Cleft Lip and Palate

What are Cleft Lip and Cleft Palate?

In the early weeks of fetal development, parts of the lip or palate (the roof of the mouth) usually fuse together. In some cases, however, this fusion does not occur and a cleft or separation occurs in the tissue, as seen in the diagrams below.

A cleft lip involves a separation of the two sides of the lip. The condition often includes a separation of the upper jaw bone and the upper gum. In this case, there appears to be a split in the lip and the upper gum. A cleft lip may be “unilateral,” involving only one side, or “bilateral,” involving both sides.

A cleft palate is an opening in the roof of the mouth created because the two sides of the palate did not join as the fetus was forming. The front part of the palate is hard because it contains bone and is called the hard palate. The back portion is soft because it does not contain bone and is called the soft palate. The extent of a cleft palate may vary. An incomplete cleft palate affects only the back of the soft palate, while a complete cleft palate involves the length of the palate to just behind the gums.
It is possible for an infant to have only a cleft lip or only a cleft palate because these structures develop separately. Both conditions are seen in some infants.

**Cleft Lip**

![Diagram showing unilateral and bilateral cleft lip with labels for nasal ala, prolabium, and premaxilla.](image)

**Cleft Palate**

![Diagram showing normal and incomplete cleft palate with labels for lip, premaxilla, alveolar ridge (gum), hard palate, soft palate (velum), and uvula.](image)

What causes cleft lip and cleft palate?
Researchers do not completely understand the causes of cleft lip and cleft palate. We do understand that most clefts are caused by a combination of inherited and environmental factors. Environmental factors include infections and illnesses in the mother, as well as the mother’s use of alcohol and certain drugs. Parents who are interested in knowing the likelihood of another child being born with a cleft should consult a genetic counselor.

Cleft lip and cleft palate are among the most common birth defects. About 1 of every 1,000 infants born in the United States has a cleft lip or a cleft palate. The condition occurs more commonly among Asians (about 1.7 per 1,000 births) and certain groups of Native Americans (3.6 per 1,000 births). Clefts occur less often among African Americans (about 1 per 2,500 births). Clefts are more common in boys than in girls. Cleft palate alone occurs less often, affecting about 1 in 2,000 infants.

How are cleft lip and cleft palate detected?
A cleft lip or cleft palate is a visually obvious birth defect, and can be seen on a prenatal ultrasound.

How will this condition affect my baby’s health?
There are dozens of medical conditions which have cleft palate associated with them. Therefore is crucial to evaluate the fetus with cleft palate carefully for evidence of any other abnormalities. Even with careful ultrasound evaluation
some associated conditions may not be identified until after the baby has been born.

A cleft lip or a cleft palate requires immediate evaluation to determine the likely affect on feeding the infant. An infant with an isolated cleft lip or a minimal cleft of the soft palate likely will not have feeding problems. However, infants who are born with a cleft of most of the hard and soft palate may experience difficulty in creating sufficient suction on the nipple in order to feed properly. Breast feeding an infant with a cleft lip may be accomplished with some adjustments in technique and an abundance of patience. The mother may need to facilitate nursing by using a breast pump and then bottle-feeding the breast milk to the baby.

Alternatively, the infant may need to be bottle-fed with a formula and variety of nipples and bottles prescribed by the physician. Medical staff may have other suggestions for alternative feeding methods to ensure that the infant is nourished and enjoys a satisfying feeding experience.

**Treatment Options:**

Surgery can be performed to close the cleft in the lip and/or the palate. The surgeon will utilize procedures to minimize scarring of the face and achieve a natural appearance. It is important to close the separation in the lip or the palate
to enable the child to function normally when eating, drinking and speaking. The time of surgical treatment will vary and should be discussed with your physician.

Surgical repair of the lip may occur after the infant has shown steady weight gain, has been screened for other medical conditions, and is not at unusual risk to undergo anesthesia, usually within the first three months of life. The repair may be achieved in one or two procedures, and may involve a hospital stay of one or two days. The infant must be drinking sufficient liquids so that intravenous feeding may be stopped and the infant may go home. Your physician will discuss post-operative care with you.

A cleft palate is usually closed when the child is between ten and twelve months of age to aid in speech development, but this may vary depending on factors unique to your child. Your child may need to be able to drink from a cup before the procedure is done. A hospital stay of one to three days probably will be required.

Additional surgery of the lip, nose, gum, and palate may be necessary as the child grows. An infant with a cleft may have special dental problems associated with the cleft that will need correction.

**Expected Progress:**
Children with clefts are more likely to develop ear infections, and they should be evaluated, starting at an early age, for hearing problems. Although approximately 80% of children with a cleft palate develop normal speech once their palates are surgically repaired, some may have speech difficulties for which speech therapy may be helpful. Parents should consult with their physicians and dentists about any dental or orthodontic treatments from which the child could benefit.

Vanderbilt offers a cleft palate clinic which enables the patient to receive the needed service of speech therapists, dentists, plastic surgeons and pediatricians all in one clinic. The Craniofacial Disorders (Cleft Palate) Velopharyngeal Insufficiency clinic offers comprehensive diagnostic evaluations, consultations and treatment for children with communication disorders including disorders of resonance, articulation, and language resulting from cleft lip and palate. Referral to other specialists may be necessary and include: Feeding and Swallowing Therapy, Otolaryngology, Oral surgery, Plastic Surgery, Pediatric Dentistry, and Psychology.

**Local Resources:**

**Craniofacial Treatment Center**
(Cleft Lip & Cleft Palate Team)
We are located on the 6th Floor, Medical Center East II, in the new Vanderbilt Bill Wilkerson Center pediatric services floor.

**The Vanderbilt Craniofacial Treatment Center**
1301 22nd Avenue South  
The Vanderbilt Clinic (TVC), Suite 3630  
Nashville, TN 37232  
Telephone: (615) 322-2350  
FAX: (615) 343-2552  
**E-mail:** kevin.kelly@vanderbilt.edu

**For Further Information or Support:**

Web Site (National Institutes of Health and National Library of Medicine):  

Junior League of Nashville Center for Advanced Maternal Fetal Care  
6th Floor, Doctor’s Office Tower  
2200 Children’s Way  
Nashville, TN 37232-9780  
615.343-4673 or 1-877-FETUSTN

**Sources for this page:**


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“Oral-facial Clefts,” March of Dimes Resource Center