

Elective Orthopaedic surgery- Pre-surgery planning and information

This information booklet is aimed to provide you with a brief understanding of the types of surgeries performed at the WCH, their care and after surgery and possible mobility restrictions.

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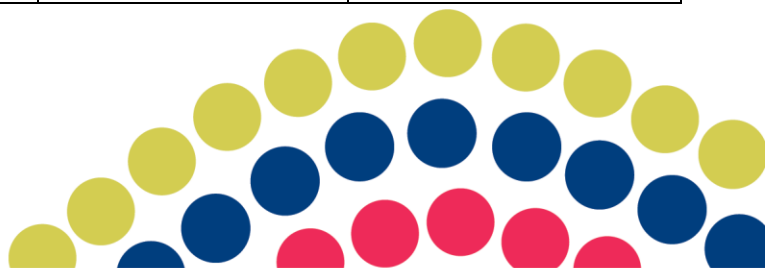
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Your child is planning to have the surgeries ticked

Type of operation	Both sides	Left side only	Right side only
Hip reconstruction VDRO Dega osteotomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adductor lengthening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Psoas lengthening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hamstring transfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Growth plate surgery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Extension osteotomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Femoral de-rotation osteotomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tibial de-rotation osteotomy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calf lengthening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Achilles tendon lengthening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tibialis posterior lengthening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tendon transfer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bony surgery for flat foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bony surgery for high arch foot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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What is a SEMLS procedure?

SEMLS stands for single event multi-level surgery. In the past, children with cerebral palsy had 'birthday surgery'; every year an operation was done to correct a problem. It is now more common for surgery to be performed in one main operation when your child is close to stopping growth (ie aged 10-14 years old). This allows for one rehabilitation and recovery period.

A SEMLS is an individually tailored plan, specific for your child. It could include some or all of the procedures listed below, depending on your child's function, clinical examination, gait lab results and imaging. Your child's 'surgical prescription' will be specific for your child, to ensure your child will enter adulthood standing and/or walking as well as possible.

Does my child need a SEMLS procedure?

Not necessarily. Most children with cerebral palsy or other neuromuscular disorders do not need a SEMLS procedure. Children who are mainly in wheelchairs may need some of the surgery listed below, but may need this surgery earlier or may only need one or two of the operations. SEMLS is designed for children who may be functioning at the present, but have contractures that are developing or who have stopped responding to botox and/or serial casting. If your child's condition is severe, contractures will develop earlier, and may need treatment earlier.

Why does my child need one?

Cerebral palsy, and other neuromuscular disorders, is sometimes called 'short muscle disease'. As the bone grows, the muscle is affected by spasticity (the muscle does not relax normally during activity). This causes reduced levels of activity due to stiff joints, weakness and poor balance. Spasticity can often respond to botox when your child is younger, or a spinal procedure called selective dorsal rhizotomy, but as your child gets older, these treatment methods become less effective. To treat joint deformities which are no longer responding to treatment or are not flexible, surgery is then needed. At first, this makes the weakness worse. This is why post-operative therapy, and community therapy, is imperative for your child, if we embark on this journey.

Are there any other options?

Throughout your child's journey, your child will have most likely had some treatment, either operative or non-operative. Most children with neuromuscular disorders have botox injections, orthotics, physiotherapy, and/or serial casting throughout their life. They may have outgrown surgery they had when they were younger. Children often outgrow or overpower these treatments as they get bigger, and botox may no longer be effective. If these non-operative measures are no longer working, and your child is developing fixed contractures, pain, and/or difficulty with function, surgery can be the best option to help them.

If your child does not have the surgery, it will be difficult for their function to improve with time, and it will most likely deteriorate as they get older and heavier, and they continue to have joint problems and/or pain.



What are the benefits of a SEMLS?

SEMLS allows one lot of major surgery and one rehabilitation period post operatively. Each child will have goals that are unique to them. Common goals for a SEMLS operation include for a child to walk straighter, have improved function, have improved sitting posture and symmetry, have improved joint position for weight bearing/transfers/standing/walking, and/or prevent future pain and difficulty, .

If a child is confined to a wheelchair, muscles become weaker, and bones get thinner from not using them. A SEMLS procedure can help your child stand with improved posture, and therefore keep them standing and/or walking into adulthood, reducing their risk of pressure injuries, muscle deterioration and osteoporosis.

Children who are unable to stand can require surgery for sitting balance and symmetry in a wheelchair and/or bed. This can help to prevent severe joint contractures that make dressing, hygiene, and day to day living difficult Improved sitting can mean that children have better use of their hands (for self-propelling, drawing/writing or communication).

A SEMLS operation can be life-changing for your child. Many children have had amazing results from this surgery, but only those who have been motivated for the hard work of therapy afterwards. The aim is to have children standing and/or walking as well as possible as adults.

What are the downsides of a SEMLS?

A SEMLS is major surgery. It can be uncomfortable and can have complications. The early post-operative days can be difficult, especially for children who have no verbal communication. The Comfy Kids Team may see your child, depending on the surgery, when in hospital to keep them comfortable with pain relief medicine and check for and treat any side effects.

Psychological

All children react differently to the thought of surgery. Please voice any concerns you may have regarding your child's personality or ability to deal with surgery It may be helpful to write these down, and also to get your child to write down their concerns and/or anxieties before surgery and discuss them with your surgeon and/or rehabilitation physician at the next appointment.

It can be necessary for your child and your family to discuss concerns or problems with a psychologist, either before, during or after the surgery. This is not unusual; the process can be long and distressing at times, and support during this time is crucial.

Infection

Deep infection is unusual after a SEMLS, but can occur, especially if there is metalwork at the operation site. The dressings are usually left intact for at least 2 weeks after the surgery – if you have any concerns regarding ooze, redness or increased pain during this time, please attend the emergency department at WCH. During hours, you can contact the orthopaedic nurse consultant (see page 1).



Family impact

Having SEMLS surgery can affect your child and family greatly. A major surgery in the family can be extremely disruptive to the family's usual routines. Siblings and parents often find this a difficult time. It is very important to have a good support network set-up so that you can manage your child's needs once they are home after surgery. You may need to have your child at home for the first few weeks while they are recovering and their care needs may increase during this time. Please consider that you may require additional help at home and time off work to manage the extra demands and challenges. Please contact your school to see what options they can support you with while your child is at home and when returning to school as their care needs may have changed after surgery.

Depending on what type of surgery is done, we may restrict your child from walking and the amount of time they can sit out in a wheelchair. This will affect their independence and increase their care needs. For some families, when returning home from the operation, it might be necessary to move your child into a larger room with space to manage transfers with equipment they have not routinely had to use before (ie wheelchairs, commodes, lifters)

Recurrence of joint contractures/dislocations

If SEMLS is performed when a child is very young, it is common for contractures to recur. Sometimes it is necessary to perform surgery earlier, but it may be that your child 'outgrows' this operation and will require surgery again.

If orthotics/splints are not working after the surgery, joint contractures tend to recur. It is important for your child to work with the team if possible to try and prevent contractures from recurring.

It is not always possible to improve all contractures. The aim of surgery is not to get your child's joints straight, but to improve function wherever possible.

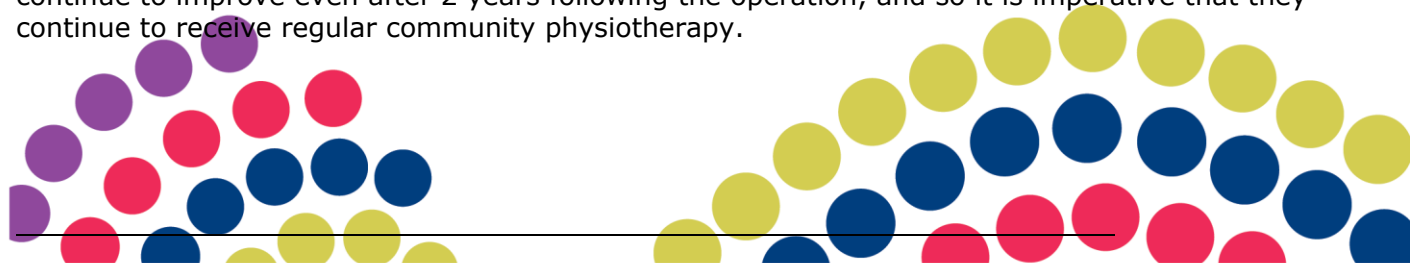
It is important for your child to engage in physiotherapy both at home and at appointments. Your child may be a candidate for the intensive rehab service post operatively; your surgeon and the rehabilitation physician will discuss this with you and your child at the appointment.

Nerve problems

Because some children have severe contractures of their joints for a long time, when the joints are straightened through soft tissue or bony surgery, the nerves near the joints get stretched, and this can cause uncomfortable sensations, tingling, and loss of function in the foot. If this occurs, your child may need different pain relief medicine or less time in their splints.

Muscle weakness

Surgery makes muscle weakness worse in the short term. It is important that your child has community physiotherapy through their NDIS plan to strengthen their muscles before and after surgery. Before surgery, it is important that your child's muscles are as strong as possible, so that rehabilitation will be easier after surgery. After surgery, there will be physiotherapy available in hospital on the ward. The exercises and mobility that are taught will be the first steps to regain strength. Continuing physiotherapy after surgery is very important. Your child will continue to improve even after 2 years following the operation, and so it is imperative that they continue to receive regular community physiotherapy.



Re-operation

Some children who have SEMLS may need further surgery in the future. This can include removal of plates and screws once the bones have healed, growth plate surgery to correct a difference in leg length, and foot and ankle surgery. Some deformities are 'unmasked' by a SEMLS surgery; for example, if your child is walking on their toes, and the surgery helps them to walk flat footed, it may be that this 'unmasks' the foot turning in or out. Further surgery may be required to correct this, or this could be managed non operatively.

Will my child need a new NDIS plan for the surgery?

It is important that all community therapies and equipment through NDIS are established PRIOR to surgery. NDIS plan reviews usually will decline increased funding related to surgery, so it is best to have equipment available and community therapy maximised before pursuing the operation. Orthoses, equipment and some physiotherapy related to the surgery will be organised prior to the surgery with the hospital.

The Journey

Living with a child following SEMLS surgery may seem like a huge task. Please share this information with grandparents, babysitters, schools or anyone else who assists in caring for your child.

1. Preparation for surgery

There are a number of ways that your family and child can prepare for treatment.

Physical

The stronger your child is before surgery, the easier the after surgery therapy will be. Work with your child's community physiotherapist to help your child to strengthen as much as possible pre-operatively. This is sometimes referred to as 'prehab'.

General health

It is important that general health is optimised before surgery to reduce risk of complication and maximise recovery. A visit to your GP or Paediatrician for a pre-operative review is advised. Optimising respiratory function, nutrition and weight, digestion/constipation, anxiety/mood and sleep routines before the operation will help with recovery and healing.

Psychological

Open discussion about the treatment amongst family is encouraged, as it helps the child come to terms with the treatment plan. Your rehabilitation physician and/or GP can help you with counselling and/or medications to help your child to get through the peri-operative period.

Home environment

A staff member of our team may contact you before the surgery date to discuss ways in which your home can be organised to manage the stairs, toilet and bathroom, and bedroom. There may be a cost associated with equipment required that is not covered in your child's NDIS plan. Crutches can be hired or purchased from the hospital but all other equipment may need to be hired by an external company by yourselves.



School

Let your child's school know of the planned surgery. The time your child needs off school can vary, which will be discussed with you before surgery. If your child requires intensive rehabilitation at WCH, the rehabilitation team will develop a timetable with you that will support a gradual return to school– please discuss this with the rehabilitation team.

2. The hospital stay

Admission to hospital is the day of surgery. The length of stay is usually 5-7 days, for rest, pain relief, early physiotherapy and education.

The time spent in the operating suite is generally between 2-6 hrs. One parent is allowed to accompany the child to theatre. Your child will often return straight to the ward after recovering from the anaesthetic. Once the operation has finished, a member of the surgical team will call one of the family members.

Return to the ward

Nurses will monitor your child throughout the hospital stay to make sure they are safe and comfortable. Your child may require specific positioning after surgery. This may include a hip brace, knee splints, a pillow between the legs and/or plasters (casts).

Your child may need a catheter in the bladder, particularly if they have an epidural infusion. It is also common for your child to have regular laxatives to prevent constipation while they are less mobile and using strong pain relief medicine.

Staying comfortable and pain relief medicines:

While in hospital, your child may be seen by the Comfy Kids Team who will make sure your child's pain relief is keeping them as comfortable as possible and check for and treat any side effects.

On the day of surgery, you will meet the anaesthetist who will discuss pain relief options with you.

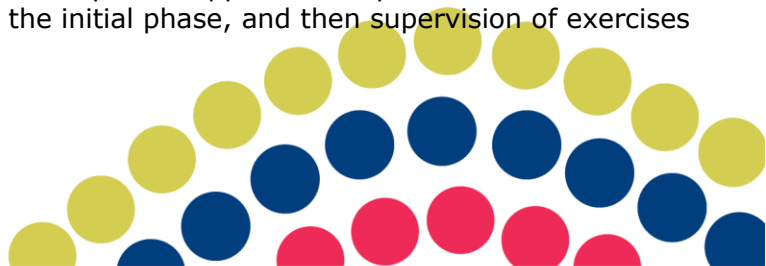
Sometimes, depending on the surgery, pain relief may be given through an epidural catheter which is a small plastic tube between the bones of the back and left in the epidural space. Local anaesthetic is then trickled through the catheter to reduce the feeling of discomfort where the surgery was. This catheter can stay in for up to 3 days.

Other options include strong pain relief medicine through your child's drip in a vein as an infusion or a patient controlled analgesia.

Once your child is able to eat and drink, the doctors will change to another medicine that lasts for longer and they can take by mouth as a liquid or tablets. This also helps your child move out of bed easier with physio and also work out what pain relief medicine works best for your child to go home with.

Physiotherapy

This is a vital part of success of the surgery. Movement is an excellent way to keep comfortable and to help the body to get strong. Your child will be seen on the ward the day after surgery, and given gentle movement exercises. In the first few days, the main aim will be to mobilise your child out of bed. The Physiotherapist will need the help and support of the parents from the beginning. This may involve encouragement in the initial phase, and then supervision of exercises as they are carried out at home.



After this, physiotherapy appointments will be scheduled as necessary. Daily exercises at home are imperative, as well as positioning and assessing for pressure areas.

For the first few days, your child will need extra pain relief medicine 30 minutes before activities such as physiotherapy to make the exercises easier and more comfortable.

3. After you are home

Follow up appointments

After surgery outpatient appointments at the WCH will need to be attended for wound, mobility and positioning checks. If there are casts put on during surgery, the casts will also be removed, AFOs fitted, and x-rays may also be completed at these appointments. For children accessing the intensive rehabilitation program at WCH, this will generally start after these initial follow up appointments.

Staying comfortable and pain relief medicine

Your child will need pain relief medicine when they go home for a short period of time. Your Orthopaedic doctor will order them and the hospital pharmacist will provide you with information on these.

With time, as your child recovers, they will need less pain relief medicine to be comfortable and complete their activities. Eventually, your child will need very little, simple pain relief medicine.

If your child complains of new pain, numbness or tingling in their limb, contact the Orthopaedic Doctor via the hospital switchboard or present to the Emergency Department for a review.

Potential surgeries

Hip surgery

Hip Reconstruction (varus derotation osteotomy +/- dega osteotomy)

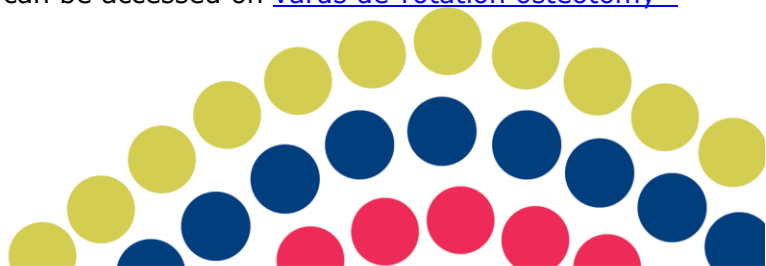
Sometimes during development, the 'ball' in the hip joint (head of femur) grows so it is not facing directly into the 'socket' (acetabulum). A surgery called varus de-rotation osteotomy (VDRO) is what the surgeons can do to put the ball back into the socket.

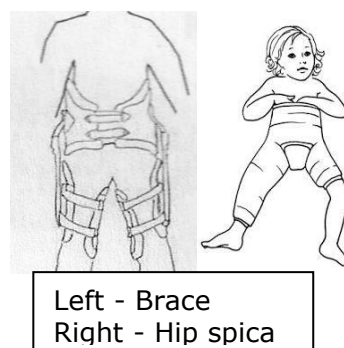
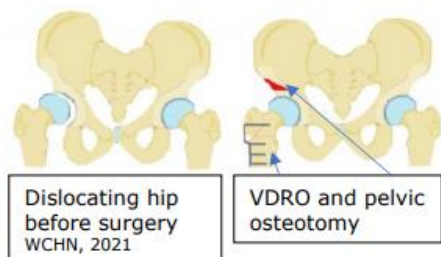
This is done by making a cut on the side of the hip and removing a small piece of bone from the thigh bone (femur). This cut allows careful movement of the now two pieces of femur to be moved separately which allows the surgeon to move the ball back into the socket of the hip while keeping the bottom of your leg straight.

If the 'ball' will not go back into the 'socket' during the operation, there may be soft tissue blocking this area, and another incision in the groin needs to be made to open the hip joint to put the 'ball' back into joint.

Sometimes this will be combined with a procedure called dega osteotomy. This operation involves cutting the pelvic bone just above the hip and turning it down to face the ball of the hip. This also changes the shape of the hip joint which can help to stop the hip dislocating in the future.

A separate consumer health information sheet can be accessed on [varus de-rotation osteotomy - fact sheet \(wchm.sa.gov.au\)](http://varus.de-rotation.osteotomy-fact.sheet.wchm.sa.gov.au)



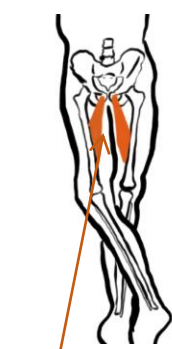


After care restrictions

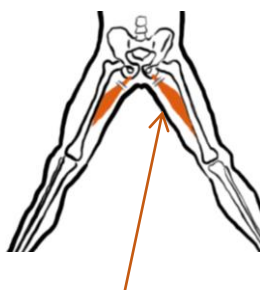
Depending on the surgeon and stability of the hip, your child may be able to bear weight as tolerated straight after surgery. However, some children will need to wear a hip spica cast or brace; this will be discussed with you during your appointment. You will need to consider how you will look after your child at home after the surgery. Some of these include how you are going to manage bed baths or showering them, getting your child in and out of a chair, positioning, toileting, transport in the brace or cast and continuing on with exercises and how this may impact time off work and the additional help and equipment you may need to do this.

Adductor lengthening

The hip adductors are a group of muscles on the inside of the thigh that help us bring our legs together and cross them over each other. When this group of muscles are tight, they pull on the thigh bone (femur) and make it difficult to move the legs apart, and change the way children walk. It can also affect the stability of the hip joint. Adductor lengthening involves a small 3-4cm cut made at the top of the thigh or groin, from there the surgeon will identify the tendons and make small cuts to lengthen the adductor tendons.



Tight adductor muscles pulling legs together



Surgical cuts to groin tendons to enable the legs to lengthen and open



Abduction pillow in-between legs and knee extension splints



After care restrictions

After surgery, your child may have an abduction pillow placed in-between their legs wrapped in straight leg splints. This pillow is to stay in place at all times when in bed to help keep the legs apart and helps to maintain the length gained from the adductor muscle. This pillow is to stay in place at all times when in bed to keep the length gained during surgery. The physiotherapist at the hospital will show you how to position your child in their wheelchair using a rolled up towel or pommel to keep the legs apart. Your child would usually be allowed to walk or stand as tolerated after the surgery; however, it can be combined with other surgeries that may restrict their mobility. This will be discussed with you by your surgeon. Occasionally a brace may be used instead of the splint and abduction pillow but this will be determined by your Orthopaedic Surgeon and can be discussed with you.

Psoas lengthening

The psoas muscle is another muscle like the adductor group above; it allows us to flex our hip. If the psoas muscle is tight, it may cause your child to lean forward while they walk, sit or stand, and may contribute to back pain. During the operation, the surgeons will make a cut on the front of your hip, then after carefully identifying the muscle, several small incisions are used to release and lengthen the psoas muscle. This results in a release of the muscle contractures for improved posture and function.

After care restrictions

Your child will need to rest on their back or tummy in bed, or in standing for the majority of the time. The amount of sitting time will need to be limited initially to keep the muscle length gained during surgery. The physiotherapist will provide you with some positioning ideas and exercises.



Tight PSOAS muscles pulling legs up (flexed hips)



Surgical cuts to PSOAS muscles to allow legs to come down (extend hips)

Knees and tibia

Hamstrings transfer

Sometimes children can develop a 'flexed knee gait', meaning your child cannot fully straighten their leg while walking. This usually results from the bones growing faster than the hamstrings tendons. It is the tendon being 'too short' that results in your child being unable to straighten their knee.

A hamstrings transfer involves the doctors cutting the tendon just above where it attaches to the bone and reattaching it above the knee. This means the hamstrings no longer act to bend the knee, but still act to stabilise the pelvis, allowing your child to extend the knee more and helps to improve walking, posture and pain.



After care restrictions

After surgery there are a number of mobility and positioning restrictions that you will need to consider. Correct positioning in bed and when in a wheelchair is vital to optimise the surgery. Your child will be placed into splints, brace or a plaster to keep the legs as straight as possible after surgery. It is very important to keep these splints on most of the day and night. Please see the guide for more details.



Tight hamstring muscles pulling knees bent



Cutting and reattaching the hamstring tendon to help straighten the knee



Straight knee splint to maintain the stretch after surgery

As a guide, for a child after hamstrings transfer, with post op splints
For the first two weeks

- Your child will not be allowed to walk on the operated side for the first two weeks. They will only be allowed to stand for transferring e.g. from the bed into a chair. When your child is in a chair the splints can be removed but for short periods only.
- Your child can sit in a chair for 1-2 hours per day without splints on, and should spend the rest of the day lying semi inclined with splints on. This is because it is better to keep the legs out straight, to prevent the knees from healing in a bent position. This means your child will be spending a lot of time lying down and will need extra help at home to do things. Your child would not be expected to be attending school during the first two weeks due to the positioning needed.
- Your child can go in transport with splints off
- Your child can come out of the splints/brace for gentle range of movement exercises. It is also important to remove them each day and check your child's skin and make sure nothing is rubbing against the skin, which may turn into a wound.

For weeks two to six

- Your child can weight bear as tolerated
- Your child can sit in a chair for 2-4 hours per day without splints on, and the rest of the time lying semi-reclined with splints on. Your child can go to school for short periods in chair.
- Your child can go in transport with splints off

After 6 weeks your child can increase the amount of time spent in the wheelchair but the more time the splints can be on when not in the chair the better.

Please consider these restrictions when considering this surgery and discuss any concerns with your doctor or Orthopaedic Nurse Consultants so that we can help you plan before the surgery.



You will need to consider how you will look after your child at home after the surgery. Some of these include how you are going to manage bed baths or showering them, getting your child in and out of a chair, positioning, toileting, transport in the brace or cast and continuing on with exercises and how this may impact time off work and the additional help and equipment you may need to do this.

Growth plate surgery

Around the knee joint, your child has growth plates in the femur and tibia. These growth plates allow your child to grow taller. In some children, these bones can grow in an abnormal way. This causes the knees to point inwards (knocked kneed) or outwards (bow legged); this can also mean one leg grows longer than the other.

The surgeon can do an operation where they make a small cut on the side of your child's knee to insert a small piece of metal with screws. If the surgery is because one leg is longer than the other, plates may be put on both sides of the knee, or the growth plate may be drilled to stop the growth plate in the longer leg, so the shorter leg can catch up. Once the deformities have been corrected, the plates may need to be removed. This is often done as a day surgery procedure.



Image - Guided growth using plates and screws on one side of the growth plate of the distal femur and proximal tibia. WCHN, 2021

Growth plate surgery can also be used to help straighten the knee joint when the knee has become too flexed (bent) during growth. The metal screws are inserted in the front part of the knee to allow the back of the knee grow more than the front. This surgery may be completed together with hamstring surgery to help straighten the knee. The plates and screws may need to be removed as with other growth plate surgery.

A separate consumer health information sheet can be accessed on [Epiphysiodesis and guided growth - Fact sheet \(wchn.sa.gov.au\)](https://wchn.sa.gov.au)

After care restrictions

Your child will be able to walk as tolerated after surgery.

Extension osteotomy

The muscles that help bend (flex) your knee can become too short when they don't keep lengthening at the same rate as the bones during growth and development; this may result in your child not being able to fully straighten their knee. An extension osteotomy operation involves a large cut across the front of your thigh to take out a wedge of bone. The leg is then straightened with a metal plate and screws to hold everything in place. This is often combined with a second procedure which shortens the tendon holding the kneecap in place. The operation aims to make it easier for your child to stand and walk.

After care restrictions

Your child will be allowed to walk as tolerated after surgery, but may struggle to do this for two to three weeks due to pain



Operations for de-twisting bone

Femoral de-rotation osteotomy

Sometimes during children's development, their bones will grow twisted, and this can result in problems walking, running or crouching. One of the operations the surgeons can do is known as a femoral de-rotation osteotomy. It can be done at the hip (as described under 'Hip surgery') or just above the knee. The procedure involves a large cut on the side of the leg followed by cutting through the femur bone, and rotating it so the knee cap is facing forwards. This is then held in place with a metal plate and screws, allowing the bone to settle and heal in the new location.

After care restrictions

Your child will be able to walk as tolerated after surgery, but may struggle to do this for two to three weeks due to discomfort.

Tibial de-rotation osteotomy

As described for the femoral derotation osteotomy, sometimes there is also too much twist in the shin bone (tibia). This operation is done to correct or untwist the shin bone. It involves the surgeon making a cut in the front of the lower leg and the tibia is then cut. The bone is rotated to the desired position and held in place using metal plates and screws allowing the bone to settle and heal in the new location.

After care restrictions

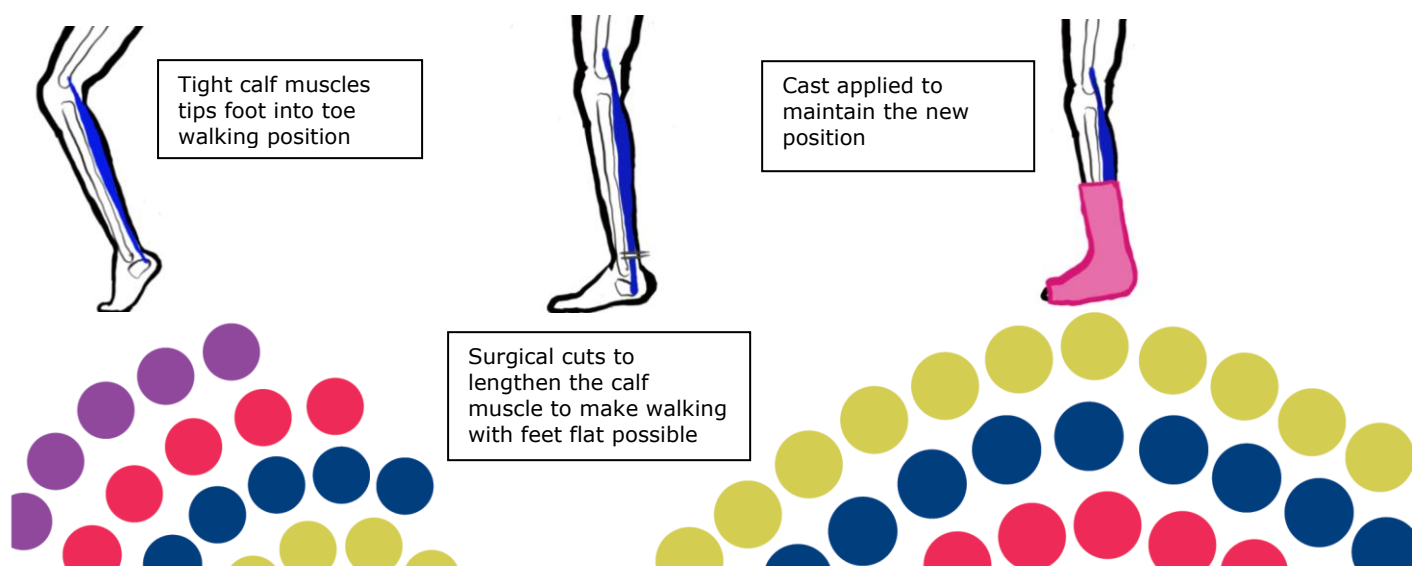
Your child will be allowed to walk as tolerated after surgery, but may struggle to do this for two to three weeks due to discomfort.

ANKLE

CALF LENGTHENING

The muscles in the calf (gastrocnemius and soleus) are important for walking. They also help to push our feet off the floor. For different reasons these muscles can become tight or shorter. This can result in children having walking difficulties, such as walking on their toes all the time, or difficulties keeping their feet in shoes, orthotics, or on footplates when sitting or standing. Calf lengthening refers to a group of procedures aimed at releasing the calf muscle tightness by lengthening it.

The surgeons will make a cut in your child's calf muscle then divide the fascia over the muscle, to let the muscle stretch to the right position. Having the right calf muscle length will allow your child to sit, stand, walk and/or run more easily and more comfortably. During surgery the orthotist will take a cast mould which will be used to make customised ankle-foot-orthoses (afo). After the mould has been taken, below knee casts will be applied.



Achilles tendon lengthening

The Achilles tendon is a cord that connects the muscles of the calf and the bottom of the foot, running down the back of your ankle to the heel. The tendon being too short or tight can result in difficulty while standing/walking/running. A procedure can be done to lengthen the tendon, this can help your child stand/walk more comfortably. During the procedure, the surgeon will make a small cuts at the back of your ankle and tendon to stretch the tendon. This results in your child's foot being able to be in a better position for standing/walking and/or running.

Tibialis posterior lengthening

Sometimes a specific muscle that runs along the back and inside of the ankle can also become tight or short, causing the foot to point downward and inward. Surgery is done to help improve the position of the foot. This is done by making a cut on the inside of your child's calf and making dividing the tissue over the tibialis posterior tendon, allowing the muscle to stretch. This can improve the position of the foot while walking, and allow it to fit more comfortably into a positioning splint such as an AFO.

After care restrictions for calf lengthening, Achilles tendon lengthening and Tibialis posterior lengthening

During surgery, the Orthotist will take a cast mould which will be used to make an Ankle-Foot-Orthoses (AFO). After the mould has been taken, below knee casts will be applied. Note, these will not be waterproof and cannot get wet. Your child will be allowed to stand or walk on these casts as tolerated. A cast shoe will be put on over the top of the cast to help with standing or walking. Usually at six weeks after surgery, the cast will be removed, and the ankle-foot-orthoses will be put on.

Tendon transfer

There are cords (tendons) that control foot movement, including one in the front (tibialis anterior tendon) which controls the ankle moving up and in, and one in the back (posterior tibialis tendon) which controls the ankle moving down and in. Sometimes the muscles attached to these cords can become short or overactive, which may cause your child's foot to become twisted and make walking harder.

The operation to fix this depends on which muscle is shorter or more overactive; if the front (anterior) muscle is the problem the procedure is called 'tibialis anterior tendon transfer'; if it is the back (posterior) muscle the procedure is called 'tibialis posterior tendon transfer'. Sometimes the tendon is split, so that part of the tendon can continue to do its original job. A cut is made either at the front or back of the ankle and the tendon is taken whole, or split in two, and moved from its original position to be secured in a more functional position. This results in the tendon pulling more evenly on the foot to help balance the foot.

A separate consumer health information sheet can be accessed on [TIBIALIS ANTERIOR TENDON TRANSFER - FACT SHEET \(WCHN.SA.GOV.AU\)](#)



After care restrictions

Your child will be placed into below knee casts that will not be waterproof and cannot get wet for six weeks.

As a guide:

First two weeks

- Your child will only be able to bear weight for transfers only (ie from bed to chair)

After two weeks

- Your child will be able to stand and walk as tolerated in plasters with overshoes
- Usually at six weeks after surgery, the cast will be removed and an ankle-foot-orthoses (AFO) will be fitted.



Tendon separated to either side of the foot,
WCHN 2021

Foot and ankle

Bony surgery for flat foot

During development, for a number of reasons, the arch of the foot may lower or disappear entirely. This is called flat foot. Flat foot may lead to pain later in life, with difficulty walking or standing and pain in your child's foot. Bone surgery for flat foot is a group of procedures that aim to reproduce the arch on your child's foot. The most common way surgeons will correct this is cutting bones in the foot, reshaping the foot, and holding them in the right position with plates and/or screws.

Bony surgery for high arched foot

Sometimes when the foot develops, the arch in the foot grows higher than it should, which can cause pain and difficulty while walking or standing. In the long-run this can also lead to more wear and tear on the bones and joints in your child's foot. An operation to change the shape of your child's foot can be done, which involves cutting the bone(s) in the foot, reshaping the foot and holding the bones in the correct position with plates and/or screws. The result of this surgery shape of your child's foot is better to improve distribution of weight more evenly while walking.

After care restrictions for bony surgery for flat foot and for high arched foot

Your child will be placed into below knee casts that will not be waterproof and cannot get wet for six weeks.

As a guide:

First two weeks

Your child will be able to walk as tolerated after surgery, but may struggle to do this for two to three weeks due to discomfort.

After two weeks

Your child will be able to walk as tolerated in plaster

Usually at six weeks after surgery, the cast will be removed and an ankle-foot-orthoses will be fitted if needed.



For more information

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This document has been reviewed
 and endorsed by WCHN consumers



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**Women's and Children's
 Health Network**