THE AUSTRALIAN ORTHOTIC PROSTHETIC ASSOCIATION

Clinical specialties in orthotics and prosthetics

Cranial orthoses to reduce positional plagiocephaly and brachycephaly in infants

What is positional plagiocephaly and brachycephaly?

Positional (or deformational) plagiocephaly (pron. play-gee-o-kef-a-lee) and brachycephaly (pron. brak-ee-kef-a-lee) are types of cranial deformity – meaning a misshapen head. **Plagiocephaly** occurs when there is flattening on one side of the head, causing asymmetry. **Brachycephaly** occurs when there is flattening of the back of the head.

Plagiocephaly and brachycephaly are common cranio-facial conditions. Many babies are born with a misshapen head which usually improves in the first 6-8 weeks. After 6-8 babies may develop a positional cranial deformity if they spend prolonged periods lying with their head in the same position.

Plagiocephaly and brachycephaly are cosmetic conditions that do not affect the development of a baby's brain. If not treated they may affect the physical appearance of the head and face by causing uneven growth.

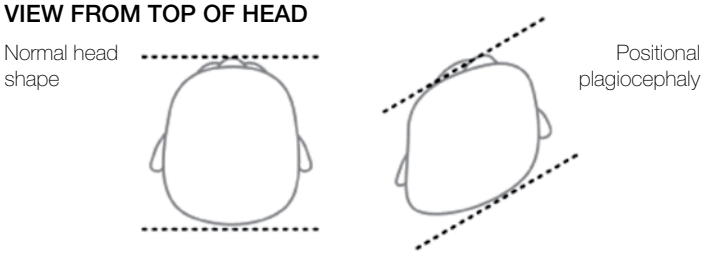

Diagram demonstrating normal infant head shape and effect of plagiocephaly.

What treatment options are there?

In some cases, plagiocephaly and brachycephaly do not require treatment. If there is concern that head shape is not naturally improving or is getting worse, advice should be sought.

Treatments for deformational plagiocephaly and brachycephaly are conservative and include **counter-positioning** and **cranial orthoses** (known as helmets). Treatment needs to occur as early as possible for counter positioning and from 4-9 months for cranial orthoses because 85% of cranial growth occurs by 12 months of age and the potential for improving head shape after this time is limited.

Counter positioning

Counter positioning is intentional re-positioning of the baby's head to encourage more even pressure distribution on the head. This is necessary during wake times (e.g. encouraging tummy time, side lying during wake time or approaching your baby from alternating sides) and sleep times (e.g. changing the position of the baby's head, the position of the baby in their cot or the position of the cot in the room). Your physiotherapist may also recommend gentle stretches and exercises to do with your baby if your baby has torticollis (tight neck muscles) which is causing a positional preference. Counter positioning can be started very early in a baby's life and is usually advised before use of a cranial orthosis.

Image Courtesy of Orthokids

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Orthotists – supporting the Australian community

Cranial orthoses

Cranial orthoses are a treatment option for babies with more severe deformity, or where counter positioning is not possible or has not improved head shape, and who also have good head control. A cranial orthosis is a custom-made helmet fabricated with a rigid plastic shell and foam lining. An orthotist designs the cranial orthosis to re-distribute the pressure over the head. The orthosis will fit closely over the prominent areas and will allow space over the flattened areas to re-direct growth into these areas. The cranial orthosis is recommended to be worn for 23 hours a day and may come off for one hour (i.e. to wash your baby's hair). Wearing the orthosis doesn't hurt and babies get used to it very quickly. Improvements in head shape from cranial orthoses are dependent on growth and can often be seen in the first weeks of use. Treatment usually takes between three and six months.

What is the evidence for cranial orthoses?

Research suggests that both counter positioning and cranial orthoses are effective in improving head shape in babies with plagiocephaly and brachycephaly. There is general consensus among experts that children most likely to benefit from cranial orthoses are those with more severe cranial deformational and that the earlier treatment starts, the better the outcome and improvement in head shape.

Who provides cranial orthoses?

An **orthotist** (pron. or-tho-tist) is a tertiary qualified Allied Health Practitioner who is trained to assess and treat the physical and functional limitations of people, using orthoses. Orthotists are responsible for the orthotic management of positional plagiocephaly and brachycephaly. **Certified Orthotist/Prosthetists** 'cOP-AOPA' can be located using the 'Find a practitioner' search function on the AOPA website (www.aopa.org.au).

If a cranial orthosis is recommended as a treatment option for your baby, you will be referred to an orthotist who will:

- Assess your baby's head shape and talk to you about the commitments required for successful cranial orthosis use
- Prescribe and provide the cranial orthosis. This will involve taking measurements, manufacture and fitting the orthosis to your baby.
- Provide ongoing clinical support and education including regular reviews. Because a baby's head is growing so quickly, the helmet shape must be frequently adjusted by the orthotist.
- Liaise with relevant members of the healthcare team

How do I access treatment for plagiocephaly?

If you have concerns about the shape of your baby's head, you should contact your Maternal and Child Health Nurse, family doctor, paediatric physiotherapist or paediatrician. Treatment for plagiocephaly and brachycephaly is provided by a team which may include a paediatrician or plastic surgeon, paediatric physiotherapist, family doctor, Maternal and Child Health Nurse and orthotist, in either private practice or a public hospital.

Cranial orthoses to reduce positional plagiocephaly and brachycephaly in infants:

- Poisitional plagiocephaly and brachycephaly (a misshapen head) are common cranio-facial deformities in babies
- Cranial orthoses (helmets) help to reduce deformity and improve head shape symmetry in the growing skull
- Orthotists are Allied Health Professionals who support babies with plagiocephaly and brachycephaly by providing comprehensive and evidence based orthotic care and interventions

Disclaimer – This fact sheet does not replace clinical advice. If you require orthotic services AOPA recommend speaking to your practitioner. This fact sheet was developed based on interpretation of current evidence as of August 2016. References available on request.