

# SENSORY PROCESSING

[www.neonataltrust.org.nz](http://www.neonataltrust.org.nz)

Babies born prematurely can often have some issues with sensory overload and you'll notice that most neonatal units do their very best to minimize overstimulating a sick or premature baby. What seems normal to us can easily overwhelm any child with sensory issues, and this is especially true for a premature or sick baby whose brain and body are not yet able to handle the barrage of sensory input from the outside world.

The following provides a little bit of information for parents regarding sensory development. If you are at all concerned regarding your child's sensory processing, please discuss this with your GP, there are early intervention services available to assist.

## SENSORY DEVELOPMENT

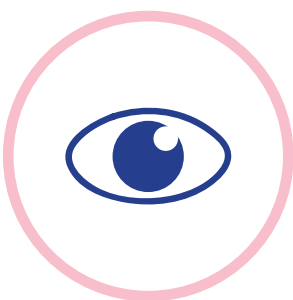
The newborn's brain is only a quarter of adult size, but by the end of the first year, it will have doubled in volume. This growth is largely due to the trillions of neural connections, which allow messages to be passed from one area of the brain to another. These connections are the direct result of events and experiences encountered from birth.

Babies need stimulating experiences. An environment full of interesting sounds, sights, smells, tastes and textures builds and strengthens connections between brain cells, which ultimately shapes behaviour, memory, emotions, intelligence and other essential mental skills.

### Sound

The neurosensory part of the auditory system becomes functional at about 25 weeks gestation. This is the time when the ear and the temporal lobe of the brain tune into specific frequencies and intensities such as the mother's voice and the rhythmic sound of her heart. These same sounds provide comfort and reassurance to the newborn baby.

Hearing continues to develop up to 6 months after the birth. Sound experiences, verbal interactions, rhymes, singing and stories build important neural connections for speech and language skills and they contribute to all-round development of the brain.



### Vision

At birth, the eye and brain areas responsible for vision are immature. Although babies can see colours, they may appear blurred. However, by two months of age, colours become distinct and the baby can track the movement of an object if it is not too far away. By 6 months, significant advances have been made in the vision centre of the brain. Colours can be seen clearly, and both eyes can track and focus accurately on a moving object.

At 8 months, babies can see with much greater accuracy. Even so, it takes another four years for vision to reach the full adult level, which is why continual visual stimulation is so important.

### Smell

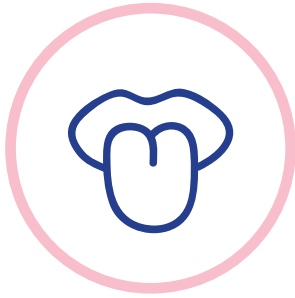
At birth, the sense of smell is fully mature and babies have the capacity to distinguish thousands of different smells. Most babies are responsive to smells that they encounter daily such as breast milk, the mother's perfume or a familiar blanket. Such smells are associated with comfort and security.

Smells are received by receptors at the top of the nasal passage, but they are processed and interpreted by the temporal lobe in the brain. Signals also pass through the limbic system, which is heavily involved with memory, mood, behaviour and basic thought processes. Stimulating babies with different smells develops brain connections and helps them to learn about the world.



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## Taste

The sense of smell is closely associated with the sense of taste. Taste buds on the tongue can distinguish sweet, sour, bitter and salt, but all other tastes are detected by smell receptors in the nose.

When an object is brought to the mouth, the lips and tongue provide a very accurate image of texture, size, weight, shape and temperature. Mouthing is often accompanied by vocalisations, which play an important role in speech and intellectual development. Mouthing also develops skilful jaw and tongue movements in readiness for solid foods.

## Touch

Babies need to touch interesting objects and textured materials in order to develop and strengthen connections between the brain cells. Whenever an object is grasped or explored with the fingertips, millions of sensory receptors send messages to the brain, which then processes, analyses and stores the information. Touch also stimulates parts of the brain that govern action, coordination and thinking.

Parents can also nurture the sense of touch by giving babies plenty of loving attention and comfort. Close physical contact and sensitive, responsive care builds emotional brain connections that lead to happy, healthy relationships. Babies also gain weight faster, develop stronger immune systems, crawl and walk sooner, sleep more soundly and cry less than babies deprived of close physical contact.



## Final thought

The most important thing is that you enjoy spending time bonding and getting to know your baby. If at any time you are concerned about your child's development in any way please speak to your GP as there many early intervention services available who can help support you and your baby.

## A special thanks

The Neonatal Trust would like to acknowledge, and thank, Baby Sensory and Founder Dr Lin Day for their help with producing this resource.

Dr Lin Day (PhD, M.Phil, PGCE, BSc, Dip Ed), is one of the UK's leading parenting experts and a renowned author within the field of childcare and education. With over 35 years of practical experience working with parents and children and driven by the passion and commitment to offer the best possible service, Dr Lin Day developed Baby Sensory and Baby Sensory Foundations to provide the support and knowledge necessary to lead baby learning and development forwards in the most important year of life (and ran classes herself for 9 years).

**Baby Sensory™**  
Precious Early Learning for Babies

## ABOUT BABY SENSORY CLASSES

The remarkable ability of the brain to make connections and to absorb information has provided Baby Sensory with a wonderful opportunity to encourage the learning and development of babies from birth. Their classes give parents the chance to spend quality time with their babies, to interact warmly with them on a one-to-one level and to enjoy a wealth of rich sensory experiences.

All activities are accompanied by valuable developmental information. This is important because parents need to know why and how they can lead their baby's learning and development forwards in the most important year of their lives.

To learn more, head to [www.babysensory.co.nz](http://www.babysensory.co.nz)