

PLAGIOCEPHALY (Flat Head Syndrome)

Babies are born with soft heads to allow for the amazing brain growth that occurs in the first year of life. As a result, their heads are easily "molded."

Passage through the birth canal during childbirth can cause a newborn's head to look pointy or too long. So it's normal for a baby's skull, which is made up of several bones that eventually fuse together, to be a bit oddly shaped during the few days or weeks after birth.

But if a baby develops a lasting flat spot, either on one side or the back of the head, it could be **flat head syndrome**, also called positional. Flat head syndrome usually happens when a baby sleeps in the same position most of the time or because of problems with the neck muscles.

This problem does not harm brain development or cause any lasting appearance problems. And, fortunately, it does not require surgery. Simple practices like changing a baby's sleep position, holding your baby, and providing lots of "tummy time" can help.

Causes

The most common cause of a flattened head is a baby's sleep position. Because infants sleep for so many hours on their backs, the head sometimes flattens in one spot. Placing babies in devices where they lie down often during the day (infant car seats, carriers, strollers, swings, and bouncy seats) also adds to this problem.

Premature babies are more likely to have a flattened head. Their skulls are softer than those of full-term babies. They also spend a lot of time on their backs without being moved or picked up because of their medical needs and extreme fragility after birth, which usually requires a stay in the neonatal intensive care unit (NICU).

A baby might even start to develop flat head syndrome before birth, if pressure is placed on the baby's skull by the mother's pelvis or a twin. In fact, many babies from multiple births are born with heads that have some flat spots.

Being cramped in the womb can also cause torticollis, which can lead to a flattened head. Babies with torticollis have a hard time turning their heads because of tight neck muscles on one side of the neck. Since it's hard to turn the head, they tend to keep their heads in the same position when lying down. This can cause flattening.

Likewise, many babies who started out with flat head syndrome develop torticollis. Because it takes a lot of energy for them to turn their heads, babies with severe flattening on one side tend to stay on that side, so their necks become stiff from lack of use.

Signs and Symptoms

Flattened head syndrome is usually easy for parents to notice. Typically, the back of the child's head, called the occiput is flattened on one side. There is usually less hair on that part of the baby's head. If a person is looking down at the baby's head, the ear on the flattened side may be pushed forward.

In severe cases, the head might bulge on the side opposite from the flattening, and the forehead may be uneven. If torticollis is the cause, the neck, jaw, and face may be uneven as well.

Diagnosis

Doctors usually diagnose flat head syndrome simply by looking at a child's head. To check for torticollis, the doctor may watch how a baby moves the head and neck. Lab tests, X-rays, and computed tomography (CT scans) usually are not needed.

The doctor may monitor a child over a few visits to see how the shape of the head changes. If repositioning the child's head during sleep helps to improve the skull over time, the problem is likely due to flat head syndrome. If it doesn't, the cause could be due to another condition, such as craniosynostosis.

Craniosynostosis happens when a child's skull bones fuse together before they're supposed to (normally, around age 4). This fusion restricts brain growth and causes skull deformities. Children with craniosynostosis need treatment to correct the problem.

If the doctor suspects craniosynostosis or another condition, the child will be referred to a pediatric neurosurgeon or a craniofacial plastic surgeon who may order other tests, like X-rays or a CT scan.

Treatment

If your child has flat head syndrome that's caused by a sleeping or lying position, there is a lot you can do at home to help treat it:

- **Change the head position while your baby sleeps.** Reposition your baby's head (from left to right, right to left) when your baby is sleeping on the back. Even though your baby will probably move around throughout the night, it's still a good idea to place your child with the rounded side of the head touching the mattress and the flattened side facing up. The American Academy of Pediatrics (AAP) does not recommend using any wedge pillows or other devices to keep your baby in one position.
- **Alternate positions in the crib.** Consider how you lay your baby down in the crib. Most right-handed parents carry small infants cradled in their left arms and lay them down with the heads to their left. In this position, the infant must turn to the right to look out into the room — and, indeed, torticollis to the right with flattening of the right side of the head is far more common than the left. Whichever side of your infant's head is flattened, you will want to position your baby in the crib to encourage active turning of the head to the other side.
- **Hold your baby more often.** Reduce the amount of time your child spends lying on the back or often being in a position where the head is resting against a flat surface (such as in car seats, strollers, swings, bouncy seats, and play yards). For instance, if your baby has fallen asleep in a car seat during travel, take your baby out of the seat when you get home rather than leaving your little one snoozing in the seat. Pick up and hold your baby often, which will take pressure off the head overall.
- **Practice tummy time.** Provide plenty of supervised time for your baby to lie on the stomach while awake during the day. Not only does "tummy time" promote normal shaping of the back the head, it also helps in other ways. Looking around from a new perspective encourages your baby's learning and discovery of the world. Plus, it helps babies strengthen their neck muscles and learn to push up on their arms, which helps develop the muscles needed for crawling and sitting up.

- **Turtle Hat.** A new item called the Turtle hat can also be used to help with flattening of the head. Additional information can be found at www.turtle.com.

As most infants with plagiocephaly have some degree of torticollis, physical therapy and a home exercise program will usually be part of the recommended treatment. A physical therapist can teach you exercises to do with your baby involving stretching techniques that are gradual and progressive. Most moves will involve stretching your child's neck to the side opposite the tilt. In time, the neck muscles will get longer and the neck will straighten itself out. Although they're very simple, the exercises must be done correctly.

For kids with severe flat head syndrome in which repositioning for 2-3 months doesn't help, doctors may prescribe a custom-molded helmet or head band. While helmets might not work for all children, some kids with severe torticollis can benefit from them.

The helmets work best if used between the ages of 4 and 12 months, when a child grows the fastest and the bones are most moldable. They work by applying gentle but constant pressure on a baby's growing skull in an effort to redirect the growth.

Never purchase or use any devices like these without first having your child seen by a doctor. Only a small percentage of babies wear helmets. The decision to use helmet therapy is made on a case-by-case basis (for example, if the condition is so severe that a baby

Outlook

The outlook for babies with flat head syndrome is excellent. As babies grow, they begin to reposition themselves naturally during sleep much more often than they did as newborns, which allows their heads to be in different positions throughout the night.

After babies are able to roll over, the AAP still recommends that parents put them to sleep on their backs, but then allow them to move into the position that most suits them without repositioning them onto their backs.

As a general rule, once an infant can sit independently, a flat spot will not get any worse. Then, over months and years, as the skull grows, even in severe cases the flattening will improve. The head may never be perfectly symmetrical, but for a variety of reasons the asymmetry becomes less apparent as well. For example, in later childhood the face becomes more prominent in relation to the skull, hair thickens, and children are always on the go. Experience and clinical research have shown that by school age, a flattened head is no longer a social or cosmetic problem.

It's important to remember that having a flattened head does not affect a child's brain growth or cause developmental delays or brain damage.

Prevention

Babies should be put down to sleep on their backs to help prevent sudden infant death syndrome (SIDS), despite the possibility of developing an area of flattening on the back of the head.

However, alternating their head position every night when you put them down to sleep and providing lots of tummy time and stimulation during the day while they're awake can reduce the risk of flat head syndrome.