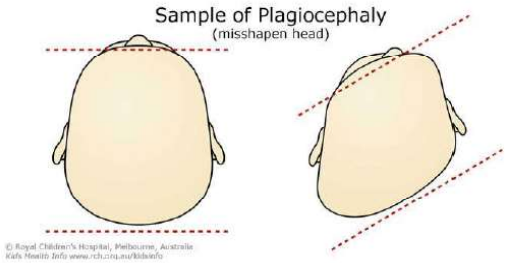
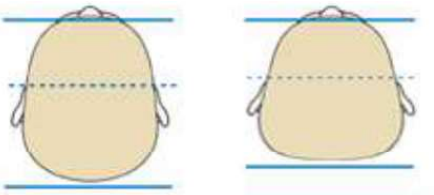
Helmet Modification
Plagiocephaly



Standard plagiocephaly –

1. Modify the shape to full symmetry -
   a) No less than 1cm added to starting circumference
   b) No more than 2cm added to starting circumference unless requested by practitioner
2. CDC Growth Chart Predictors –
   a) Use the appropriate growth chart
      1. Male
      2. Female
   b) Use the age and starting circumference of the patient
   c) Follow the corresponding growth arc to add 4 months age
   d) Use the graph to determine finished circumference of modified shape
   e) GCM are not used on patients under 6 months, as the buildup would be greater than 2cm

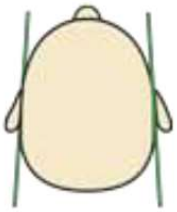
Helmet Modification
Brachycephaly



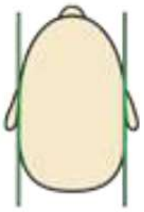
Standard Brachycephaly –

1. Modify the shape to full symmetry –
   a)Hold ML adjust posterior
   b)No less than 1cm added to starting circumference
   c)No more than 2cm added to starting circumference unless requested by practitioner.
2. CDC Growth Chart Predictors -
   a)Use the appropriate growth chart
      1.Male
      2.Female
   b)Use the age and starting circumference of the patient
   c)Follow the corresponding growth arc to add 4 months age
   d)Use the graph to determine finished circumference of modified shape
   e)GCM are not used on patients under 6 months, as the buildup would be greater than 2cm

Helmet Modification
Scaphocephaly



Normal Head Alignment



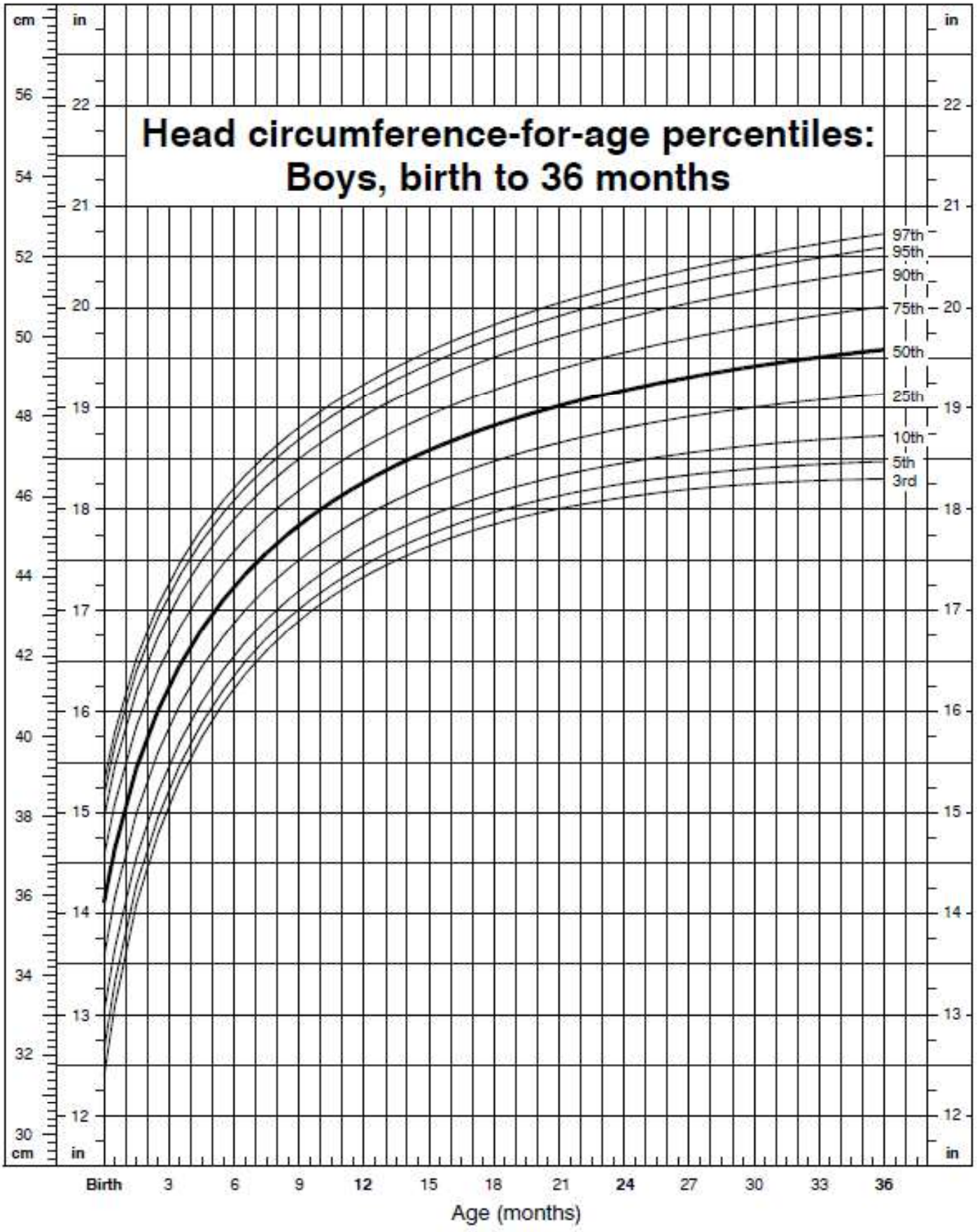
Scaphocephaly Head Alignment

Standard Scaphocephaly –

1. Modify the shape to full symmetry –
   a)Hold AP adjust circumference to increase ML
   b)No less than 1cm added to starting circumference
   c)No more than 2cm added to starting circumference unless requested by practitioner.

2. CDC Growth Chart Predictors -
   a)Use the appropriate growth chart
      1.Male
      2.Female
   b)Use the age and starting circumference of the patient
   c)Follow the corresponding growth arc to add 4 months age
   d)Use the graph to determine finished circumference of modified shape
   e)GCM are not used on patients under 6 months, as the buildup would be greater than 2cm

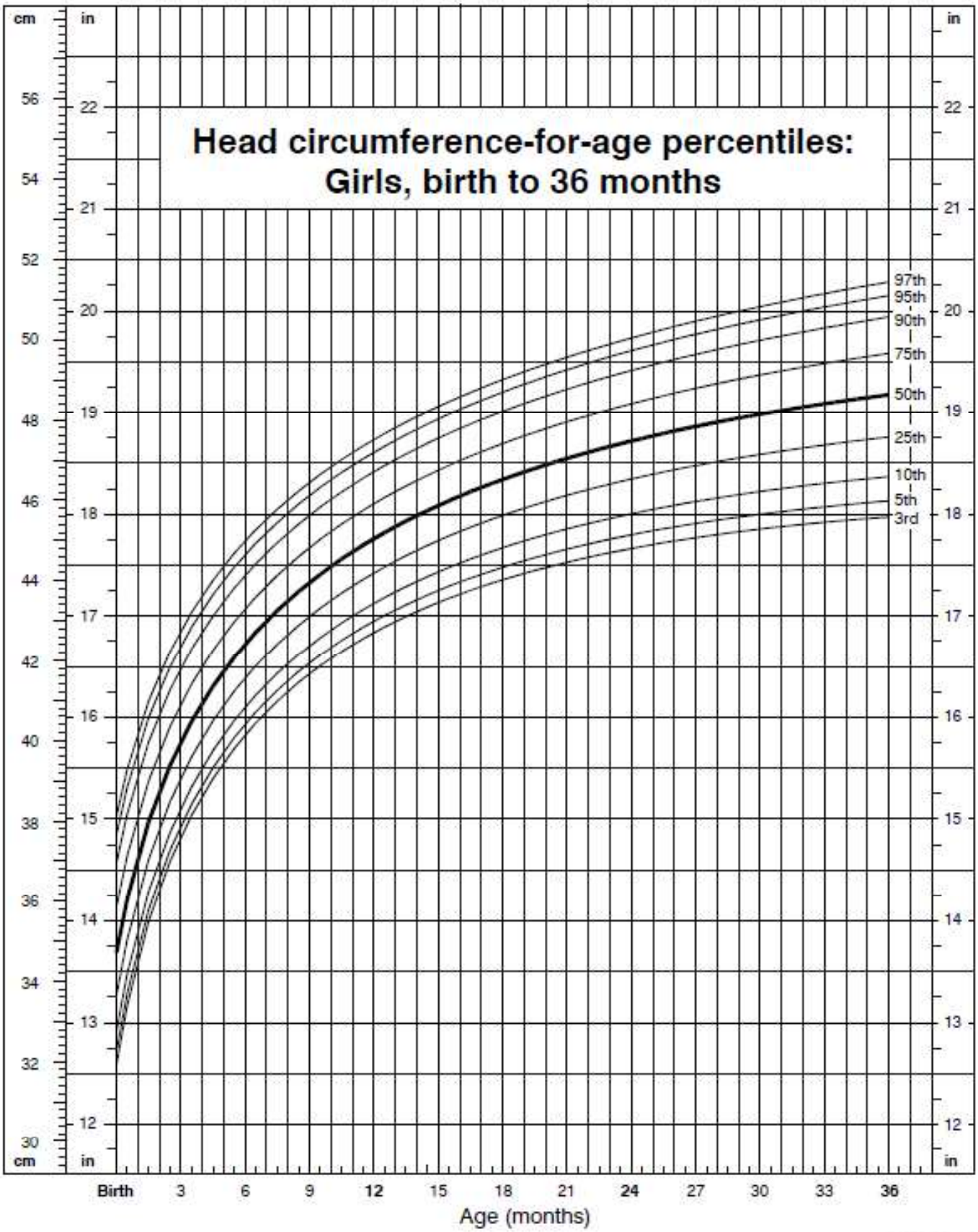
CDC Growth Charts: United States



SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).

CDC

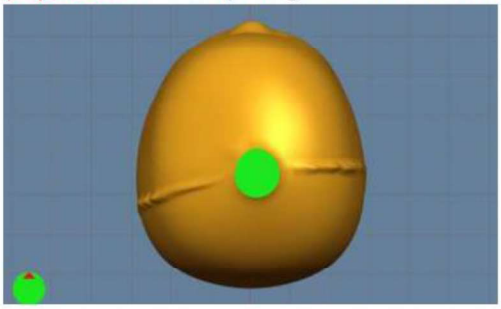
CDC Growth Charts: United States

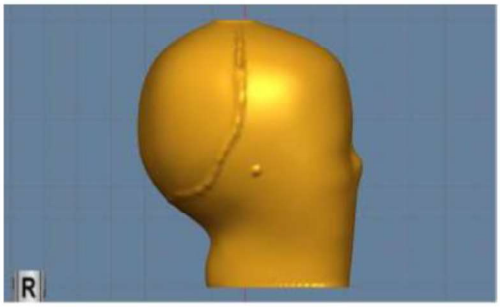


SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).

Boston Band Cranial Style

A variation of the standard cranial band, the Boston style band focuses growth in the posterior hemisphere of the band. Standard modifications are applied to the posterior of the model. Zero to 100% of anterior correction is applied, not to exceed 2cm of total circumference change, as requested by practitioner. After modification, using the 6mm build tool, a border is drawn to outline the modified area in posterior section of the model. The outlined border is used as a reference to cut out the foam liner posterior if desired by physician. The occipital groove is accentuated.

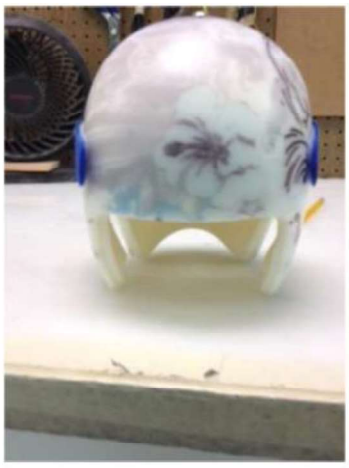




St. Louis Style

The St. Louis Style helmet, is a bivalve opening helmet with metal fixtures. It is primarily used in post op situations.
Modification are to the affected area only, no plagio correction unless otherwise stated by the practitioner.
All designs must be approved by practitioner before being sent to fabrication.

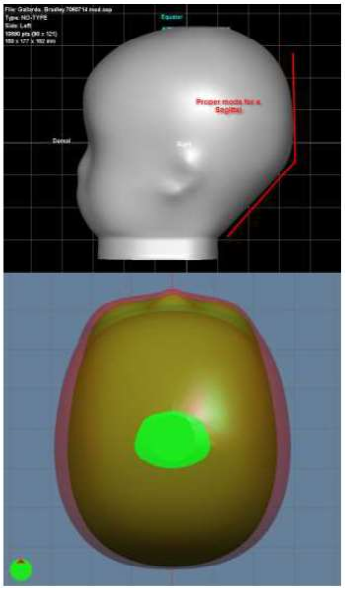
Sagittal – Hold AP, modify ML to a total circumference change of 14mm.
Coronal – Hold ML, shift affected area to symmetry. Circumference change of 12mm.
Bi-coronal – Hold ML, hold posterior, build forehead symmetrically to allow anterior progression. Circumference change of 12-15mm.



Metopic – Hold ML, hold posterior, build corners out symmetrically to be even with ridge in center of forehead. Flatten nose, forehead and eyes to create flat area for Metopic V Extension trim. Circumference Change of 12-15mm.
Lambdoid – Hold AP, hold ML, modify to symmetry, modify cranial vault to symmetry. Circumference change of 5-20mm.

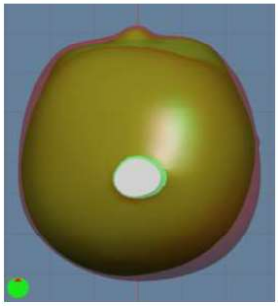
Surlyn Craniosynostosis – Sagittal

Flatten posterior of the shape. The sagittal view shows the flatten occiput blending well with the straight slant to the distal end. No cupping of the Occiput. The modifications are designed hold and reshape the already cupped shaped Occiput. The modifications for the 1st initial helmet should allow for as much as ½" M/L spacing each side, however, not allowing the CI to be above 94%. Target circumference growth is approximately **45mm**.
Design must be approved by practitioner before being sent to fabrication.



Surlyn Craniosynostosis – Coronal

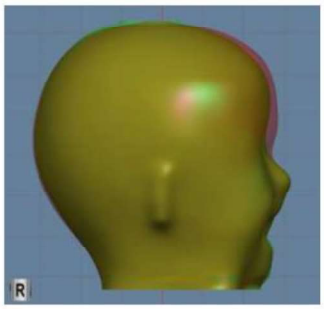
Adjust for any sloping of the forehead. Any posterior asymmetry needs to be addressed. 1/8" space for padding foam added from the apex of frontal bone over unaffected side to middle of the nose. Also add 1/8" relief over released suture area to allow for padding. Symmetrical relief over affected side. An additional 1/8" global after modifications are done to allow for growth.
Target circumference growth is approximately **30-40mm.**
Design must be approved by practitioner before being sent to fabrication.

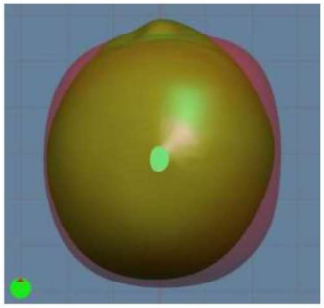


Surlyn Craniosynostosis – Bi-Coronal

Add 1/8" relief for a padding over released sutures on both sides. Add 3/8" to 1/2" anterior relief across forehead. Adjust for any asymmetrical areas posteriorly. Cupping the Occiput for suspension is needed.
Target circumference growth is approximately **30-45mm**

Design must be approved by practitioner before being sent to fabrication.

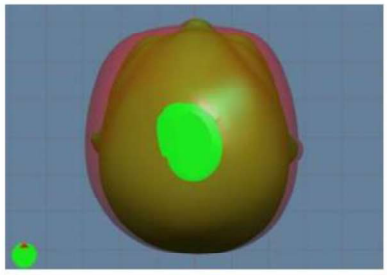
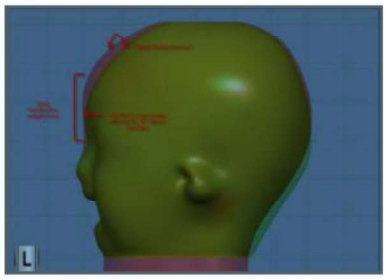




Surlyn Craniosynostosis – Metopic

Add 1/8" anterior and posterior for padding. Sloping of the forehead needs adjusting and modification will need to come straight down.
The anterior modifications must allow for even flat contact which is vertical to the face. Also, the modification must allow for the Metopic V extension to the root of the patients nose.
Target circumference growth is approximately **30-40mm**

Design must be approved by practitioner before being sent to fabrication.

Surlyn Craniosynostosis – Lambdoid

Lambdoid synostosis will display with a scoliosis of the skull. Due to the warped and twisted skull, the model must be viewed and modified in *all* angles.
Target circumference growth is approximately **30-40mm.**

Design must be approved by practitioner before being sent to fabrication.