

Head Shape Differences in Infants: What You Need to Know

During the first couple years of life, some babies may develop plagiocephaly or brachycephaly. These conditions affect the shape of a baby's head. In this handout from the Down Syndrome Program at Mass General for Children (MGfC) and Massachusetts General Hospital, you will learn about plagiocephaly and brachycephaly and tips on how to prevent them. You will also learn the safest position for your baby to sleep in even if they have either of these conditions.

What are plagiocephaly and brachycephaly?

In the first couple years of life, a baby's skull is soft and still developing. The skull continues to grow and change shape. If a baby keeps their head in the same position for most of the time, the skull can become flat on one or both sides of the back of the head. When the skull becomes flat on one side, this is called **plagiocephaly**. When the skull becomes flat along both sides of the back of the head it is called **brachycephaly**.

Do plagiocephaly and brachycephaly affect how my baby's brain grows?

No, plagiocephaly and brachycephaly do not affect how a baby's brain grows. In most cases, these two conditions are **cosmetic** (affect your baby's physical appearance).

What are signs of plagiocephaly and brachycephaly?

- Flat area on one or both sides of the back of the baby's head
- Thinning hair in the flattened area

Do babies with Down syndrome have a higher risk of developing plagiocephaly or brachycephaly?

While plagiocephaly and brachycephaly can happen in all babies, they are more likely to happen in babies with Down syndrome. This can be for a few reasons:

- It is common for people with Down syndrome to have **hypotonia** (low muscle tone) throughout the body.
- Babies with Down syndrome typically take longer to be able to support their head and neck. They may also have a **neck rotation preference** (when your baby spends more time looking to one side more than the other). Keeping their head in the same position on a surface causes the skull to become flat where the head touches that surface.
- Babies with Down syndrome learn to roll and sit up at a later age. This means they spend more time on their backs during the first few months of life.

What can I do to treat plagiocephaly and brachycephaly?

The best way to treat plagiocephaly and brachycephaly is to prevent it from happening. If either condition is left untreated, the flat spot(s) will likely not get better on their own.

Below are some tips on how to prevent these conditions:

Lessen the amount of time your baby spends on their back when awake

- Whenever possible, hold your baby in your arms. This helps reduce pressure on the back of your baby's head.
- Use rockers, bouncers and swings only when necessary. These devices keep your baby on their back and limit how much your baby can freely move their head.
- Place your baby on their side while they are awake.
- When your baby does need to lay on their back (such as for naps and bedtime), make sure their head and upper body are lined up. Their face and chest should be facing upward. **(Remember – The safest position for your baby to sleep in is on their back.)**

Use tummy time

- Practice **tummy time** (when your baby spends time on their tummy while awake). This takes pressure off the back of the head. Tummy time also helps your baby learn to hold up their head and develop their **gross motor skills** (abilities to control the body for large movements, such as crawling, sitting up and walking). Think of tummy time as a workout for your baby's muscles!
- Place your baby on your chest during tummy time. This can be a good way to ease your baby into tummy time if they haven't done it before or they are still getting used to it.
- Keep toys and mirrors in front of your baby during time. This can be a great distraction for them. To prevent a neck rotation preference, move toys side to side so your baby can follow them.

I think my baby may have plagiocephaly or brachycephaly. What should I do?

If you notice some flattening of your baby's head, talk to your baby's care team. If needed, a physical therapist can provide tips on how to reposition your baby to help lessen the flat spot(s) on their head. The care team can also help figure out if a **cranial orthotic helmet** (helmet to shape your baby's head) may be helpful.

Should my baby still sleep on their back if they have plagiocephaly or brachycephaly?

Yes. The safest position for your baby to sleep is on their back. This is true even for babies who have plagiocephaly or brachycephaly.

Looking for more pediatric health information?

Visit the Pediatric Health Information Library (PHIL) at Mass General for Children (MGfC) at www.massgeneral.org/children/patients-and-families/pediatric-health-information-library.