

## Positional Plagiocephaly

Positional plagiocephaly is a condition in which specific areas of an infant's head develop an abnormally flattened shape and appearance. Occipital plagiocephaly causes a flattening of one side of the back of the head, and is often a result of the infant consistently lying on his or her back. A flat area may develop very quickly over several months. Physically, the infant may have one ear that is shifted forward. In more severe cases, the infant may have forehead or cheek protrusion on the flat side of his or her head. There are other types of plagiocephaly, some of which are caused by a serious condition called craniosynostosis. In craniosynostosis, the deformity is caused by premature closure of the fibrous joints between the bones of the infant skull (called cranial sutures). A thorough examination is necessary to confirm or rule out this diagnosis.

### Causes of plagiocephaly

A small number of infants have positional plagiocephaly at birth. This is more common in multiple or premature births, but can also be caused by position in the womb. There are no preventive measures that can be taken by expectant mothers or their physicians to avoid this. Newborn infant skulls are very soft and malleable to help ease them through the birth canal, so it is not unusual for newborns to have unusually shaped heads, due to the pressure of birth. This condition usually resolves itself by 6 weeks of age. However, some infants show a preference for sleeping or sitting with their heads turned consistently in the same position, which may lead to positional plagiocephaly. Infants with torticollis, shortening of the neck muscles on one side of the neck, have difficulty turning their heads to another position. This can be resolved through stretching exercises and in only extreme cases, requires surgery.

In 1992 the American Academy of Pediatrics made the recommendation that infants should sleep on their backs to reduce the risk of SIDS (Sudden Infant Death Syndrome), which launched the "Back to Sleep Campaign". While the Back to Sleep Campaign has greatly reduced cases of SIDS, there has been a dramatic increase in the number of infants with positional plagiocephaly. Due to SIDS awareness, many infants now spend nearly 100 percent of the time on their backs. The risk of positional plagiocephaly can be reduced by simply alternating the sleeping position of the infant, adding supervised tummy time during play, and being aware of which direction the infant tends to look.

### Treatment options

In the majority of cases, having a flattened area will not affect a child's brain growth or mental development. Once a child is able to sit and stand, external forces are eliminated and the deformity begins to improve. Although it may not resolve completely, the remaining flattening is usually minor and covered with hair as the child grows. The frontal differences are often minimal and tend to resolve completely over time. However, when unresolved flattening causes facial abnormalities, problems with chewing, eating, and vision may occur. In addition, children may have difficulties with socialization due to being self-conscious about their appearance. In some severe cases, surgery may be necessary.

The simplest and most frequently prescribed treatment is positional therapy. Place the infant with his or her head turned on the opposite side of the head. This can be achieved by placing a towel roll or rolled up blanket beneath the back and hip on the flattened side, positioning the baby to 45 degrees. Place interesting objects on the opposite side of the bed to attract the infant's attention. Do NOT put the towel or blanket under the infant's head, because this can lead to suffocation. Many infants will wiggle off of the roll in a short time; some physicians recommend using Velcro or tape to secure the roll to the infant's body.

The simplest and most frequently prescribed treatment is positional therapy (*continued*)

- When holding, feeding or carrying an infant, make sure that there is no undue pressure placed on the flat side of the head. Change infant's head position from side to side during feeding time.
- Provide an infant with plenty of supervised play time on his or her tummy. This helps build and strengthen neck, shoulder and arm muscles.
- For optimal results, positional therapy should be started before the infant is 4 months old.

If positional therapy does not work, helmet or band therapy may be recommended. The original molding helmet, introduced in 1979, utilized the basic concept of surrounding the asymmetrical infant head with a symmetrical (normal) mold. This helped the skull resume a normal shape. An alternative technique, Dynamic Orthotic Cranioplasty<sup>SM</sup> (DOC Band<sup>®</sup>), was developed as a more proactive approach in treating positional plagiocephaly. In this technique, the device was specifically designed to apply gentle pressure to the area of the head where growth was not wanted, while leaving space where growth was needed. The band was adjusted on a weekly or biweekly basis.

Today there are a far wider variety of bands and helmets, many of which take into consideration the concepts of the original molding helmets and the DOC Band<sup>®</sup>. Every case is different, but all products are custom fit to the infant's head. For optimal effectiveness, it is recommended that helmet or band therapy begin by 5 months of age. The length of therapy depends on the individual case, but usually takes between two and six months.