

Although newborn babies are physically helpless and vulnerable at birth, they have a number of amazing innate abilities or reflexes. Reflexes are involuntary movements or actions, designed to protect newborns and ensure their care. Most of your baby's activities in the first few weeks of life are reflexive. For example, if you place your finger in your baby's mouth, they don't think about what to do but suck by reflex. Similarly, when confronted by bright light, infants automatically close their eyes. While some of these primitive behaviours occur spontaneously as part of a baby's usual activities, others are responses to certain actions. In some cases, reflexes turn into voluntary behaviour.

Rooting reflex

For instance, gently touching or stroking the corner of a baby's mouth stimulates the rooting reflex. The rooting reflex prompts baby to turn their head in the direction of the stimulus and open their mouth in preparation for sucking. This reflex helps baby locate the breast or bottle and secure nourishment. At first babies tend to root from side to side, turning their heads towards the nipple/bottle and then away in decreasing arcs. By three weeks most babies turn their heads and move their mouths into a sucking position. The rooting reflex is prominent in the first 3-4 months, but may persist until the child's first birthday.

Sucking and swallowing reflexes

Rooting helps a baby become ready to suck. A newborn will reflexively suck, when the roof of their mouth is touched, with a finger, breast, bottle or dummy. The sucking reflex can sometimes be strong and rapid, appearing like a chomping action.

Yawning, sucking a thumb and swallowing amniotic fluid can first be seen in babies at approximately 12-13 weeks of pregnancy. The sucking and swallowing reflexes only mature fully at 36 weeks gestation. Babies needs to co-ordinate these reflexes, in what is known as the “sucking-swallowing-breathing” sequence in order to feed.

Coordinating these rhythmic movements is a relatively complicated task for newborns and a skill that needs to be learnt and practiced. Infants first need to place their lips around the areola and squeeze the nipple between the tongue and palate. This action forces out the milk and is called “expression”. During the second phase, the infant’s tongue needs to move from the areola to the nipple. This whole process is assisted by the negative pressure, or suction, securing the breast to the baby’s mouth.

Over time, rooting, sucking and bringing the hands to the mouth will become more directed. Your baby may begin to use these movements as a source of comfort, for example, by sucking the thumb or fingers, or accepting a pacifier.

Gag reflex

The gag reflex is essential for survival and is closely related to the swallowing, coughing and sneezing reflexes. The gag reflex is triggered when babies swallow too much milk. The innate response is for babies to close off their throats, and use their tongues to push the excess milk out the mouth. This prevents choking and suffocation. When babies start on solid and finger foods, they tend to gag more frequently, as they become accustomed to new foods and textures.

Occasionally, newborns gag when excess mucus builds up in the back of the throat. This can be a scary experience for parents, as babies look momentarily distressed and turn blue. Although the gag reflex helps babies manage on their own, placing your baby over your shoulder, will help them swallow or spit out the mucous.

Startle or Moro reflex

Another more dramatic reflex in the first few weeks is called the Moro reflex. The Moro reflex usually occurs when a loud sound or movement startles a baby. A feeling of falling or a baby's own cry can also startle them and trigger the reflex. The Moro reflex causes a baby to extend the arms, legs and fingers, arch the back, draw the head back, and then draw the arms and legs towards the chest, with fists clenched. This reflex lasts for approximately 4-6 months.

The Moro reflex is tested by gently placing a baby in a near-seated position with their head supported. The tester allows the baby's head to drop back slightly, and catches the head before it hits a pillow or mat behind it. This will activate the Moro reflex, causing the baby to startle and lift its palms upwards, with its thumbs out. When the tester catches the baby's head, the infant will return its arms back to its body.

Tonic neck or fencing reflex

One of the more interesting automatic responses is the tonic neck reflex, also known as the fencing posture. If a young baby is placed on their back, they will assume a "fencing position", with their head to one side, arm on that side extended, and the opposite arm bent up at the elbow. This reflex is believed to prevent baby from rolling over. Do not feel alarmed if you do not see this response. It is subtle, and if your baby is disturbed or crying, they may not perform it. The fencing reflex tends to disappear at 5-7 months of age.

Babinski's or plantar reflex

You will see another involuntary response when the sole of a baby's foot is stroked. This action results in the big toe flaring upwards toward the top of the foot and the other toes fan out. This reflex is naturally occurring until about age 2, when the foot and toes will curl inwards.

Palmer grasping reflex

Similarly, if you stroke the palm of a baby's hand, their fingers will curl around and cling to your finger (or any object). The grasping reflex can be strong, even in premature babies. This reflex remains present for the first 3-4 months of life.

Walking or stepping reflex

If a baby is held upright with their feet touching a solid surface, such as a table, they will lift one foot and then the other, appearing to take “steps” or “dance”. This reflex tends to disappear after two months and then recur as a learned voluntary behaviour, in the form of walking, toward the end of the first year.

Traction response

Although we often think of babies as utterly defensive, they have several protective reflexes. If a baby is held by both wrists and lifted forward into a sitting position, their head should first “lag” back, then straighten and fall forward. The infant will flex and elevate their shoulders, arms and wrists. This primitive reflex enables the child to hold onto the mother while being pulled. Traction helps stabilize the head before the child gains voluntary control.

The Galant reflex

The Galant reflex is present for the first 9 months and may be used by your paediatrician to test your baby’s spinal nerves. If a baby is held under their stomach and you gently stroke one side of their back, they will respond instinctively by arching their body, and pulling their pelvis towards the side that was stroked. This response is similar to us being tickled on one of our sides.

Reflexes and development

Some reflexes are present in infancy and last into adulthood, such as the gagging, yawning or blinking reflexes. Other automatic responses are unique to newborns and provide information about their health, development and gestational age. The presence and strength of a reflex are important indicators of nervous system development and functioning. Infants typically grow out of these reflexes a few months after birth. A reflex that persists beyond the expected age can be

a sign of brain or nervous system damage. Consult your paediatrician if you are concerned about your child's development or notice that they are continuing with their baby reflexes after the recommended cessation times. In some cases, infant reflexes can recur in adults who sustain brain injuries or have a stroke.

- http://www.stanfordchildrens.org/en/topic/default?id=newborn-reflexes-90-P02630
- http://www.birth.com.au/newborn-reflexes/rooting-sucking-swallowing-gag-reflexes#.VOxUMigfqS0
- http://www.healthline.com/health/neonatal-reflexes#Overview1
- http://www.healthychildren.org/English/ages-stages/baby/Pages/Newborn-Reflexes.aspx

- http://www.nlm.nih.gov/medlineplus/ency/article/003292.htm