

# Sensory Development in the Womb

## Tactile

- 8 weeks fetus develops sensitivity to tactile stimulation
- 12-15 weeks grabs the umbilical cord, brings hand to face and sucks on thumb
- 20 weeks skin receptors cell are in place all over the body.
- 24 weeks the cortical pathways for touch are intact
- 28 weeks capable of fine manual capabilities

## Taste

- 8 weeks gestation receptors formed
- 14-16 weeks: taste buds able to detect taste
- 24/27 weeks: reacts to a bitter (e.g. medications or gel on your hands) Detects irritants.
- 28-29 weeks: reacts to sweet and sour. Babies born at this stage may respond positively to mothers milk.

## Auditory

- All major structures of the ear are in place between 23 and 25 weeks
- Foetus can perceive and react to auditory information starting at 25 weeks of life
- 26-30 weeks hair cells in the cochlea are fine tune for specific frequencies
- 28 weeks can tell the difference between father voice and mothers voice
- 34 to 36 weeks can distinguish between different moods or emotional qualities to speech

## Vestibular

- Semicircular canals function in utero, otolith organs are fired on as soon as the baby is born.
- 23-24 weeks weak moro reflex.
- 30 weeks full moro response in preterm

## Smell

- 9 weeks nasal cavity is formed
- 13 weeks olfactory nerves connect to the brain.
- 17 weeks foetus swallows liquid
- 28 weeks foetus can smell and respond to odors in the amniotic fluid.
- 34 weeks swallowing 750 ml of amniotic fluid daily



## Proprioception

- Twitches at 7-8 weeks. Whole body moving at 9 weeks.
- Breathing, jaw and tongue movements at 11 weeks.
- Hand to placenta, umbilicus 11 weeks

## Interoception

- c-afferent nerve fibres begin to develop early on
- emotional, regulatory needs are met



## Vision

- 22 weeks: eyelids are developed, fused and thin, allowing light penetration.
- 23-25 weeks: myelination of optic nerve begins. Eyelids separate and eye lashes form.
- 25-26 weeks: neurones of the optic nerve are present.
- 28-40 weeks: rapid growth of the eye.
- 30-32 weeks: slow pupil constriction to light

# Sensory Recommendations in the Neonatal Unit

## Tactile

- Use soft, gentle touch in all caregiving interactions .
- Provide neutral thermal environment
- Try skin to skin for an hour or more, every day.
- Hold your baby gently, rest your hand on their head and by their feet
- Gently offer them a finger to hold onto
- At 32 weeks and above work with the neonatal team to provide gentle holds and massage

## Vestibular

- Always talk first, then touch, then move your baby.
- It is easier for them to be moved on their side or on their tummy.
- Try to keep them flexed and tucked when you move them, like they would be in the womb.
- From 32 weeks you could add gentle movement, when you hold them, gently sway from side to side, watch your babies behaviour they will tell you if they like it

## Interoception

- Provide prolonged opportunities for skin to skin and early breast milk

## Auditory

- try to speak in your library voice 45 Db or below, it is very important we protect your baby's sleep.
- Reading books, talking softly and singing lullabies are very important for language development, but watch your baby's behaviour they will tell you if they are enjoying it.

## Proprioception

- Support your baby to sleep in flexion, comfort, supported and aligned.
- Support your baby to hold on to your finger, bring their hand to their face.
- Provide your baby with a high nest for their bedding, so they can push their feet against the edge.

## Smell

- Place a muslin or scented cloth in your baby's bed, your smell will help them to feel comforted.
- Remember don't wear any perfume or aftershave as your baby needs to smell you.
- Take something home with you that smells of your baby, you need to smell them as much as they need to smell you



## Visual

- It is important to protect your baby's vision, below 32 weeks their eyelids are very thin and their pupil can't constrict
- They need a cover to protect them from bright lights.
- As they get older the introduction of natural lights helps with sleep cycles.



## Taste

- Provide gentle oral mouth cares, your neonatal team will work with you to provide supportive taste.
- Providing EBM (early breast milk) on a soother, will give positive taste experiences while your baby develops their suck.
- Remember you can use EBM on a soother to help manage your baby's pain.

**Remember always work with your neonatal team to discuss age appropriate sensory interventions**