

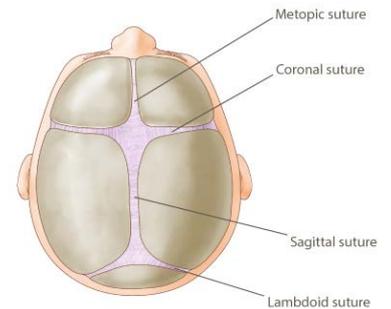
Craniosynostosis Surgery

Cranial Vault Remodelling & Frontal Orbital Advancement

What is Craniosynostosis?

The skull is made up of a number of bones. Cranial sutures are loose connections that hold all of the bones of the skull together. In some children one or more sutures fuse too early, which limits skull growth. This is called craniosynostosis.

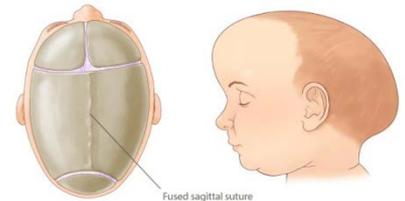
As the skull is limited in its growth it can cause unusual head shapes, sometimes unusual facial features and in rare cases increased pressure in the brain. There are a number of different types of craniosynostosis and each has a different name depending on which cranial suture is affected.



View from the top of an infants' skull showing the different skull sutures

Sagittal Craniosynostosis (Scaphocephaly)

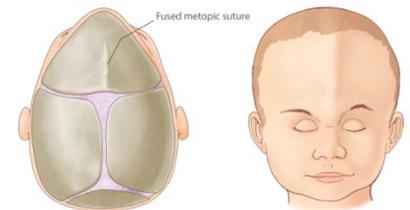
The most common suture to fuse early is the sagittal suture. This suture runs from the front to the back along the middle of the skull. This results in a head shape that is long from front to back, narrow from side to side. The forehead often becomes tall and pushes forward (referred to as frontal bossing) and the back of the skull may become pointed or narrowed.



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Metopic Craniosynostosis (Trigonocephaly)

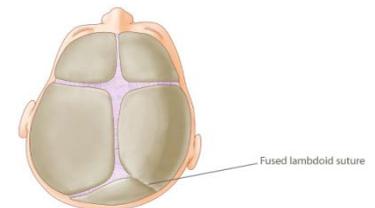
The second most common fusion occurs in the metopic suture. This runs up the middle of the forehead and when fused. This may cause an angled forehead with a ridge (pointed area) in the middle of the forehead, a swept back appearance to the eyebrow and temple bones and the eyes appear close together.



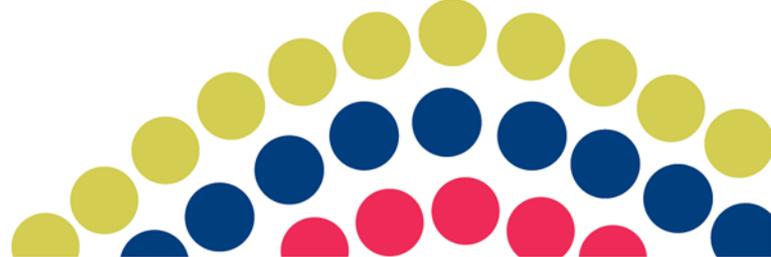
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Unicoronal or Bicoronal Craniosynostosis (Anterior Plagiocephaly)

The lambdoid suture is at the back of the skull. This fusion is rare and requires surgical correction. If the lambdoid suture fuses, it causes flattening to the back part of the skull.



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For more information

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Women's and Children's
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Transcranial Surgery

Surgery for craniosynostosis is done for 3 main reasons:

1. To correct the deformity that is present
2. To prevent progression or worsening of the deformity
3. To reduce the risk of raised intracranial pressure

The two most commonly performed transcranial procedures at WCH are Fronto Orbital Advancement (FOA) and Cranial Vault Remodelling (CVR).

- > **Fronto Orbital Advancement (FOA):** involves removing the **front** part of your child's skull, reshaping it and then repositioning it. This allows for normal brain and skull growth.
- > **Cranial Vault Remodelling (CVR):** involves reshaping the entire skull to allow more room for the brain and also to give a more normal head shape. This allows for normal brain and skull growth.

These surgeries are usually performed when your child is between 6 and 9 months of age. This is done to allow the rapid growth of the brain that is occurring at this time. In both FOA and CVR a wavy or zig zag cut is made across your child's head from ear to ear. Doing the cut this way will allow for normal hair growth later on and your child's hair will hide the scar.

Preparation for Surgery

Preparation for surgery is a lengthy process and begins months before your child's surgery occurs. The following appointments with different team members will be booked leading up to your child's surgery

- > Craniofacial Surgeon
- > Neurosurgeon
- > Craniofacial Clinic (multidisciplinary)
- > Craniofacial & Plastics Nurse Consultant
- > Paediatrician (if required)
- > Ophthalmology (if required)
- > Photography

> The week before surgery

An appointment will be booked a week before the surgery where you will meet the Craniofacial & Plastics Nurse Consultant and Elective Pre-Admission Coordinator. Information and instructions will be provided about your child's surgery and hospital stay. On the same day your child will have some blood tests in SA Pathology and you will have an appointment with the Anaesthetist. You will also visit the Paediatric Intensive Care Unit (PICU) and Kate Hill Surgical Ward.

The final appointment will be at the Multidisciplinary Clinic where you can ask further questions about the surgery and sign the procedural consent forms.

> Blood transfusion

Your child will most likely need a blood transfusion during the surgery and maybe after the surgery. The blood tests before surgery check your child's own blood stores, identify their blood group and test for any antibodies, so the most compatible for your child can be given. You will be given more information about the blood transfusion and asked to give consent. For more information refer to [Blood Transfusion - Information about having a Blood Transfusion](#)



Care after Surgery

When the surgery is finished, your child will be admitted to the Paediatric Intensive Care Unit (PICU). Your child will stay in PICU on their first night. Usually the day after surgery, your child is moved to the surgical ward. Most children will go home 4 to 5 days after surgery.

> Monitoring

Your child will be monitored very closely and will be connected to a number of machines which measure their heart rate, blood pressure, and their breathing rate. They will also be connected to a drip through a central line in their groin. The nurses will regularly do a neurological assessment to ensure that your child's brain is still functioning normally. For more information, please refer to [Neurological Observations](#) Information Sheet

> Wound and Eye Care

There will be a large bandage on your child's head, covering the surgical wound. The head dressing will stay on for between 3 to 5 days after surgery. Once it is removed the wound is left open and cleansed during your infant's daily bath. Your nurse will show you how to do this. Not long after the surgery your child's eyes may become swollen shut. The nurses will perform eye care to look after their eyes while they are swollen. After a few days the swelling will go down and your child will be able to open their eyes.

> Eating and Drinking

Your child can eat and drink when they are awake, breastfeeding is encouraged. The nurses will monitor how wet your child's nappies are to make sure they are getting enough fluids.

> Staying Comfortable

Keeping your child comfortable after surgery will help with healing. For approximately 2 days, strong pain relief is given via a pump connected to your child's drip. Paracetamol will also be given to your child for several days. The nurses will work with you to watch for signs of discomfort to help us give the right amount of pain relief to keep them comfortable. As your child gets better, they will become more comfortable and use less medicine.

Sometimes, because your child is in hospital and their eyes are swollen, they can be frustrated and may be more 'clingy' and need extra attention and comfort from you such as cuddles. You can also help your child be more settled by using distraction (storybooks etc.), feeding plus soothing and comforting signs and sounds such as your face, voice and music.

For more information, please refer to [Analgesic infusion](#) Information Sheet

> Positioning and Cuddles

To minimise swelling of the face, head and eyes your child's cot will be tilted so that their head is higher than the rest of their body. When your child's eyes are swollen shut they may be scared, so cuddles out of the cot are encouraged. Hearing your voice may help settle or reassure your child too. You may need a nurse to help you as their head can be quite heavy and they may be connected to drips or other machines.

To maintain safety when your child is in the cot the cot sides must be up whenever you are not directly next to it. The nurses will show you how to lift the cot sides up and down.



You may leave hospital when your child...

- ✓ Is eating and drinking
- ✓ Is comfortable with paracetamol (i.e. Panadol as required)
- ✓ Has a healthy temperature
- ✓ Has usual wet nappies and bowel movements
- ✓ Your child's wound has no signs of infection
- ✓ Swelling has reduced and your child's eyes are open
- ✓ Your nurse has shown you how to bath your child and look after the wound

At home

If you are concerned about any of the following please contact the Craniofacial Fellow on-call on (08) 8161 7000 or bring your child in to WCH Paediatric Emergency Department

- > You notice changes in your child's behaviour including:
 - being difficult to settle
 - more sleepy than usual
 - high pitched cry
 - poor feeding
 - seizures
 - vomiting
 - pain not controlled with usual pain relief
- > There are signs of infection including redness, fever and/or discharge coming out of the suture line
- > Any other concerns

Follow-up Appointments

After your child's surgery you will have an appointment with:

- > Craniofacial doctor 1 – 2 weeks
- > Neurosurgery doctor 6 – 8 weeks

More Information

For more information on your hospital stay: [Surgical Wards - Welcome to the...](#) Consumer Information Sheet

For information regarding accommodation near the hospital: [Accommodation for patients and families staying at the WCH](#) Consumer Information Sheet

We understand that coming to hospital can be stressful and your child may be anxious. Follow this QR code or link below to videos that will help you and your child to know what to expect in preparation for surgery
<http://www.wch.sa.gov.au/patients/children/having/index.html>

