

## **Newborn Senses**

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When babies are born, they possess all five senses-taste, hearing, sight, touch and smell; however, some senses are more developed than others. Newborns had previously been an enigma to scientists and little was known about their intelligence, motives, and capabilities.

Neuroscientists are now able to map out a timeline of when senses are developed during and after gestation; this has given the scientific community and parents everywhere a better understanding of newborns and their ability to process their environment.

Taste develops in a baby fourteen weeks after being conceived. Scientists can test a newborn's development of taste by analyzing a baby's facial expressions and by the quantity consumed of the food in question; newborns have been shown to respond positively to sweets and respond negatively to bitter or sour flavors. This could likely be explained by the fact that sweetness parallels the high-calorie sugars in plants, while bitter or sour flavors often indicate foods that are poisonous and toxic. Each newborn's taste preferences can also be altered by events during prenatal development. While a baby is developing, its source of food is the amniotic fluid by which it is surrounded. This amniotic fluid is essentially flavored by the foods that the mother consumes. Studies have shown that more exposure to certain flavors before and after birth increase the likelihood that a child will have a greater preference towards certain foods throughout his/her lifetime.

Healthy newborns have a fully developed sense of hearing at birth. At 18 weeks of gestation, babies will begin to hear sounds. This is why pregnant women can calm down their

baby with soothing music, yet notice their baby kick and move more noticeably when exposed to louder sounds. After birth, babies prefer high-pitched sounds (motherese -like the voice of their mother) over deeper pitches. Additionally, it is important to have a newborn's hearing screened early on as research has found that 3 out of every 1,000 newborns are hearing impaired. Without proper stimulation, newborns with hearing loss can suffer from major developmental setbacks.

When babies are born, they can focus on objects that are about 8 to 10 inches away from their face. They can track movement in the first few weeks of life and their vision continues to develop over the first few years. In fact, the ability of a newborn to track moving stimuli is a good indication of a normal, healthy central nervous system. Moreover, newborns have a limited visual color palette, but can differentiate light and dark; even at birth babies instinctively turn their faces away from bright lights.

Newborns' skin is highly sensitive to touch and babies are often comforted by skin-to-skin contact. At the end of gestation a baby is tightly enclosed in the uterus; after birth, a baby can be soothed by being swaddled and gently touched, giving it a sense of familiar security. Breastfeeding is often recommended because it coincides with longer periods of physical contact between a mother and child. Babies innately respond to the feeling of an object touching their palm with a grasping reflex. As babies develop, they will use their mouth to discover and investigate new objects; newborns will use the sensitivity of their lips and tongue to explore an object's texture and to determine if it is soft or hard. Giving babies toys with various textures aids in stimulation and development.

The olfactory region of a fetus's brain develops early on in gestation. At birth, a baby has a high affinity for the scent of breastmilk. After two weeks of life, a newborn can distinguish its mother's breast milk from that of another woman's. Additionally, newborns are drawn to the

smell of amniotic fluid, and can even be calmed in the early days of life with the chemical cues of familiar scents from gestation. A study showed that babies that were separated from their mothers and were exposed to the scent of amniotic fluid cried significantly less than babies that were not exposed to this scent. Thus, scents can even effect the behavior of newborns.

While research continues to expand the understanding of the cognitive processes of newborn babies, scientists are developing better ways to screen for impairments and create toys for better stimulation of a baby's senses. These insights are imperative in helping to promote healthy development.

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