

Hands and knees

The importance of crawling to physical and mental development, and how to encourage it, is explained by *Anne O'Connor* and *Anna Daly*

Crawling isn't just about getting from A to B, either in terms of space or of children's progression to walking. It is an important 'destination' in itself to be enjoyed, explored and fully experienced to allow the fundamental integration of children's physical, emotional and neurological growth.

The instinct to crawl is there right from birth, although babies don't begin to do it until their bones and joints are strong enough to bear their weight – one of the reasons why there can be such variation in the age at which crawling develops.

Although it's easy to think of crawling as just a physical action, there is a lot going on in the brain when a baby starts to crawl. For the first time, three very important senses are beginning to integrate:

- vestibular – the sense of motion and position
- proprioception – the sense of the inner self and awareness of body parts
- visual – being able to look into the distance as well as down at the hands.

Integrating these senses is very important for the development of balance as well as perceptions of space and depth.

ALTERNATING PATTERN

The alternating pattern of crawling involves using opposite extremities at the same time. The right arm moves with the left leg, then the left arm moves with the right leg. The motor nerve impulses to our arms and legs start off in each side of the brain cortex and then cross over in the brain stem to send the required activity to the opposite side.

Every crawling movement for a baby is a complex piece of neurological co-ordination, as both the right and left hemispheres of the brain are called into action. Research is beginning to suggest that if a baby spends a good length of time in the crawling stage, this increased communication between the two sides of the brain can have a positive effect on later learning as well as physical co-ordination.

BENEFITS OF CRAWLING

Lifting the body off the floor on all fours to crawl also:

- develops the spinal curves, allowing more freedom of movement in the joints
- helps align upper and lower parts of the spine ready for standing up and walking
- develops core strength
- builds arm and leg muscles
- exercises will into action – 'I want something and now I can go and get it for myself.'



Tunnels are a great way for children to practise crawling co-ordination

CO-ORDINATION

The reflex that has a part to play in this stage of physical development is called the 'symmetrical tonic neck reflex' (STNR). The function of this reflex is to tell the upper body (neck and arms) to do the opposite of the lower body.

When the head goes down, the arms bend and the legs try to straighten. But if the head goes up, the arms straighten, the legs bend and the bottom sinks back on to the ankles. This makes it impossible for the baby to

get up on all fours, so the reflex has to disappear (become inhibited) for crawling to develop.

Not all babies go through a crawling-on-all-fours stage, and some may progress quickly on to walking after a very short period of crawling. It is important to stress that this, in itself, is not an indicator of future problems. However, Sally Goddard Blythe in *The Well-Balanced Child* highlights the fact that for some children, retention of the STNR at the time when they would naturally have learned how

to crawl 'can prevent the baby from being able to co-ordinate the necessary movements – in these cases, later learning difficulties seem to follow.' Some possible effects of a retained STNR include problems with:

- sitting or standing upright, for example, at a desk
- hand-eye co-ordination, for example, catching a ball, messy eating
- upper and lower body integration and co-ordination, for example, swimming and somersaults
- binocular vision – looking near and far, for example, copying from a board
- vertical eye movements and visual tracking.

SECOND CHANCE

The work of the Institute for Neuro-Physiological Psychology focuses on successful techniques that allow children to revisit the stages of physical development and fill in any gaps, 'giving the brain a "second chance" to make good the deficits that had occurred in early development and which continued to undermine the performance of the child at a later age.'

This is far from suggesting that babies should be prevented from walking early or be made to crawl if they are reluctant. Sally Goddard Blythe reminds us, 'The important point is to allow your baby to experience as wide a range of movements as possible; to enjoy and value each stage of development as it occurs – not to try to push your child on to the next stage before it is ready to move on by itself.'

Not only can we help parents to appreciate just how important this is, but by providing children with plenty of opportunities for enthusiastic crawling – at any age – we can help to ensure they get all the movement experiences they need. ■

Future articles in this series will look at the importance of balance and vestibular development for children from birth to five. The next article will be published on 18 June.

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REFERENCES AND FURTHER RESOURCES

- Institute of Neuro-Physiological Psychology (INPP), www.INPP.org.uk
- Sally Goddard Blythe, *The Well-Balanced Child: Movement and early learning* (Hawthorn Press)
- Penny Greenland 'Hopping Home Backwards', www.jabadao.org
- 'The Importance of Crawling', http://jillurbane.typepad.com/thementormom/2006/08/the_importance_.html
- 'Tomorrow's Children' by Margaret Sassé, www.ladderoflearning.co.uk

FLOOR PLAN

Try these activities to promote crawling and floor locomotion at any age:

- Encourage crawling races across the floor – though it doesn't have to be the fastest who wins. Try backwards crawling, or see who can crawl the slowest.
- Wait some distance from the crawlers and encourage them to look for you, assisting the neck strength and eye convergence.
- Get down on your hands and knees and join children on the floor to demonstrate or copy their crawling technique – a great way to make eye contact.
- Use safe small tables or chairs to crawl under. Drape them with sheer fabric to

add a sensory experience.

- Make tunnels made out of big cardboard boxes. Children enjoy getting into small places where adults can't go!
- Crawl under blankets or lengths of fabric.
- Use your body to make human tunnels for crawling under. Line up several adults to make a long tunnel.
- Encourage older children to take turns making bridges or tunnels for each other.
- Play 'Tiger Tails' – tuck bright scarves or short fabric in the top of waistbands as tails. Then, on all fours, chase each other to grab the tails.
- Try it in pairs – face each other and try to keep on all fours, moving your tails out

of the reach of your partner while trying to grab theirs!

- Use bolsters and large floor cushions to explore crawling over an uneven surface.
- Think about how animals crawl or walk on all fours. There are lots of easy animal imitations to try – cats, dogs, lions, elephants, spiders, etc.
- For younger children, use your hands for them to push against with their feet to get moving as they crawl. This helps them feel the effort and the strength in their muscles.
- For older children try 'resisted crawling' – get down on your hands and knees and gently resist them coming forward, with your hand on their

shoulder to encourage more strength and intention.

- A more advanced move is to do it backwards, by getting behind the children and gently resisting them crawling backwards, at the base of the spine/bottom.
- Put games and activities on the floor and under tables, instead of on top of them! Spread resources out to encourage the need to crawl around to find or fetch them.
- Play chasing games, 'follow the leader' or 'hunt the thimble' on all fours.
- Make the most of grassy areas for outdoor crawling games.
- Use planks on top of crates or big blocks to create paths to crawl along.