

**A parent's guide**  
to deformational  
plagiocephaly





## What is **deformational plagiocephaly**?

Deformational plagiocephaly, sometimes known as “flat head syndrome”, is a common condition and occurs when external force causes a baby’s head to take on an abnormal shape. It is characterised by flattening of one side of the back of the head and can be noticeable from birth, or can present itself in the first few months of life.

Other conditions which are often characterised as “flat head syndrome” are:

- deformational brachycephaly - where the entire back of a baby’s head is flat and the head is very wide. This can be symmetrical or asymmetrical.
- deformational scaphocephaly - where the baby has a long and narrow head.

## What are the causes of head shape deformities?

A baby’s skull is made up of several different plates, which slide over each other during birth, to ease the passage of the baby’s head during birth. The skull is also thinner and softer than an adult one, to enable easier growth. This means that a baby’s skull can be manipulated into an abnormal shape through excessive pressure, before, during and after birth.

Deformational plagiocephaly can happen inside the mother’s womb where areas of a baby’s head are put under pressure. This is often the cause of deformation in babies positioned in a breech position, or those who are cramped due to multiple foetuses. Deformation can also be caused during birth in babies who spend a long time confined in the birth canal, or where suction or vacuum instruments are used to aid the birth.

Deformational brachycephaly generally affects babies who spend prolonged periods of time with their heads against a hard surface like a car seat, bouncy chair, swing or push chair. In this case, constant pressure on the back of the head can cause flattening.

Deformational scaphocephaly is caused by consistent positioning of the baby on his or her side. Premature babies are particularly prone to scaphocephaly, because they often spend a lot of time on their sides in neonatal intensive care units (NICU) for easy access to monitors and other equipment.

Another leading cause of abnormal head shape in young babies is neck tightness caused by congenital torticollis (Twisted neck). Typically, the head of a baby with torticollis is tilted to one side while the chin is turned to the other side. This prevents the neck from moving properly and leads to it consistently resting in the same place. This constant pressure can cause the head to become flattened.



**The four images above display the four common areas of flattening.**

From left to right: 1. Symmetrical Brachycephaly (flattening directly across the back of the baby’s head) 2. Right Plagiocephaly (Flattening on the back right hand side of the baby’s head) 3. Scaphycephaly (flattening either side of the baby’s head) 4. Asymmetrical Brachycephaly (Flattening across the back and left side of the baby’s head) All of these head shapes can be treated with a STARband at STAR@Steeperclinic



## What can I do if my baby has an **unusual** head shape?

The first thing to do is to talk to your GP or Health Visitor. They will then examine your baby's head from the top, sides, front and back.

Once they have examined the baby, they should talk to you about the importance of "tummy time". Tummy time simply means that you should make sure that your baby spends lots of supervised time on his or her tummy during the day whilst awake. Tummy time is a great way of taking the pressure off any flattened areas, and also helps to build strong neck and back muscles, which will help your baby to learn to roll, sit and crawl as they grow.

If there is any neck imbalance or a delay in your baby's development, the GP may refer you to a Paediatrician or Physiotherapist. Similarly, the GP may refer you to a specialist to assess your baby's head shape and to check for any other skull shape disorders via X-ray, CT scan or MRI. If your baby is diagnosed with any of the above conditions and is between the ages of 3 and 18

months, your GP or specialist may recommend a STAR cranial remoulding orthosis (STARband).

You may recognise the STARband as a 'baby helmet' and it is a plastic and foam or clear plastic, custom moulded device designed to gently correct the shape of your baby's head.

## How does **STARband** work?

STAR (Symmetry Through Active Remoulding) cranial remoulding orthoses work by redirecting head growth to improve proportion and symmetry. Providing total contact with any prominent or bossed areas of the baby's head, STARband discourages additional growth there, whilst encouraging growth in areas of the head that are flat or depressed. The band is evaluated and adjusted on a regular basis by an Orthotist, to precisely guide growth throughout the entire treatment programme.

## What happens at the first visit to STAR@Steeperclinic?



The Orthotist will conduct a thorough evaluation, talk to you about your baby's history and discuss the treatment programme. In most cases, the Orthotist will also take clinical photographs and a series of measurements with a STARscanner laser data acquisition system. The scan at the beginning of the treatment will serve as a reference through the whole treatment programme. STARscanner is a non contact class 1 laser (the safest kind) scanning system that allows a baby's head to be scanned in 1.5 seconds. This means that there is no need to take a cast of the head, and detailed 3D scans can be immediately emailed to the manufacturer, who can create a custom STARband for your baby's head.

STARscanner will be used throughout the process to safely and precisely document head shape and symmetry changes throughout the treatment process.



## What happens next?

Your baby can be fitted with a customised STARband within two weeks of the scan date. At the fitting, your Orthotist will teach you how to help your baby adjust to wearing the STARband. After a 5 day adjustment period, your baby will progress to wearing the orthosis for 23 hours a day, with one hour off for cleaning and skin checks.

Throughout the process, your Orthotist will check on your baby's progress and you will have several check ups during the treatment process to evaluate the fit, make any necessary adjustments and to answer any questions you may have.

## How long will my baby wear a STARband?

Most babies wear a STARband for less than 4.5 months if they start before 8 months of age. Early intervention is optimal, but treatment can still be successful up to about 18 months of age, when slowing of the head growth and the thickening of the skull make the head more resistant to change.

## How will I know when my baby is ready to finish treatment?

The Orthotist will document your baby's head shape throughout the treatment programme with measurements, scans and clinical pictures. Periodically, this information will be compared to the original measurements and pictures to see the progress made. Typically, the decision to discontinue treatment is made when the STARband has corrected the head shape to a point where treatment is no longer necessary.

## How can I get a STARband for my baby?

You can contact STAR@Steeperclinic by phone or email and we will be able to offer you a free assessment to see if a STARband is suitable for your baby.

Your healthcare professional is welcome to contact us with any questions or queries that they may have.

If you choose STAR@Steeperclinic as your cranial remoulding orthosis provider, the cost of the treatment will cover the cranial remoulding orthosis, all appointments, telephone and email support, and any reports required.

## Will the NHS pay for my orthosis?

The NHS does not currently fund treatment using cranial remoulding orthoses because it believes that deformational plagiocephaly is a purely cosmetic condition. We feel that in moderate to severe cases there is an increased risk of developing problems with visual tracking, mandibular asymmetry, auditory threshold insufficiency and developmental delays.



We hope that as more research is completed the NHS will reconsider their position on cranial remoulding orthoses. In the meantime, there is a charity that can offer means tested financial support. Contact them at [www.headstart4babies.co.uk](http://www.headstart4babies.co.uk).

## What role does an Orthotist have?

Registered Orthotists have provided cranial remoulding orthoses since 1979. These professionals have a strong background in anatomy, biomechanics, material sciences and patient care. They maintain high levels of knowledge with continuous professional development. The clinicians at STAR@Steeperclinic are all HPC registered, members of BAPO and CRB checked.

## Who do I contact if I have any questions about my baby's STARband?

Contact your Orthotist if you have any questions or concerns about your baby's care. They are the health care professional in the best position to give specific information about your baby's treatment programme and progress.



## One Family's Experience...

Around five months of age, we started to notice our son's head becoming flat at the back on the left side. Lucas continually favoured his left side while lying down and also whilst in his swing, car seat and bouncy chair. When we voiced our concerns to our Paediatrician, she referred us to a Neurologist specialising in paediatrics.

After the initial exam, the Neurologist prescribed a STARband cranial remoulding orthosis. We were concerned that Lucas would not tolerate wearing a helmet for 23 hours a day for 3 months. We were also concerned as to how the stigma of Lucas wearing a helmet would affect us.

Our concerns quickly subsided when we met an Orthotist who worked directly with Orthomerica, the manufacturer of the STARband. Everyone involved made us feel comfortable and answered all our questions. They were especially nice and gentle to Lucas during the fitting process and after a few outings with Lucas wearing his new "jungle print helmet", we were no longer concerned how people would react.

A major factor that made us feel even more comfortable was that the STARband did not bother Lucas. From the first time he put it on, he never tried to take it off and was soon wearing it 23 hours a day with no problems. After three months of wearing the STARband, we were very pleased when the neurologist told us that Lucas' head was corrected, and he no longer needed to wear it. Now at almost eight months old, no one would know that he ever had a problem with his head.

*Elyse and Paul Davis*



[www.steeperclinic.com](http://www.steeperclinic.com)

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