline - all in preparation of fine motor manipulation as well as the ever so important reading and spelling!

**Manipulation**

Manipulation conjures up images of building blocks, puzzles, eating with a spoon and other such objects - all of which develop the baby’s fine motor skills. In later years the young child needs these fine manipulation skills to hold a crayon, cut with scissors and grasp a pencil in a three-point position.
How does crawling contribute to manipulation and eventually to pencil grasp? Whenever the baby takes his weight on all fours to crawl, it develops the:

- joint control in the shoulder, elbow, lower arm and within the hand;
- arches of the hand;
- motor separation of the hand (support on the little finger’s side and skills on the thumb side); and
- strength and tone of the hand (Visser, 2007).

**Summary**

Research indicates that crawling on all fours – not bunny hopping or bum sliding – develops the following skills:

- motor development
- postural control
- muscle tone
- balance
- integration of the different systems in the body
- locomotion
- eye-hand coordination
- activates both hemispheres
- eye-hand coordination
- tactile (touch) stimulation
- vision
- focusing distance
- personal space
- eye contact
- manipulation
- pencil grasp
- joint control in the shoulder, elbow and lower arm and within the hand
- arches of the hand
- motor separation of the hand (support on the little finger’s side and skills on the thumb side)
- strength and tone in hand

Crawling is not the only movement that develops the above skills, but it would seem like an awful pity if a baby does not experience the myriad of benefits that this developmental milestone may offer in preparation for standing, walking learning and working unaided.

**Through repetition, babies increase the number of things they can do; develop and refine the skills involved**

Mollie Davies

Visser, M. 2007, Masters study: The impact of crawling on pencil grasp and control, as well as visual perceptual skills in 5 and 6 year old children. Johannesburg: Wits Department of Occupational Therapy.