



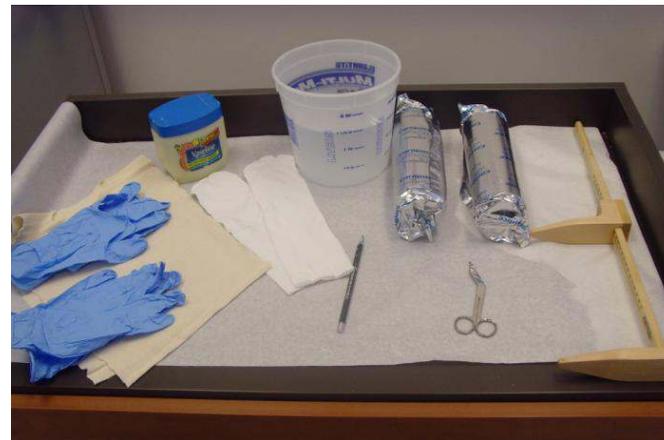
Two Piece - Two Person Casting Technique

General Information about the Two Piece-Two Person Casting Technique

- This casting technique provides Orthomerica with the best impression for fabricating Cranial Remolding Orthoses
- It is best done by two people who understand each step of the process:
 - ✓ The assistant stabilizes each splint on the baby's head as it is applied
 - ✓ The teamwork between the two people is a very active process, and involves more than just applying the plaster and waiting for it to set up
 - ✓ Both people actively work the plaster to obtain a well-molded and laminated impression

Organize supplies in advance

- Water
- 8" creamy fast set plaster
- Vaseline
- Two sets of gloves
- Stockinet for the baby's poncho to protect the skin
- 4" BK sock
- Bandage scissors
- Caliper
- Measuring tape



Position the baby & apply the stockinet

- Ask the caregiver to undress the baby down to the diaper. *Bumbo seats are available at Babies R Us & Target stores. This seat provides great stability & access around all sides of the baby.*
- Cut open a 10" piece of stockinet and cut a small hole in the middle. Pull the stockinet over the baby's head like a poncho to provide protection. Position the parent nearby for support and reassurance.
- Apply Vaseline to the baby's eyebrows & ears to facilitate easier removal of the indelible pencil after the casting.
- Use one ply stockinet as an interface against the skin. A 4" BK sock works well.
- Cut a 1" horizontal slit in the BK sock 1/3 of the way down the crease. Cut the crease from the bottom up to the slit.
- Wrap the stockinet around the baby's head like a bonnet and tie below the chin.
- Check to ensure that the stockinet is smooth, especially in the sub-occipital area and behind the ears.



Apply the open face stockinet



- Make sure all the hair is covered.
- Ensure coverage over the eyebrows, occiput and sides of the face.
- Measure the head circumference over the stockinet above the eyebrows and record the measurement.
- With calipers, measure the greatest width of the head and record the measurement. (Eu-Eu or eurion to eurion measurement)
- Measure the length of the head by placing one arm of the caliper between the baby's eyebrows and the other at the back of the head in midline and perpendicular to the floor. Record the measurement. (G-Op or glabella to opisthocranium measurement).

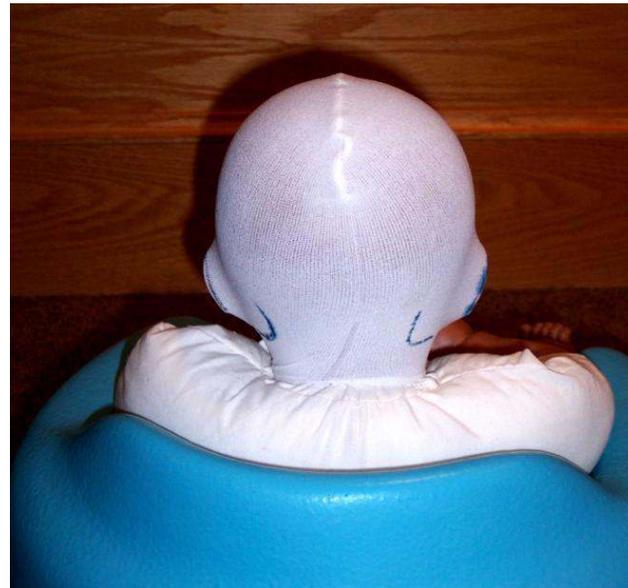
Landmarks

- Mark the eyebrow height and the lateral corner of each eye with an indelible pencil
- Mark the midline of the nose
- Outline both ears



Mark Mastoid Processes

- The mastoid process is the bony prominence behind the ear
- Mark the inferior and medial aspect of each mastoid process
- Precise identification of this landmark will enable the technicians to correctly determine the height of the sub-occipital modification



Measure the Plaster

- Measure the 8" plaster from the lateral corner of one eye, around the back, and forward to the lateral corner of the other eye
- Make a stack of seven plaster splints to the measured length, plus 2 centimeters



Prepare the Plaster for *Stack Two*

- With 8" plaster, measure from the inferior aspect of the eyebrows to the crown of the infant's head
- Make a stack of 7 splints to this length plus 2 cm for *Stack Two*. This stack is usually about half the length of the *Stack One*



Prepare the Plaster



- Wet the plaster and lay it on a towel
- Work the plaster so it is well laminated and smooth
- Do not allow the plaster to get too dry or it will be difficult to mold against the baby's head
- You will lay the smoothest side against the baby's head

Apply *Stack One*

- Starting at the back crown of the head, “hang” *Stack One* on the top of the baby’s head and pull the bottom forward to the lateral corner of each eye
- The assistant should hold the splint in place at the top of the child’s head until *Stack One* is positioned, laminated, and set up
- The stack is pulled smoothly forward to ensure good total contact in the sub-occipital area
- This splint defines the face box and needs to be positioned symmetrically on each side of the face
- The assistant laminates the plaster along the top and back of the head while the lead practitioner actively works the sub-occipital area, sides of face and ears



Smooth *Stack One*

- Smooth the plaster and all wrinkles to ensure total contact against the head in all areas
- Apply Vaseline or other parting agent liberally along the top edge of *Stack One* where *Stack Two* will overlap



Prepare *Stack Two*

- Moisten *Stack Two* and lay it on a towel
- Smooth the plaster



Apply *Stack Two*

- Fold the plaster up at the eyebrows and lay the second stack on the head from the eyebrows to the crown of the head
- *Stack Two* should overlap the entire top edge of *Stack One*



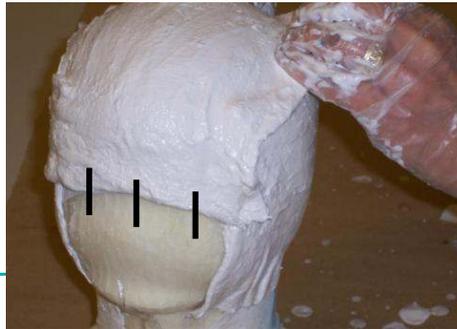
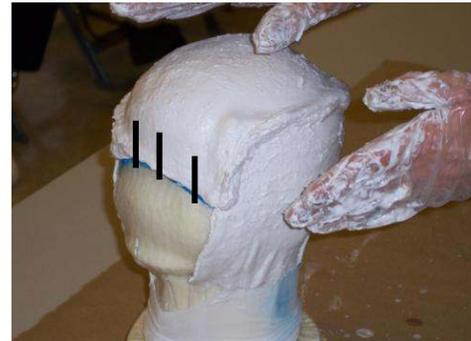
Position *Stack Two*

- Slide your fingers up to the edge of *Stack One* to ensure that you have good contact against the skull



Crimp the top edge of *Stack Two*

- Crimp (pinch) the top edge of *Stack Two* like the edge of a pie crust to strengthen the edge where it meets *Stack One* .
- Draw the midline of the nose and the corner of each eye on the outside of the cast



Alignment Marks

- Draw hash marks between *Stack One* and *Stack Two* to provide a guide for aligning the two halves



Cure the Plaster

- Allow the plaster to cure on the child's head before removing the cast



Pictures

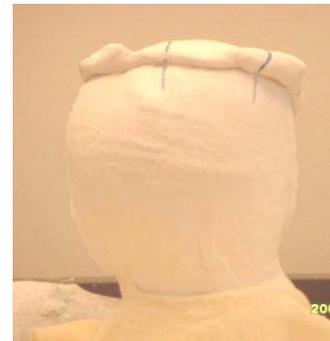
Anterior view:

- ✓ Photograph the baby in the cast from the front



Posterior view:

- ✓ Photograph the baby in the cast from the back



Remove the Cast

- Pull the stockinet over the eyebrows down to release the seal between stacks
- Remove *Stack Two* after it cures and carefully set it to the side
- Unfasten the tie under the baby's chin
- Carefully open the sides of the impression & remove it



Close *Stack One* and *Stack Two*

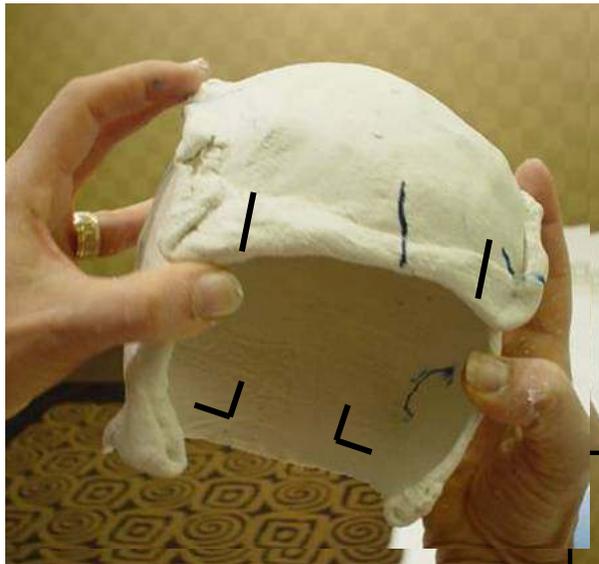
- Remove all stockinet
- Key in the two sections by aligning the hash marks
- Carefully staple the cast shut to retain the shape
- The stapled alignment will be the alignment of the cast when it is poured



Evaluate your impression

- All outside landmarks are present
- All inside landmarks are present
- The impression is well laminated and has good structural stability. It is not flimsy.
- The two parts of the impression are seamless inside and there are no gaps between *Stack One* and *Stack Two*
- The impression covers the sides of the face from the corner of the eyes, the bottom of the ears, the top and back of the head and extends 3 cm inferior to the mastoid processes

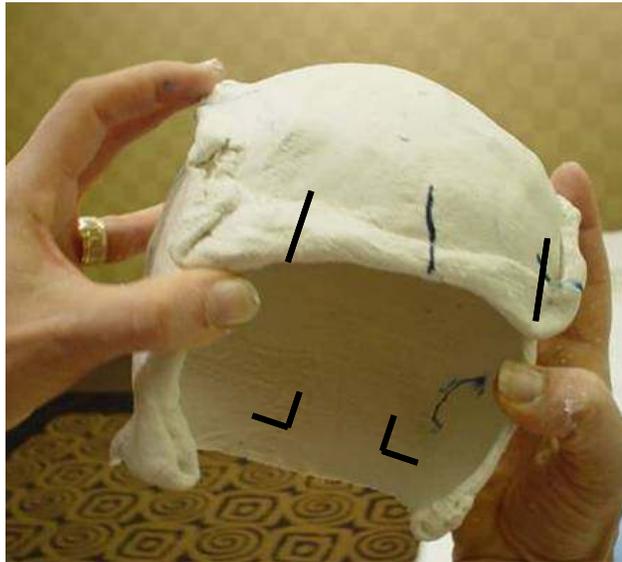
Check inside the impression



- Check the inside of the cast to ensure that the midline of the nose, both eyebrows, lateral corner of each eye, mastoid processes and both ears are visible
- Reinforce any landmarks that are not obvious



Landmarks



- Eyebrows, midline of the nose and lateral corner of each eye should be marked clearly on the outside of the impression

Send the impression

- Allow the cast to cure before shipping
- Pack it in a strong box with ample packing material inside to protect the impression
- Use a shipping method that will arrive at Orthomerica within two days and allow you to fit the band *within two weeks of the casting date*
- Include completed paperwork and clinical photos

Cast Grading System



- Acceptable:
 - ✓ Good coverage over sides of face, across forehead to eyebrows, and posterior to sub-mastoid area with definition
 - ✓ Landmarks clearly indicated
 - ✓ Ears and mastoid processes delineated
 - ✓ Anterior midline on stockinet and outside of cast
 - ✓ Width, length and circumference measurements of head
 - ✓ Width, Length, and circumference measurements are within 5 mm
- ✓ Each cast & scan is quality checked prior to fabrication

Quality Cast = Quality Orthosis



- Original negative impression should be plaster
- Cast should cover:
 - ✓ Eyebrows
 - ✓ Sides of face to bottom of ear lobe
 - ✓ Entire forehead and skull
 - ✓ End just superior to C7

Most Frequent Problems

- Inadequate coverage at the occiput
- Inadequate coverage at the sides of the face
- Cast does not extend past eyebrows
- No reference marks on the cast
- Poor ear definition
- “Beanie” trimlines
- Facial extensions are too short
- Mid-forehead trimlines
- Face box too large
- Too damp and flimsy

Hierarchy of Impressions



Acceptable

NOT Acceptable

Inferior Cast Impressions

- Result in...
 - ✓ Cast Rejection
 - ✓ Poor fitting STARband
 - ✓ Repeat casting procedures
 - ✓ Loss of clinical control (technician attempts to make decisions with little information and no patient exposure)
 - ✓ Poor clinical outcomes
 - ✓ Unhappy physicians and parents
 - ✓ Repeat visits for modifications

Using a flexible ruler to document the head shape

- 24" flexible ruler available at art supply shops
- Wrap the flexible ruler around the head at the equator (right above the eyebrows)
- Criss-cross the ends at the nose
- Mark the midline of each ear with a grease pencil
- Trace around the inside of the shape
- Date it
- Repeat in one month
- Compare
- This tracing can be used to calculate the cephalic index/ratio (CI or CR) and the cranial vault asymmetry index (CVAI)

