CONDITION

Jaundice in newborns

Jaundice in newborns is yellowing of the skin and eyes caused by a buildup of bilirubin.

WHAT IT IS
Bilirubin buildup causing yellow skin and eyes

BODY SYSTEM
Liver, blood, and skin

MAIN SYMPTOMS
Yellow skin, yellow eyes, poor feeding, unusual sleepiness

WHAT CAUSES IT
Bilirubin buildup, usually from normal newborn changes

HOW IT IS DIAGNOSED
Skin bilirubin screening and confirmatory blood testing

MAIN TREATMENT
Monitoring, feeding support, and phototherapy

CAN IT BE CURED?
Yes - usually clears naturally or with treatment

IS IT AN EMERGENCY?
Sometimes - when a baby is hard to wake

LONG-TERM OUTLOOK
Most babies recover fully without lasting effects

Overview

Jaundice is a yellow color in a newborn's skin or the whites of their eyes. It happens when a yellow substance called bilirubin builds up in the blood.

Bilirubin forms when the body breaks down old red blood cells. The liver normally processes bilirubin so it can leave the body in stool. Newborns make more bilirubin than older children, and their developing livers may not remove it quickly at first.

Mild jaundice is common during the first days after birth. It often improves as the liver matures and feeding becomes established. However, jaundice can sometimes mean that bilirubin is rising too high or that another condition needs treatment.

Very high bilirubin can enter the brain and cause injury. This is uncommon when jaundice is identified, measured, and treated promptly. Because skin color alone cannot show the bilirubin

level, a healthcare professional may use a skin device or blood test to measure it.

Jaundice beginning within the first 24 hours after birth needs urgent assessment. Jaundice lasting longer than expected also needs investigation, especially when a baby has pale stools or dark urine.

Symptoms

The main sign is yellow coloring of the skin. It may first be noticed on the face and then become visible on the chest, abdomen, arms, or legs. The whites of the eyes and the inside of the mouth may also look yellow.

Jaundice can be harder to see in darker skin. Looking at the whites of the eyes or gums in good natural light may help, but visual checks cannot replace bilirubin measurement.

A baby with mild jaundice may otherwise appear well. Symptoms that can occur when bilirubin is higher or a baby is unwell include:

Dark urine that stains the nappy is not typical in a newborn. Urine should normally be colorless or pale. Very pale, chalky, or white stools can suggest that bile is not flowing normally from the liver. Both signs need prompt medical assessment.

- Difficulty waking for feeds
- Feeding less effectively or refusing feeds
- Fewer wet or dirty nappies than expected
- Unusual limpness, stiffness, or irritability
- A high-pitched cry

Causes and risk factors

Most newborn jaundice results from normal changes after birth. Newborns have a high number of red blood cells, and these cells have a shorter lifespan than adult red blood cells. At the same time, the newborn liver is still becoming efficient at processing bilirubin.

Feeding can affect bilirubin levels. During the first week, a baby who is not taking in enough milk may pass fewer stools, allowing more bilirubin to be absorbed back into the blood. This is sometimes called suboptimal intake jaundice.

Some breastfed babies remain mildly jaundiced for several weeks despite feeding and growing well. This is known as breast milk jaundice. Its exact cause is not fully understood. Persistent

jaundice should still be assessed rather than assumed to have this cause.

Other possible causes include:

A previous baby who needed treatment for jaundice can indicate a higher chance in a later newborn. Family ancestry can also affect the likelihood of certain inherited red blood cell conditions.

- Birth before 38 weeks, because the liver is less mature
- Significant bruising or bleeding under the scalp after birth
- Differences between the baby's and birth parent's blood groups
- Inherited red blood cell conditions, including G6PD deficiency
- Infection
- An underactive thyroid
- Liver or bile duct conditions
- Rare inherited problems that affect bilirubin processing

Diagnosis

A healthcare professional will ask when the yellow color began, how feeding is going, and how many wet and dirty nappies the baby has. They will examine the baby and consider their age in hours, gestational age at birth, weight change, and other risk factors.

Bilirubin may first be measured with a handheld device placed against the skin. This is called a transcutaneous bilirubin test. It estimates the bilirubin level without taking blood.

A blood test provides a serum bilirubin level. It may be needed to confirm a skin reading, assess a high level, or guide treatment. The result is interpreted using the baby's exact age in hours, how early they were born, and factors that increase the risk of bilirubin-related harm.

If jaundice starts unusually early, rises quickly, lasts longer than expected, or occurs with other symptoms, further tests may be needed. These can include blood counts, blood group testing, a direct antiglobulin test for blood group-related red cell breakdown, and tests for infection or G6PD deficiency.

For prolonged jaundice, bilirubin is separated into different forms. A raised direct or conjugated bilirubin level can indicate a liver or bile flow problem. Liver tests, thyroid testing, urine testing, imaging, or referral to a specialist may then be appropriate.

Treatment and management

Treatment is based on the measured bilirubin level, the baby's age in hours, gestational age, and clinical risk factors. A level that only needs monitoring in one baby may require treatment in a younger or more premature baby.

Many babies need no treatment beyond planned bilirubin checks and support with feeding. Frequent, effective feeding helps the baby pass bilirubin in stool. Breastfeeding can usually continue. A feeding assessment may help with positioning, milk transfer, expressing milk, or deciding whether temporary supplementation is needed.

Do not give a newborn water to treat jaundice. Do not place a baby in direct sunlight as treatment. Sun exposure is difficult to control and can cause overheating or skin damage.

Phototherapy is the main treatment when bilirubin reaches a treatment threshold. The baby lies under special blue-green lights or on a light-emitting pad. The light changes bilirubin into forms that the body can remove more easily. Phototherapy does not use ultraviolet tanning light.

During phototherapy, the care team monitors temperature, hydration, feeding, and bilirubin levels. The baby's eyes are usually protected when overhead lights are used. Breaks may be possible for feeding and contact, depending on the bilirubin level and type of treatment.

If bilirubin becomes dangerously high or continues to rise despite intensive phototherapy, an exchange transfusion may be needed. This procedure gradually replaces some of the baby's blood with donor blood. It is used in hospital for severe cases.

Treatment may also address the underlying cause. For example, infection needs specific care, while blood group-related red cell breakdown may require closer monitoring and additional hospital treatment.

Complications

Most jaundice resolves without complications. The main concern is a very high level of unconjugated bilirubin, which can enter brain tissue.

Early bilirubin-related brain dysfunction is called acute bilirubin encephalopathy. A baby may be very sleepy, feed poorly, become unusually floppy or stiff, arch their back or neck, or develop a high-pitched cry. Prompt hospital treatment may prevent further injury.

Permanent brain injury from bilirubin is called kernicterus. It can cause movement difficulties, hearing loss, problems controlling eye movements, and developmental disability. Kernicterus is rare where babies are screened and treated promptly, but it is the reason follow-up bilirubin

testing matters.

Jaundice caused by liver or bile duct disease has different risks. Reduced bile flow can interfere with digestion, growth, and absorption of vitamins. Pale stools and dark urine are important warning signs because early assessment can affect treatment options.

Prevention

Not all newborn jaundice can be prevented. The common form develops because of normal red blood cell breakdown and liver immaturity.

Good feeding support can reduce jaundice related to low milk intake. A newborn should have feeding observed when needed, and weight, wet nappies, and stools should be monitored during the early days.

Routine newborn examinations and timely follow-up after discharge help find rising bilirubin before it becomes harmful. Babies discharged soon after birth may need an earlier bilirubin or feeding review, based on their age, test results, and risk factors.

Some blood group-related jaundice can be reduced through pregnancy care. For example, anti-D immunoglobulin given to eligible RhD-negative pregnant people helps prevent Rh blood group sensitization. It does not prevent every cause of newborn jaundice.

Living with it and what to expect

For many babies, jaundice becomes noticeable between the second and fourth day after birth and then fades over the next one to two weeks. Babies born early may remain jaundiced longer.

Breast milk jaundice can continue for several weeks while the baby otherwise feeds and grows normally. A healthcare professional should assess ongoing jaundice to rule out liver, thyroid, blood, or metabolic conditions. It should not be assumed to be harmless based only on appearance.

Follow-up may involve repeat bilirubin measurements, weight checks, and review of feeding, urine, and stool color. Some babies need a bilirubin check after phototherapy stops because the level can rise again.

A baby whose bilirubin remained below harmful levels is not expected to have lasting effects from ordinary newborn jaundice. Phototherapy itself does not usually create long-term limits on feeding, development, or daily life.

When jaundice is caused by an underlying condition, the longer-term course is shaped by that condition. Follow-up may continue with a pediatrician, liver specialist, blood specialist, or other service. No single course applies to every cause.

When to get medical help

Arrange urgent same-day medical assessment if:

Call emergency services if the baby cannot be woken, has a seizure, stops breathing, turns blue, becomes very floppy or stiff, or repeatedly arches their neck and back with a high-pitched cry.

For routine follow-up, attend planned bilirubin, weight, or feeding checks even if the yellow color appears to be improving. Contact the baby's maternity or healthcare team if a planned check was missed or feeding has become more difficult.

- Jaundice appears during the first 24 hours after birth
- Yellow coloring is deepening or spreading
- The baby is feeding poorly or has fewer wet nappies
- Urine is dark enough to stain the nappy
- Stools are pale, chalky, gray, or white
- Jaundice continues beyond 14 days in a full-term baby or 21 days in a premature baby
- A baby younger than 3 months has a temperature of 38°C or higher

Common questions

How long does newborn jaundice last?

Mild jaundice often fades within one to two weeks in a full-term baby. It may last longer in premature or breastfed babies. Jaundice that continues beyond the expected period needs assessment, even when the baby seems well.

Can I treat newborn jaundice with sunlight?

Direct sunlight is not a safe or reliable treatment. The amount of useful light cannot be controlled, and a newborn may overheat or develop skin damage. Medical phototherapy uses a measured wavelength and allows close monitoring.

Should I stop breastfeeding if my baby is jaundiced?

Breastfeeding can usually continue. Effective, frequent feeding helps remove bilirubin through stool. If milk intake is low, a feeding specialist or healthcare professional can help assess milk transfer and discuss temporary support without automatically ending breastfeeding.

How do I know whether the bilirubin level is too high?

You cannot tell accurately from skin color alone. A skin reading or blood test is needed. The result must be interpreted according to the baby's age in hours, gestational age, and medical risk factors.

Can jaundice come back after phototherapy?

Bilirubin can rise again after the lights stop, particularly when red blood cells are still breaking down quickly or a baby was born early. A repeat test may be arranged. This is why the timing of follow-up is individualized.

Does newborn jaundice cause brain damage?

Ordinary mild jaundice does not cause brain damage. Brain injury is possible if unconjugated bilirubin becomes extremely high and is not treated promptly. Bilirubin testing, follow-up, and phototherapy when needed make this complication uncommon.

Sources

- National Institute for Health and Care Excellence. Jaundice in newborn babies under 28 days (CG98)
- American Academy of Pediatrics. Clinical Practice Guideline Revision: Management of Hyperbilirubinemia in the Newborn Infant 35 or More Weeks of Gestation . Pediatrics. 2022;150(3):e2022058859
- Canadian Paediatric Society. Guidelines for detection and management of hyperbilirubinemia in term and late preterm newborns
- NHS. Newborn jaundice
- Centers for Disease Control and Prevention. Jaundice and Kernicterus Information for Families
- Fawaz R, Baumann U, Ekong U, et al. Guideline for the Evaluation of Cholestatic Jaundice in Infants . Journal of Pediatric Gastroenterology and Nutrition. 2017;64(1):154-168