

Tummy Time



By Dr. Lin Day, Baby Sensory

Modern day practices suggest putting babies on their backs to sleep and while this has contributed to a significant decrease in cot death or Sudden Infant Death Syndrome (SIDS), they may miss out the crawling stage, which is crucial to later learning. Babies need to be on their tummies in order to go through the fundamental movement patterns (for example, raising the head, creeping, and crawling) that stimulate both sides of the brain and lay the foundation for later reading and writing. If the crawling stage is avoided, they may encounter learning problems in school, no matter how intelligent they are. The good news is that even five minutes of 'Tummy Time' a day can lessen or eliminate these potential problems, and have a positive effect on head shape. This article explains why tummy time is so important to baby development and learning and what parents and practitioners can do to make it a happy and productive experience.

Back-to-sleep

Before 1994, most babies slept on their tummies. However, this has been identified as a risk factor for cot death. Other theories involve allergy, bacterial toxins and genetic abnormalities, but none of these have been proven. SIDS is responsible for about 500 infant deaths in the UK every year.

Putting babies on their backs to sleep has actually reduced the incidence of SIDS by as much as 50%. However, paediatric physiotherapists are concerned that the 'Back to sleep' campaign has overshadowed the importance of supervised tummy time during waking hours.

Babies, who spend their waking hours on their backs in car seats and bouncy chairs, may experience delays in developmental milestones such as rolling over sitting up, crawling and standing. They may also have difficulty in adapting to different positions when being handled by parents or carers. Babies that lie predominantly on their backs may develop positional plagiocephaly (flat head syndrome). However, plagiocephaly is a cosmetic condition, which does not affect development of the baby's brain. Once the baby starts crawling or walking the head will return to a more natural, rounded shape.

Although babies should always sleep on their backs, tummy time is an essential aspect of development from birth. However, statistics show that 19% of babies are never put on their tummies to play.

10 good reasons for encouraging tummy time:

1. Encourages play between the parent and the baby
2. Promotes healthy development of the central nervous system and brain
3. Strengthens neck, back and upper body muscles
4. Relieves stress and tension in the joints and muscles during growth spurts
5. Improves balance and postural control (the foundation for all movement skills)
6. Encourages babies to lift their heads against gravity and to take the weight on their arms
7. Increases confidence and independence
8. Stimulates and enhances visual development
9. Aids healthy development
10. Leads on to crawling, an intellectually important developmental step not to be missed!

Babies that are used to lying on their backs may miss out the crawling stage altogether and go straight on to walking. However, nothing can match regular crawling in terms of energy efficiency, co-ordination, stability and versatility. There is also evidence that crawling fires groups of neurons (brain cells) in different parts of the cortex responsible for visual processing, sensory perception, conscious planning and prediction. Crawling is a key period in the baby's physical and intellectual development and it only takes a few minutes of daily tummy time to start seeing results.

10 good reasons for encouraging crawling:

1. Stimulates the left and right hemispheres of the brain to work together
2. Brings oxygen-rich blood to the brain, an important component to overall brain health and immune system stimulation
3. Encourages cross-lateral exercise (left arm-right leg; right arm, left leg) which stimulates thinking and movement at the same time
4. Strengthens hand grasp for physical activities and later writing
5. Improves hand-eye co-ordination and eye-teaming (see EYE March 2008), which is crucial for visual development and later reading skills
6. Perfects movement, control and balance
7. Improves elasticity and contractibility of the muscles, which thicken and strengthen in preparation for later walking
8. Reduces stress and frustration, which can be major obstacles in terms of learning and sleeping
9. Gives babies a sense of freedom: freedom to explore and learn about the world, to create alternative exploration scenarios, to interact with the environment at eye level and to find out about distance and space
10. Enables babies to explore the textures and properties of different objects and to find out what hurts and delights them

Crawling may seem simple enough, but the series of movements are actually very complex. Careful observation shows that babies alternate movement between the four limbs to maintain the centre of gravity and to propel themselves forward. For example, the baby moves the left hand with the right knee and then the right hand with the left knee (or vice-versa). The action is quick, easy, and reliable and the centre of gravity is maintained with each movement. There is some evidence to suggest that breast fed babies crawl sooner than bottle fed babies. This may be partly due to the increased utilisation of calcium, which is important in bone formation.

Crawling milestones

The first crawling sign may be soon after birth, when the baby 'crawls' up the mother's abdomen to find the breast. Although the action is involuntary, it may be the baby's first experience of tummy time. Babies that are regularly put on their fronts can lift their heads for a short period of time by the end of the third week. By the age of four months, most babies can push themselves up on their forearms and hold their heads steady. By the age of six months, most babies can sit upright without support and some may have started crawling. Although every baby is unique and development will vary for each individual, most babies perfect the art of crawling by the age of ten months.

Learning to crawl

In the early days of learning to crawl, it is easy to get the movements wrong! If the arms are too far forwards or the legs too far back, babies will end up flat on their tummies. But sometimes it is good to make mistakes! Babies that reach forwards for a toy or accidentally topple from a sitting position often land by chance on their tummies or on all fours.

Babies use all manner of movements to get from A to B. Some babies propel themselves forwards on their tummies, while others crawl backwards in the wrong direction. This is because the muscles in the arms, which are stronger than those in the legs, propel the baby backwards. However, as the muscles in the lower body strengthen, babies soon discover how to drive themselves forward. Some babies adopt spider-like movements (hands and feet on the floor, bottom in the air) to get what they want. However, these movements are not characterized by a co-ordinated sequence of alternate movements. Rather, they are a combination of awkward pushing, pulling and shuffling movements which are not energy efficient at all. Hands and knees crawling, however, is a very energy efficient and reliable means of locomotion. It also signifies that a certain stage in muscle control and movement has been achieved.

Brain development

Crawling develops both hemispheres of the brain, which grow in size and complexity throughout the baby's first year. It also activates eye-teaming, a crucial skill in learning to read. There is increasing evidence to suggest that babies that have gone through the crawling stage have improved language and literacy skills when they go to school than babies that have missed out this important developmental milestone. However, babies that miss out the crawling stage do eventually catch up in their physical development skills.

Fun ways to spend time with baby

Babies that lie continuously on their backs may develop intolerance to tummy time and may cry or refuse to lift their heads up. For some babies, being on their tummies is physically uncomfortable. Keeping their heads up is hard work - at least until they get used to it! The trick is to make tummy time fun time! If tummy time is introduced gradually, two or three times a day for a few minutes,

it will eventually become part of the daily routine and the baby will like to play in this position. Make sure that baby is awake, safe and attended.

Top tips:

1. Place baby on his tummy for a nappy change. Once he gets used to the position, it will soon become a pleasurable habit!
2. Place a safety mirror or favourite toy a few inches from baby's head and call his attention to it. Baby will lift his head and reach out in different directions, which develops the muscles needed for rolling over
3. Place baby on a colourful quilt with squeaky toys attached. Remove baby's socks so he can get good traction on the play mat
4. One of the best strategies is to keep baby company on the floor. Coo, sing or make funny sounds to encourage him to lift up his head. There is no other voice he would rather hear!
5. Roll a ball over baby's back, legs and arms. It's a great way to stimulate his skin and relieve tension
6. Place baby on your lap facing your knees. Draw up your knees so that he can see what's going on. He will probably love the new view!
7. Lie on your back and place baby facedown on your chest. Call his name to encourage him to raise his head to get a better look at you!
8. Put baby on edge of the bed and sit on the floor with your face next to his. From this position, you can interact together
9. Place a rolled up towel under baby's chest. This supported position allows baby to lift his head and look around and improves focus
10. Put baby on his tummy over a large bounce ball and hold him firmly while you gently rock the ball back and forth. Baby will learn to shift his body weight, which improves balance and co-ordination
11. Place baby across your legs and pat his back. It's a great technique for settling a fussy or fretful baby!

12. Place a ball in front of baby and within easy reach. As soon as he touches the ball, it will roll away. Baby will either 'swim' or on his tummy or lift himself up on his forearms in an attempt to reach it
13. Exercise or massage baby after a bath while he lies on his tummy

Setting aside a regular period of the day for tummy time gives babies the opportunity to learn, play and practice essential head control movements. All these things will help the brain grow and develop. Tummy exercises and creeping and crawling activities, which will be discussed in a later article, can even be used to correct spatial difficulties as well as reading, writing and mathematical problems in children that have missed out these important stages in infancy. The good news is that it is never too late to encourage these forms of movement!

Parents and practitioners can follow the ideas in the Foundation for the Study of Infant Deaths (FSIDS) leaflet, which is available online at www.fsid.org.uk.