**CAUSES**

3. **EDUCATION & PREVENTION**

- **The BIG**
  - **TORTICOLLIS**
  - **PREGNANCY**
  - **SLEEPING ON BACK**

Prolonged external pressure to head from excessive time in strollers, swings and car seats.

- **3**

The term Plagiocephaly is generally used to describe 3 types of positional head shape asymmetries that persist past the age of 6 weeks.

- **46% INFBATS HAVE SOME FORM OF HEAD SHAPE ASYMMETRY**

**HEAD SHAPE & HOW TO MEASURE**

- **PLAGIOCEPHALY**
  - Cranial Vault Asymmetry Index (CVAI)
  - CVAI = \( \frac{(A - B) \times 100}{ \text{whichever is greater} } \)
  - **0 - 3.5**
    - Within normal limits of asymmetry
  - **3.5 - 6.25**
    - Minimal asymmetry in one of the posterior quadrants.
    - Secondary changes not present.
  - **6.25 +**
    - 2 x Quadrant involvement:
      - Forehead bulging opposite to posterior flattening.
      - Ear shifting on the side of the occipital flattening.
      - Facial asymmetry.
      - May be accompanied by torticollis.

- **BRACHYCEPHALY**
  - Cephalic Ratio % (CR)
  - CR = \( \frac{\text{width}}{\text{length}} \) x 100
  - **under 90%**
    - Within normal limits of asymmetry
  - **90% - 93%**
    - Minimal posterior flattening.
    - Secondary changes not present.
  - **Over 93%**
    - 2 x Quadrant involvement:
      - Posterior flattening only.
      - Head is abnormally wide and tall.
      - Tips of ears protrude.
      - Face appears small relative to the size of the head.

- **SCAPHOCEPHALY**
  - Cephalic Ratio % (CR)
  - CR = \( \frac{\text{width}}{\text{length}} \) x 100
  - **75% - 80%**
    - Slight elongation in length.
    - Secondary changes not present.
  - **69.5% - 75%**
    - Head is longer and narrower than normal.
    - Common in premature babies who have spent time in an intensive care unit.
    - Forehead and back of head are often square.

**SEVERITY SCALES**

- **MILD**
  - **PSR** CVAI **OSR** RSI
  - **0.5 - 2**
  - **4 - 8.93**
  - **3.81 - 9.24**
  - **6.13**

- **MODERATE**
  - **PSR** CVAI **OSR** RSI
  - **2.5 - 7.8**
  - **6.6**
  - **7.8**
  - **12.5**

- **SEVERE**
  - **PSR** CVAI **OSR** RSI
  - **7.8**
  - **12.5**
  - **15.8**
  - **20.02**

**TREATMENT & BANDING**

Cranial remodeling orthoses (CRO) encourage the skull to become symmetrical and/or proportional by holding areas we don't want to grow and promote growth into the void areas. The CRO's do not squeeze a baby's head into shape, rather provide space into the flattened positions of the skull to grow.

- **SNUGKAP PROGRAM**
  - Medical level of asymmetry
  - Worn up to 23hrs/day

- **NAPKAP PROGRAM**
  - Non-medical level of asymmetry
  - Worn minimum 14hrs/day

**REPOSITIONING**

- Tummy Time
- Carriers
- Alternate head position

**SCANING & MONITORING**

The Pediatric Headshape Clinic uses hand held scanners to capture fast and accurate 3D scans of infant headshape.

- Safe: eye-safe non-contact laser.
- Accurate: scans to an accuracy of +/- 0.5 mm.
- Fast: head shape acquisition in seconds.

**BAND FEATURES**

- Safe - undergone rigorous safety tests.
- Health Canada licensed.
- Engineered ventilation to keep baby comfortable and healthy.
- Lightweight and low profile allowing your baby to play free.
- 1/3 of the weight / 1/5 of the thickness of a traditional helmet.
- Gel infused padding to provide all day all night comfort and reduced band movement.
- Custom made based on your child's exact 3D head scan.
- Environmentally friendly, using sustainable materials and low energy fabrication techniques.

**OPPORTUNITY TIME FOR INTERVENTION**

- **Head circumference (inches):**
  - **0 3 6 9 12 15 18 21**
  - **Symmetry Variable**
  - **Optimum time for intervention**

**HEAD SHAPE ASYMMETRY CHANGES WITH CRO VS NO CRO**

**POSTURES**

- **PSR**
  - Posterior Symmetry Ratio (%)

- **CVAI**
  - Cranial Vault Asymmetry Index (%)

- **OSR**
  - Overall Symmetry Ratio (%)

- **RSI**
  - Radial Symmetry Index (mm)

**MONTHS**

- 0 3 6 9 12 15 18 21