

# Making Sense of your Baby's Five Senses: Hearing

In the second instalment of this series, find out all about your baby's hearing and how it develops in your womb.

WORDS CHRISTEL GERALYN GOMES



Your baby's hearing is one of the most developed senses he has. In fact, baby can already hear in your womb. "The hearing organs on either side of the foetus is formed by about 18 weeks gestation and become functional by about 20 weeks gestation when the neural connections between the inner ear and brain are formed," says Dr Dawn Teo, medical director and consultant paediatric ENT surgeon from Mount Elizabeth Novena Specialist Centre.

All babies pay special attention to human voices and a parent's voice is an endless source of comfort and familiarity. It is true that being in the womb muffles outside sounds – "it's like hearing underwater", explains Dr Teo. However, "sounds originating from the mother are amplified: her voice, movements and even heartbeat can be clearly heard by the foetus".

Dads, your voice is also familiar to baby, and baby should very quickly show signs of recognising the voices of his parents.

## Signs of Recognition

So how do you know that baby recognises you? According to Dr Lee Le Ye, consultant at the Department of Neonatology at the National University Hospital, your baby will often quieten upon hearing your voice. While he is still a newborn, neck and head control is weak, so turning in the direction of your voice is difficult. However, "Babies who are crying can be easily soothed if the parents speak in a calm voice. Similarly, if the parents are excited or angry, the babies may respond with crying louder", she says.

As your baby gets older, Dr Teo says that you can expect baby to coo or smile when they hear your voice. Also, in response to other sounds, babies may increase or decrease sucking or "stiffen, quiver, blink, screw

up their eyes, fan out fingers and toes or cry as a response to sudden or loud noises", says Dr Teo.

## Responding to Sound

According to Dr Stephen Lee, specialist in ear, nose and throat surgery and consultant at Raffles ENT Centre, a baby is able to locate the source of a sound very early on as well. "In a study, newborns and one month olds are able to turn towards the sound source 80 per cent of the time," he says.

If your baby takes a bit more time, that's also totally normal. Dr Lee Le Ye gives us more conservative figures: "The age that the baby can locate the direction from which sounds are coming is at three months for sounds coming at ear level and six months for those coming above the ear level – when they will have adequate head or neck control to accurately turn to the direction of the sounds".

## Hearing Problems

Since hearing is one of the most used and developed senses baby has when he is born, recognising hearing problems in your baby is important, but can also be difficult as signs are subtle.

**According to Dr Teo, "About 5 in 1000 babies are born with hearing loss. Assuming a birth rate of 40,000 per year in Singapore, there are about 200 babies who are identified to have hearing loss every year."**

In babies who are born with normal hearing, hearing loss may occur later due to a few different things. Dr Teo lists the following:

- problems in the outer or middle ear, which include ear infections and build up of wax
- exposure to certain toxic chemicals



or medication while in the womb. Infections that the mother passes to the baby; rubella, measles and herpes are some examples



infections that damage the baby's brain such as meningitis or measles

Dr Lee Le Ye adds that hearing loss can range from mild to severe. In severe cases the child can be born or become completely deaf in both ears. When mild, only one side is affected and they can still appear to respond to sounds.

"Certain higher risk situations include, being born prematurely, stayed in neonatal intensive care, had high bilirubin, history of being given medications that could lead to hearing loss, family history of childhood hearing loss, birth complications, frequent ear infections or suffered infections like meningitis or virus infections," adds Dr Stephen Lee.

## Recognising the Problem

Recognising that your baby has a hearing problem is instrumental so that treatment can be given. "For optimal development of speech and language, infants with hearing loss should be identified early and should receive

treatment by six months of age," says Dr Teo.

Dr Stephen Lee concurs and stresses the importance of early detection. "It is most important to identify hearing loss in children at the earliest possible age, because it is crucial in the development of

speech, language, cognitive and psychosocial abilities. Treatment is most successful if hearing loss is identified early and preferably within the first month of life. One in every four children born with serious hearing loss are not diagnosed before the age of three.”

However, this can be difficult because the signs can be hard to spot. On top of that, there is a range of hearing loss, which may mean that your baby can still respond to sounds but may still not be hearing clearly. “Parents will find it very difficult to pick up the hearing loss unless the child does not speak till a much later date, like two years old. Even those with severe hearing loss may not have symptoms to differentiate from the babies who hear well,” says Dr Lee Le Ye.

This is why your best course of action is to have your newborn undergo the hearing test offered to all babies in the birth hospitals.

Other things you can do are first, to be aware of risk situations and family history to know if your baby may be pre-disposed to hearing loss. Then, don’t miss the screening test. “If there is a failure, then it is necessary to repeat the test within a month. On an ongoing basis, keep tabs on baby’s first words, including the ability to babble or imitate voices by one year. Red flags included are if no single words are spoken by 18 months, inability to say at least 10 words by two years, or in an older child constantly asking ‘what’ or studying people’s faces for more information, or asking for the TV volume to be tuned up,” says Dr Stephen Lee.



## Protecting Baby’s Hearing

There are a few things you can do to ensure you don’t damage baby’s hearing. Dr Teo advises the following:

-  Loud noises should be avoided especially after 20 weeks gestation.
-  Adequate and little disruption to sleep cycles is also important to help in the development of hearing.
-  Ear infections should be identified early and treated.
-  Follow the immunisation schedule to prevent infections like rubella and measles.
-  Head phones should not be used directly on the abdomen of the mother during pregnancy, as the sound from the earphone is amplified up to double the volume. This may damage the hearing organs if exposed for as little as one to four hours

**Dr Lee Le Ye adds that it is a fact that listening to an MP3 Player at loud volumes over time can cause permanent damage to hearing. It is therefore best that you do not give your child an MP3 until much older.**

If you have found that your child has developed or has been born with hearing loss, all is not lost. Dr Lee Le Ye tells us that hearing loss even if severe and bilateral can be treated with the appropriate hearing devices and aids that will be suitable for young children as young as six months. “Those who received appropriate treatment and intervention can develop speech and even play music instruments and attend normal school like their hearing peers,” she says. 

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