

Head & Neck Deformities

What is deformational plagiocephaly?

Deformational plagiocephaly is a deformity of the skull that occurs as the result of a child repeatedly sleeping in the same position. It causes the soft bones of the skull to conform to an abnormal shape, typically presenting as flattening in the back of the head, or of one side or the other.

When an abnormal head shape is seen, it is imperative that craniosynostosis is ruled out as the cause. Therefore, a skull xray or head CT scan may be ordered to aid in this process.

What causes plagiocephaly?

Common causes include back-sleeping due to the recommendations of the American Academy of Pediatrics for safe sleep practices and/or torticollis. Use of the swing, bouncy seat, car seat, stroller, in-utero positioning, multiple gestation and time spent in the NICU may exacerbate plagiocephaly.

What is torticollis?

Torticollis is the congenital tightening of the sternocleidomastoid muscle in the neck. This condition presents as an abnormal tilt or abnormal rotation of the head to one side or the other. As torticollis is a common cause of plagiocephaly, it is essential that this condition is immediately examined and ruled out in any child who has plagiocephaly. If the torticollis is not treated, then subsequently the treatment for the plagiocephaly, including use of a helmet, will not be fully effective and the plagiocephaly will continue to persist. This condition is treated with physical therapy and an at-home stretching and exercise regimen.

How common is plagiocephaly?

Today, 1 out of every 50 newborns has plagiocephaly.

How is plagiocephaly treated?

The two methods of treatment include (1) re-positioning techniques to relieve pressure off the affected part of the skull and (2) use of an orthotic helmet.

Repositioning

Repositioning can be helpful if the condition is caught while the baby is very young while the bones are very soft. It consists of rotating the child in the crib from the back position to the side position, which complies with SIDS prevention guidelines.

How does the helmet work?

The cranial molding orthosis (helmet) works by passively guiding the new growth of a baby's head into the flattened areas to reshape the skull. It also provides a rounded surface so that the baby won't prefer to lay into the flattened spot. The helmet must be adjusted by the provider every 2 weeks to accommodate the rapid growth of the baby's head.

Most cranial devices are fabricated from a plaster of Paris impression or a digitalized image of the child's head shape. The outer portion of the helmet is a semi-rigid shell, which is bonded to a foam lining on the inside. The lightweight cranial headband applies dynamic pressure to the elevated areas, leaving spaces for growth and remodeling of the flattened areas.

In order for it to be effective, it must be worn 23 hours per day. The one hour per day that it is off can be for swimming, cleaning of the helmet, bathtime, or pictures. The typical length of a cranial remodeling treatment is directly dependent on the age at which the child begins this therapy. It is also possible that more than one helmet may be needed to complete the therapy.

Dr. Stelnicki will decide with you when the treatment has been optimized. Careful measurements of your child's head shape will be taken at each visit to evaluate the results of the therapy.

When can helmet therapy be initiated?

In general, a helmet may be initiated from the time it is determined that the child has achieved good neck control to 18 months of age. However, the most effective time to begin helmet therapy is while the head circumference is growing most rapidly, which in most children begins at approximately four and a half months.

Is the helmet covered by insurance?

It is essential that after your child has been diagnosed with plagiocephaly that you contact the provider of your helmet therapy as soon as possible. Some insurance companies will fight you on authorizing the treatment and call this a cosmetic concern. It is important to know that this is not a cosmetic problem. It is a deformity of the skull, which is abnormal and is a result of a medical recommendation. There are theoretical concerns about long-term problems with temporomandibular joint placement and astigmatism in the eyes. Try to get your pediatrician to write you a letter of support; this will help in most cases. Dr. Stelnicki, of course, will help you and support you in every way.

Deformational Plagiocephaly

Deformational plagiocephaly is becoming a worldwide concern. It is a deformity of the skull that occurs as the result of the child sleeping the same position, causing the soft bones of the skull to become deformed and then conform to an abnormal shape.

Today, deformational plagiocephaly is seen in up to 1 in every 50 newborns. It has developed as a result of the recommendations of the

American Academy of Pediatrics for children to sleep on their back as part of the "Back to Sleep" campaign. The Back to Sleep campaign is, of course, endorsed by ourselves and all pediatricians because it has been shown that by sleeping on a child's back, there can be a decrease in the risk of sudden infant death syndrome or SIDS. However, the fallout is that many children are developing flatness on the back of their head which is causing severe deformity of not only the skull shape but also the position of the ear, the position of the eye, and the position of the temporomandibular joint. Of long-term concern is how abnormal positioning of the eye and the temporomandibular joints may effect problems with reading, vision, astigmatism, and temporomandibular joint position and pain as this abnormal positioning of the joint may place abnormal forces on the TMJ and result in long-term pain and clicking in these children.

The correction of deformational plagiocephaly has also undergone an evolution over the past several years. Fifteen years ago, when a few cases were seen, it was deemed to be a neurosurgical problem. Neurosurgeons and plastic surgeons around the world were performing a skull reconstruction for this condition similar to that being performed in classic craniosynostosis. This is no longer the case.

Doctors now realize that this condition can be treated by nonsurgical methods that are as effective as traditional surgical therapies. The two treatments for deformational plagiocephaly are: 1) Positioning of the child. 2) Use of an orthotic remolding helmet. Positioning of the child can be effective if the abnormal skull shape is caught very early. The child can be positioned instead of constantly on the back, in rotating positions from back to side. This is within the guidelines for decreasing the risk of crib death and at the same time, the rotating position of pressure on the skull prevents or decreases the risk of flattening.

If your child has flattening, you should position your child on the opposite side away from the flattening as much as possible. In the car seat and in the stroller, a bump or blanket, which in no way would cover the child's face and cause suffocation, should be placed behind the flattened part of the head to actually force the head over toward the opposite direction. In addition, the child's position should be rotated nightly and wedges and

positioners should be used in the bed to try and decrease the continual pressure in the flat spot. It is essential to also rule out torticollis as a cause of a contributing factor to the flatness. Many children will have stiffness in the neck, which is felt to be related to intrauterine positioning that keeps them from turning their head to one side or the other. Most children with this problem can be treated with physical therapy alone. However, the flattening of the head will persist until the torticollis has been treated. If you feel that there is any restriction in the motion of your child's head, then your child should be seen by a craniofacial specialist to rule out torticollis immediately. Physical therapy regimen will then be assigned that will augment any attempt at positioning or treatment with an orthotic band or helmet.

Dr. Stelnicki's Successful Methods

Dr. Stelnicki has successfully used cranial remodeling devices in order to treat deformational plagiocephaly that has not been responsive to positioning. Cranial remodeling devices can be used effectively up to a year and a half of age, and in rare patients even beyond that. There are several FDA approved devices, which have now been used on thousands of children across the world for treatment of deformational plagiocephaly. Dr. Stelnicki works with Star Band, Doc Band, Kinder Band, Hanger Bands, and others. These Cranial remodeling devices work in several ways. They provide a rounded surface that prevents the child from rolling into the flat spot on the back of the head. It is also a passive process that is adjusted weekly to control head growth. The head is held in areas where it is already pushed too far forward and there is space made in the areas of the flattening so that as the brain and skull grow, the flattening resolves. These cranial devices must be adjusted weekly or bi-weekly in order to work effectively. With the use of the helmets, we expect a 90-95% correction in head shape. All human beings have some asymmetry in their skull and it is unrealistic and unnatural to expect perfect, rounded symmetry following any treatment of head shape. The typical length of a cranial remodeling treatment is directly dependent on the age at which the child begins this therapy. It is also possible that more than one helmet may be needed to complete corrections. When the child outgrows his or her helmets, a new helmet could be reapplied after updated measurements are taken to fit the child with new proper fitting device.

Contact Helmet Therapy Provider

It is essential that after you have been diagnosed with deformational plagiocephaly that you contact the provider of your helmet therapy as soon as possible. Some insurance companies will try and fight you on authorizing this band and call this a cosmetic concern. This is not a cosmetic problem! It is a deformity of the skull, which is abnormal and is a result of a medical recommendation. The skull is deformed and should be corrected by an FDA approved device. You may have to fight your insurance company. Try to get your pediatrician to write you a letter of support; this will help in most cases. Dr. Stelnicki, of course, will help you and support you in every way. Cranial remodeling devices are developed as a conservative treatment and are most effective early in life. The correction of this does not in any way effect the development of the brain; In fact, the brain will develop the same regardless of treatment. However, the remodeling of the head needs to be done early in order to be effective. Most cranial devices are fabricated from a plaster of Paris impression, or a digitalized image of the child's head shape using a semi-rigid outer shell, which is bonded to a foam inner lining. The lightweight cranial headband applies dynamic pressure to the elevated areas, leaving spaces for growth and remodeling of the flattened areas. For effectiveness, cranial devices need to be worn 23 hours a day with 1 hour taken off for skin care, hygiene and cleaning of the helmet. Dr. Stelnicki will decide with you when the treatment has been optimized. Careful measurements of your child's head shape will be taken to evaluate the results of the treatment.

Dr. Stelnicki also uses cranial remodeling devices in conjunction with his endoscopic surgical repair for craniosynostosis. This helmet will be worn for 6-8 months postoperatively depending on the age of the child at the time of craniosynostosis repair. It must be worn at all times with the exception of being taken off once a day for cleaning. The endoscopic repair success relies heavily on the use of the helmet and families who cannot commit to the postoperative helmet and the need for constant adjustments for 6-8 months should not undergo endoscopic cranial vault repair. With the helmet, however, the correction of craniosynostosis can be minimized to a much faster operation with much less blood loss, with much less time in the hospital and much less morbidity. There is also no need for placement

plates and screws around the skull, as the cranial remodeling devices offers post surgical splints for molding the healing and regenerating skull bone.

For other questions and concerns please consult Dr. Stelnicki in our office.