

Indian Academy of Pediatrics (IAP)



GUIDELINES FOR PARENTS

Physiological Variations in a Newborn

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10 FAQs on PHYSIOLOGICAL VARIATIONS IN A NEWBORN

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9. Why does my baby often has sudden startling movements? Why do babies have eye movements during sleep? Why is respiration variable in newborn period?
10. Many a times, our baby starts crying. What common reasons should we look for the cause of crying?

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Physiological Variations in a Newborn

Q1

Our baby has a red bloodspot in the white portion of eyes. What is the reason and should we be worried?

- Subconjunctival hemorrhage or bleeding in the white portion of eye is a painless normal condition often occurring in the babies born by vaginal delivery.
- During the delivery, as the head is compressed, there is increase in the pressure in the blood vessels of head and neck. This increased pressure causes rupture of small blood vessels beneath the transparent lining of eye.
- This bleeding disappears on its own in 4–6 weeks and usually no treatment is required.
- It usually does not affect the baby's vision. You must consult the doctor if the bleeding area increases or covers the pigmented portion of eye (**Fig. 1**).



Fig. 1: Subconjunctival hemorrhage.

Q2

What should I do if my newborn baby has breast engorgement?

- Breast engorgement is due to enlargement of breast tissue and occurs due to transfer of the maternal hormones to the fetus through the placenta (**Fig. 2**).
- This condition is quite normal and maybe seen in both girls and boys.
- Sometimes, there can be even milk secretion in 5–20% of these babies, which is similar to mother’s milk. This also is absolutely normal.

What should be done for this condition?

- It is a painless benign condition.
- It will resolve on its own in 2–3 weeks, as the level of maternal hormones decreases. There is no need of any treatment.
- Squeezing and massaging of the breast tissue should not be done.
- In fact, squeezing or massaging can be painful and cause more harm to the baby as these may cause secondary infection.

You should consult the doctor, if:

- There is any redness around the enlarged breast.
- There is pain or excessive cry on touching the area.
- The breast is unduly warm as compared to other areas.
- Pus-like discharge is present.



Fig. 2: Breast engorgement.

Q3A

A baby is having bleeding through the vagina in first week of life. She is too young to have menses. What should I do?

- Relax. This condition is not true menses, it is called as false menses or pseudomenses. About 25% of the female babies can have mild bleeding through the vagina 2–5 days after birth.
- When the baby is inside the mother’s womb, she is exposed to very high levels of maternal hormones. There is abrupt decrease in levels of these maternal hormones, after the baby is born, as a result there is withdrawal bleeding in the female baby similar to the menstruation in the older females.
- There is no need to worry and it resolves on its own without any treatment over first 2 months of life.

Q3B

Our baby is passing white discharge/mucus through vagina. The vaginal area also looks puffy. Are these findings normal?

- Yes, most female babies will have grayish-white mucoid vaginal secretions.
- These are normal variations and occur due to exposure of the fetus to the maternal estrogen hormone.
- These findings resolve themselves as the effect of maternal hormones wean off.

How should we clean the vaginal area?

- Vaginal area can be gently cleansed at the time of bathing.
- Clean it with warm water and cotton balls. Do not apply any talcum powder in the area.
- Do not use any scented wipes to clean the vaginal area.

Q4

There is a lot of variability in stooling and urination pattern of the newborn babies. Some babies pass stool after every feed and some after few days. There is so much confusion. Why my baby cries before micturition? What should I know about the bladder and bowel habits of the newborn baby?

Stooling pattern	Bladder habits
<ul style="list-style-type: none"> ○ The baby should pass first stool by 24 hours. ○ Thereafter most babies pass stool 6–8 times a day. But, this frequency of passing stool is very variable. ○ Some of the babies, especially breastfed, may pass a small amount of semi-solid stool after every feeding as baby's full stomach stimulates the digestive tract, giving the urge to pass stools. ○ A few babies may pass stool once every 4–6 days. This reduced frequency of stooling should not be a concern if this is the only symptom. ○ The first stool your baby passes, is thick, greenish black, and sticky, and is called "meconium". ○ The stools color usually changes from this thick, greenish black to green in the first few days and to yellow or yellowish brown by the end of the first week. ○ Exclusively breastfed babies tend pass more yellow stools than those on formula feeds. 	<ul style="list-style-type: none"> ○ A neonate should pass first urine within 48 hours after birth. ○ Thereafter usually they pass urine 6–8 times a day but some may pass 12–15 times a day or even more. ○ Adequate urination is an indirect measure of getting enough milk. ○ It is normal for neonates to cry before passing urine. The stretching of bladder causes abnormal sensation making them cry. Once the bladder empties, the baby feels relaxed and calms down.

Please immediately consult a doctor:

- If decreased stool frequency is associated with either vomiting, tight abdomen, decreased activity or if baby is not feeding or looking well.
- If stool frequency is very much increased, and either urination is decreased, baby looks ill, lethargic or does not accept feeds.
- If there is decreased urine output, poor weight gain or ballooning of skin, while micturition in male babies, a doctor should be consulted to rule out urinary tract infection and other diseases.

Q5

My baby spits out milk often. Would it be harmful to our baby? How can it be prevented?

- Spitting/Regurgitation of milk is very common in babies. It is common for babies to spit up milk 2–3 times a day but some babies spit after almost every feed.
- Babies commonly regurgitate milk after feeds as they have small stomach capacity and air also occupies some of this space. Therefore, the milk has more chances to come out of the immature sphincter.
- Rarely, if we overfeed a baby, it could also lead to spitting, as stomach capacity is limited.
- Most babies with frequent reflux of milk are “happy spitters” and do not have any other issues; they sleep well, grow well, and remain happy.
- Some babies, on the other hand, tend to and remain irritable and keep crying. If, there are episodes of frequent respiratory tract infections, peculiar-tilted position of neck and failure to grow, doctor should be consulted. Such babies need medical treatment.

Methods to Help Baby to Reduce Frequency of Reflux

- Burp baby well. Pause in the middle of feed and burp the baby instead of waiting till end of the feed. However, it should be kept in mind that babies do not burp after every feed. They burp more if they swallow lot of air. Some babies with good latch do not swallow much of air, and hence may not burp. A baby should be burped for 5–10 minutes after feed, if the baby does not burp, lay the baby down on bed.
- If there are too many episodes of reflux, then reduce milk volume and feed more frequently. Gradually increase feed volume as per the tolerance of the baby.
- Stick to exclusive breastfeeding. If needed, take professional help from lactation consultants. Breastmilk is easier for the baby to digest and causes less reflux. Also do not use formula milk for the baby, if it is not needed.
- Keep the baby upright after feeding (**Fig. 3**). It is better to keep the baby with reflux slightly in head up inclined position (15–30°) ensuring that the head and body are in natural position and not in flexed position.

When Should we Consult the Doctor?

- While regurgitation is normal and effortless, it should be differentiated from vomiting in which baby has retching and milk comes out with force and may come out from nose also.
- The episodes of vomiting should always be evaluated by the doctor.



Fig. 3: Burping

Q6A

**Our neonate is having rash over the skin.
What is the reason for this rash? Will it
improve or persist?**

- The skin of the newborn is immature, and while developing to mature skin, it may sometimes show transient variations.
- During first 4 days of life, a red-colored mildly elevated rash resembling flea bites frequently appears on chest, trunk, and face but sparing palms and soles (termed "Erythema toxicum").
- It usually disappears in 3–5 days without any treatment.
- Very commonly, white or cream-colored multiple pinhead-sized fluid-filled eruptions (termed "Milia") appear on forehead, face (nose commonly), and chest.
- They are due to trapping of keratin in the dermis layer of skin during the process of skin maturation. Similar lesions may sometimes present in clusters of 2–6 on the hard palate of the neonate (termed Epstein Pearls).
- Both of these lesions subside by 1 month of age and do not require treatment.
- The skin of babies born after the expected time or who have growth retardation in mother's womb may have excessive skin peeling.
- Massaging with coconut oil will be helpful in decreasing the peeling of skin.
- Medical intervention must be urgently sought if the baby shows features of infection such as refusal to feed, less activity, baby not looking well, too large lesions, pus coming out of lesions, etc.

Q6B

My baby is having “Birth Marks”. What should I do?

- Birthmarks are discolored areas of skin present from birth which result due to abnormal growth of blood vessels or pigment producing cells of skin.
- Most of the birthmarks are isolated and have only cosmetic significance but they may also be associated with other abnormalities requiring treatment.
- Complete examination of the baby by a doctor is mandatory as soon as any birthmark is detected for deciding the further course of monitoring and treatment, if needed.

Salient Features of Some Common Birthmarks

- Mongolian spots are large flat bluish discolored areas on the back or sacrum. They mostly regress before first birthday.
- The vascular birthmarks are usually small to start with and may get noticed in later post-neonatal age only.
- Port-wine stain does not disappear on its own and need removal.
- Occasionally, very large pigmentary areas having hairs, etc. may also be present, and they need to be monitored closely for complications.

Course of the Birthmarks

- Most of the birthmarks initially grow with body size and later on shrink.
- Birthmarks which are either large, in midline, involving face and eyes, or multiple may require more detailed investigations including eye examination.
- If there is bleeding, itching, or discharge from the lesion, undue increase in size, and color, medical attention should be sought.
- Most of the birthmarks involute spontaneously but local, oral, and cosmetic treatments including light amplification by stimulated emission of radiation (LASER) may be needed in selected patients.
- The family should emotionally support the child as presence of birthmarks could be very distressing for the child.

Q7A
Our newborn baby sleeps too much and wakes up only for feeding. Is it too little or too much?

- Sleep duration is highest in the newborn period. However, there is lot of variation between babies. This pattern is absolutely normal.
- A newborn baby may sleep anywhere between 16 and 22 hours, and it gradually decreases with increasing age.
- Babies usually wake up for feeding every 2–4 hours and again sleep after feeding. It is advised to feed the baby after every 2–3 hours in neonatal period.
- Most babies develop a set pattern of sleep and wakefulness by 3–4 months of age and will sleep longer during night time, but some babies have reverse pattern as the circadian rhythm is less developed.
- Most babies sleep for 4–6 hours at a stretch during late infancy but some may continue to wake up every 2–4 hourly through the night even at the age 2 years.
- Swaddling, rocking, and singing a lullaby can help the baby fall asleep.

Q7B
My baby prefers sleeping in prone position (face down and back side up). Is it advisable?

- Babies “back to sleep” is the best position for the baby to sleep.
- Face down or prone positioning for sleep is not advisable due to potential risk of accidental suffocation.
- For the same reason, newborn baby should not be allowed to sleep on parents’ chest.

Normal recommended sleep posture

Posture not recommended



Q8

My newborn baby has started losing weight right after birth. Is it normal? What is the usual weight gain pattern followed by the neonate?

- The average birthweight of the Indian babies is 2.5–3 kg. Most of the term babies lose weight after birth. The extent and duration of weight loss differs in the term and preterm babies.
- In a term baby, the daily weight loss is generally 1–2% of the baby's birth weight. The average cumulative weight loss is about 10% over first week. Then the babies start regaining weight and achieve birthweight by about Day 10–14.
- In premature babies, the weight loss may occur up to 2 weeks and it may be even up to 15% of the birthweight. Depending upon their previous clinical condition, these babies also regain their birthweight but later than the term neonates.
- Ensuring timely and adequate feeding will help in achieving the regaining of birthweight on time.

Role of Maternal Diet

- Parents commonly have the notion that the baby is not gaining adequate weight or not gaining as before and mother's diet plays a role in it.
- There are no dietary restrictions for the mother who is lactating, and she should focus on eating healthy diet and maintaining her own good health. Baby will remain healthy only if the mother would remain healthy.
- It is important to remember that with increasing age, the growth velocity decreases, and babies do not gain weight at similar rate as earlier.

Monitoring the Weight at Home

- Frequent weight monitoring at home is not advisable as the home weighing machines as well as the weighing method may not be accurate. It may also increase stress levels in parents.
- The adequacy of the baby's growth parameters should only be ascertained by plotting on the specific growth charts available with doctor.
- When you take the baby for vaccination visits or any healthcare visit, you should ask the healthcare provider to document baby's growth parameters.
- If the baby is lagging in weight gain, adequate feeding should be ascertained, and the baby should be evaluated and managed by the doctor for the causes for inadequate weight gain.
- Giving formula feed does not lead to faster weight gain. It will deprive the baby of the benefits of breastfeeding and will also increase the risk of infections.

Q9

Why does my baby often has sudden startling movements? Why do babies have eye movements during sleep? Why is respiration variable in newborn period?

- It is normal for the neonates to have sudden startling movement, especially in response to sudden movement, or exposure to a loud noise when the child is sleeping or is quiet.
- The baby shows sudden activity of all the limbs lasting for few seconds and later calms down. It is called “startle reflex” and disappears as the baby grows older.
- The sudden lowering of infants’ head (like while putting to sleep) may lead to elicitation of a particular sequence of movements called as “Moro’s reflex”. The infant first opens its hands, then extends and abducts upper limbs followed by embracing activity and sometimes crying.
- This sequence is more pronounced in babies who are born at term. This reflex usually disappears by the age of 3 months.
- The movement of eyes during the newborn sleep is normal. It is because of the relatively more rapid eye movement (REM) type of sleep in the neonatal age.



Newborn babies breathing pattern is different from adults and older children:

- They breathe more through their nostrils than their mouth.
- Their breathing pathways are much smaller and are more prone to obstruction.
- Their chest wall moves more as compared to older children as it is more pliable because it is made of mostly cartilage.
- Their respiration is not fully developed and they often have irregular breathing patterns. They normally breathe fast, take small pauses (<10 seconds) in between breaths.
- The breathing rate of a newborn baby is 30–60 breaths/minute. It slightly slows down while sleeping and becomes fast on activity.

You must consult a doctor, if there is:

- Persistent abnormal movement such as continuous twitching which does not disappear on restraining.
- Presence of starring look, abnormal cry especially, if associated with lethargy.
- Decreased feeding, feeling of not looking well, having sudden change in behavior from earlier times.
- Decreased movement of any body part, sudden paleness.

Q10

Many a times, our baby starts crying. What common reasons should we look for the cause of crying?

If a baby cries, following issues should be actively looked for by the caretakers:

Look for	Explanation	Suggested Action
If the baby is hungry	Hunger is the most common reason why babies cry.	<ul style="list-style-type: none"> ○ Try to gently feed the baby. ○ The babies actively feed when offered the breast and become calm after feeding.
If the baby is sleepy	It has been seen that when babies need sleep, they start crying.	Provide a quiet environment and comfortable position. The baby will sleep and stop crying.
If the baby is fed too much	Cry may sometimes be because of overfeeding and bloating of stomach.	<ul style="list-style-type: none"> ○ Ensure that proper burping is being done after each feed. ○ Keep the upper part of the stomach of the baby against the shoulder. ○ Provide gentle pressure. ○ You may rub the back using your hand. ○ Keep in this position every time after feed for 10–15 minutes.
Uncomfortable surroundings	Babies may cry, if it is nursed in too cold or too hot environment.	<ul style="list-style-type: none"> ○ Parents should ensure that the baby is wearing two more layers of clothes as compared to the mother for providing adequate temperature. ○ In the cold season, ensure that head, hands, and feet are properly covered.
Wet nappies	Stool particles irritate the skin. Check if the baby is lying in wet nappy. If baby is not cleaned properly, soiled nappy can also cause irritability and pain in the neonate.	Nurse the baby in dry nappy.
Presence of some wound or painful area.	Check the baby for the presence of mouth ulcers, diaper rash, cuts on skin, and hair around a digit. Ulcer over the tip of the penis may also cause pain and crying.	If any of these are present, consult your doctor immediately.

A baby may be having a colic:

If the baby is crying for >3 hours of day for >3 days of the week in absence of any other cause.

It is to be remembered that colic is due to baby's temperament and has nothing to do with the parenting.

The following features point toward the possibility of colic:

- Babies are consolable when held and comforted.
- They are normal or happy between bouts of excessive crying.
- The baby is not hungry and feeding well.
- The baby is not sick.



What are the danger signs which should alert me that our baby needs to be seen by a doctor?

If the baby continues to cry, the baby should be immediately taken to the doctor as the baby may be having serious underlying cause (like infection, etc.) which may require prompt treatment.