



Is My Baby's Head Shape Normal?

What to Look for and What to Do When You Have Concerns

What is "normal" for a baby's head shape can encompass a broad range of shapes, but in general the head is an oval shape that is reasonably symmetrical—that is, the right and left sides of the head appear to be nearly identical.

Sometimes a flat area develops on a baby's head, often in the back of the head and more to one side. Accompanying this flattening frequently is a protrusion or prominence of the skull on another area of the head, often the forehead. In other cases, the head becomes quite narrow and long, but is otherwise symmetric. These features can be seen best by looking down on the baby's head from above.

Plagiocephaly, Plainly Speaking

This flattening of the head is called plagiocephaly, stemming from Greek words meaning "oblique head." Depending on its cause, the condition can be serious if left untreated, or it may simply be a cosmetic concern. In either case, the condition can be successfully treated.

Most parents are familiar with "the soft spot," or anterior fontanelle, on the top of a baby's head. This triangular area actually is one of several fontanelles between the sections of a baby's skull. The skull is basically made up of five parts: two frontal bones, two parietal bones forming the sides of the head, and the occipital bone in the back. These five parts allow the head to compress as the baby moves through the birth canal. As the baby grows, five skull sutures join these parts, protecting the brain while allowing it to expand. The sutures usually will completely close by the age of two.

Occasionally, one or more of these sutures can close prematurely along part or all of its length, a condition known as craniosynostosis. Craniosynostosis, which usually begins before birth and is progressive, often, although not always, requires surgery for correction.

"More than 50 percent of brain growth occurs in the first year of life, so when one or more sutures prematurely close, the brain cannot expand in that area and therefore must expand in another direction," explained Bruce Kaufman, MD, a pediatric neurosurgeon and member of the American Association of Neurological Surgeons. "Such growth can result in



pressure on the brain and disfigurement of the skull. A pediatric neurosurgeon can confirm the presence of craniosynostosis using diagnostic tests like x-rays and computed tomography scans."

Far more common than craniosynostosis, however, is positional plagiocephaly. This condition results from pressure on the baby's very soft skull, which can occur before birth, particularly in multiple-birth pregnancies, or after birth from frequently lying in the same position. Positional plagiocephaly often can be prevented and nearly always can be treated without surgery.

In addition, routinely placing babies on their backs rather than on their bellies at bedtime also often causes the back of the skull, the occiput, to

develop a flat spot, a condition called occipital plagiocephaly.

Further, when placed on their backs, most normal infants tend to spend most of their time—80 percent—with their heads turned toward the right, 10 percent with their heads turned to the left, and only 10 percent with their heads positioned straight ahead. Premature infants are particularly susceptible to develop side-wise deformation, from having the head placed from one side to the other during the long time period they are in the neonatal intensive care.

Treating—and Avoiding—Positional Plagiocephaly

"There is no evidence that plagiocephaly functionally restricts brain growth, or that it causes brain damage, intellectual impairment, or developmental delays," said Dr. Kaufman. "Once the child is able to sit and stand, the molding forces are removed and the deformity begins to improve. Although it may not resolve completely, the remaining flattening is usually minor and is not visible because it is covered with hair as the child grows."

Pediatric neurosurgeons have adopted a very conservative approach for most children with this problem, believing that children with mild or moderate deformities need nothing more than frequent changes of position. To help keep the baby off of the flat side, caregivers can:

- Continue placing the baby on her or his back for sleep, but each time alternate the head position (right cheek to mattress one time, left cheek the next)
- Frequently change the position of the crib or the orientation of the baby in the crib to reduce the baby's tendency to face the same direction
- Avoid long periods with the baby in one position (as in a car seat or carrier)
- Supervise frequent "tummy time" play on a firm surface

Some children with significant flattening may benefit from physical therapy to the neck or muscles or customized molding helmets or headbands.

A resource for more information about neurological disorders and for finding a qualified neurosurgeon in your area is www.NeurosurgeryToday.org, the public information Web site of the American Association of Neurological Surgeons.