

Home Exercise Programme

for

Pre-Operative

Selective Dorsal Rhizotomy

Candidates

Pre-Operative Exercise Programme for Selective Dorsal Rhizotomy Candidates

It is very important that you discuss any plans to have this operation as early as possible with your local doctor and physiotherapist to ensure they will be able to support you and your child after the surgery. The team at the Leeds Teaching Hospitals NHS Trust will also contact your local team to discuss the plan for surgery and advise them on the post-operative recommendations for your child. There are no rules regarding the frequency a trained physiotherapist should see you and local teams may not have the capacity to increase the frequency that they see your child. However, intensive rehabilitation is essential both before and after the surgery to maximize your child's abilities. It is therefore expected that parents/carers carry out the exercise programme or appropriate activity on a daily basis.

Before your child attends the hospital for their surgery it is important to continue with their regular stretching programme and splint regime.

The surgery will reduce the spasticity (stiffness) in their legs but there will be some muscle weakness immediately following surgery. This exercise programme will help to strengthen the muscles that will be weak and familiarise your child with the post-operative programme.

The weakness post surgery will mean your child may not be able to perform some of the movement tasks that they could pre-operatively. Their walking may appear different or they may require some form of walking aid where they didn't previously. This is normal and will improve, as your child grows stronger. It is expected that your child will return to their pre-operative level of function within the first month however, this will vary from child to child and their endurance levels may take a lot longer to improve.

The more strengthening activities a child does, the quicker they will improve. The more a child walks the stronger they will get.

If your child is unable to perform any of the exercises as described do not worry. Attempt the exercises and encourage your child to maintain the positions and perform the movement to the best of their ability. This is important to familiarise your child with this type of exercise as many of the post-operative exercises will be similar or the same. It will also help to establish the exercises into a routine.

For further information please contact:

Kate McCune & Katie Davie – Specialist Children's Physiotherapists
Tel: 0113 392 6361 Email: k.mccune@nhs.net and katie.davis3@nhs.net

Andie Mulkeen and Sharron Peacock (Spasticity Clinical Nurse Specialists) Tel: 0113 392 6350
Email: andie.mulkeen@nhs.net or sharron.peacock@nhs.net

Mr John Goodden – Consultant Paediatric Neurosurgeon
Tel: 0113 392 8413 Email: valerie.allerton@nhs.net

Dr Raj Lodh - Consultant in Paediatric NeuroRehabilitation
Tel: 0113 392 6903 Email: lynsey.kite@nhs.net

Pre-Operative Home Exercise Programme for Selective Dorsal Rhizotomy Candidates

The following exercises should be carried out twice daily.

Bridging while rolling a ball under the body

Client's aim

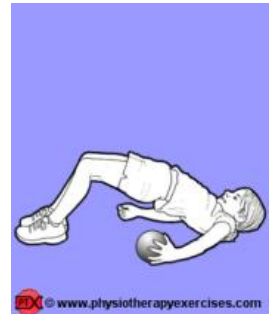
To strengthen the muscles at the back of your hip.

Client's instructions

Position your child lying on their back with their knees bent up and feet flat. Ask them to practice lifting their bottom up and roll a ball underneath them from one side to the other.

Progressions and variations

1. Perform bridging only. 2. Use a small ball. 3. Use a large ball. 4. Hold one leg in the air while maintaining the bridge position.



Repeat 10 times.

Knee extensor strengthening in supine without weights

Client's aim

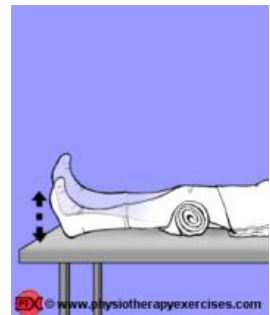
To strengthen the muscles at the front of your thigh.

Client's instructions

Position your child lying on their back with a rolled towel under their knee. Start with their knee bent. Finish with their knee straight. Ensure they pull their foot up towards their knee throughout the exercise ie, points to the ceiling.

Progressions and variations

More advanced: add ankle weights.



Repeat 10 times on each leg.

Hip abductor/adductor strengthening in supine without weights

Client's aim

To strengthen the muscles on the outside and the inside of your hip.

Client's instructions

Position your child lying on their back. Start with their legs together. Move one leg away from the other. Ensure that their foot points to the ceiling. Move the leg back towards the other.

Progressions and variations

Less advanced: Bend hip and knees up with feet flat on the bed. Move knees away from each other. Move knees back towards each other. More advanced: Use your hand to resist the movement (this can be done with legs straight or bent). Variation: get your child to squeeze a ball between their knees



Repeat 10 times on each leg

Knee flexor strengthening in prone without weights

Client's aim

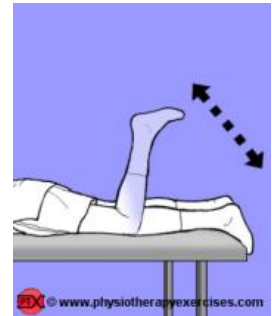
To strengthen the muscles at the back of your thigh.

Client's instructions

Position your child lying on their tummy. Start with their knee straight. Finish with their knee bent.

Progressions and variations

More advanced: Put a squeeze toy/ball on your child's bottom and encourage them to squeeze it with their heel.



Repeat 10 times on each leg.

Ankle dorsiflexor strengthening in sitting without weights

Client's aim

To strengthen the muscles at the front of your ankle.

Client's instructions

Position your child sitting with their feet together in front of them. Start with their feet flat on the floor. Ask them to lift their toes up. Ensure that they keep their heels on the ground.

Progressions and variations

Less advanced: 1. Position the feet further forwards. 2. Place a bandage around the knees to hold them together. More advanced: 1. Position the feet further back



Repeat 10 times on each foot.

Sitting on a moving lap

Client's aim

To strengthen the muscles in the trunk (body).

Client's instructions

Position the child sitting forward on your lap so they are not leaning against you. Support at your child's pelvis/hips. Instruct and encourage the child to sit upright while moving your knees up and down alternately.

Progressions and variations

Less advanced: 1. Decrease knee movement. 2. Change knee position slowly. 3. Provide more body support. More advanced: 1. Increase knee movement. 2. Change knee position more rapidly. 3. Provide less trunk support.



Perform exercise for 2 minutes.

Sit to stand with assistance from a carer's lap or bench

Client's aim

To strengthen the leg muscles.

Client's instructions

Position the child sitting on your lap or a bench while you kneel behind them. Instruct and encourage the child to stand up to and reach forward or place an object on the table. Provide assistance as required.

Progressions and variations

Less advanced: 1. Provide more assistance and a higher surface to sit on. More advanced: 1. Provide less assistance. 2. Position the child on a block or low bench.



Repeat 10 times.

4 Point kneeling with leg lift.

Client's aim

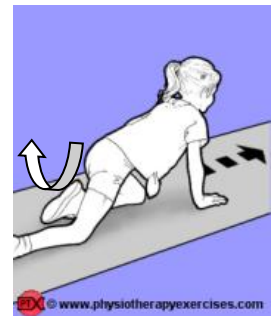
To strengthen shoulder and hip muscles.

Client's instructions

Position your child on all fours on the floor. Ask your child to lift one leg out behind them. Ensure that their back stays flat at all times.

Progressions and variations

Less advanced: 1. Lift leg lower. 2. Hold leg out for less time. More advanced: 1. Lift leg higher, still ensuring back remains flat. 2. Hold leg out for longer.



Repeat 10 times on each leg.

Reaching in kneeling using one arm

Client's aim

To strengthen muscles in hips and body.

Client's instructions

Position your child kneeling with objects placed at arms-length in front of them. Practice reaching up for an object and place it down on the floor.

Progressions and variations

Less advanced: 1. Position the objects lower down and closer. 2. Use larger objects. More advanced: 1. Position the objects higher up and further away. 2. Use smaller objects. Progress to child being on one knee and one foot up (half kneeling).



Repeat 10 times alternating arms.

Moving sideways in kneeling with assistance

Client's aim

To strengthen hip and body muscles.

Client's instructions

Position the child in kneeling with their hands resting on a table in front of them. Instruct and encourage your child to move sideways on their knees while keeping their hips straight. Provide assistance as required.

Progressions and variations

Less advanced: 1. Provide more assistance. More advanced: 1. Provide less assistance. 2. Position the patient on a soft surface. 3. Remove the table support. 4. Practice in standing.



**Repeat 10 steps
each way.**

Squatting against a wall

Client's aim

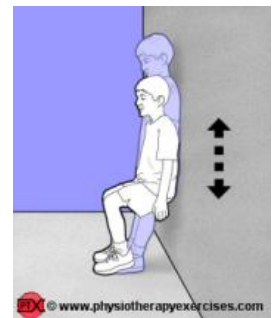
To strengthen the muscles that straighten your leg and improve your ability to stand or walk.

Client's instructions

Position your child standing with their back against a wall and both feet a little away from the wall. Ask them to practice bending and straightening their knees to slide their back up and down the wall. Ensure that their feet and knees are held together, their knees do not lock back past straight and both of their feet point forwards.

Progressions and variations

Less advanced: 1. Decrease knee flexion. More advanced: 1. Increase knee flexion. 2. Use a therapy ball behind them to lean against the wall.



Repeat 10 times.

Stepping sideways with assistance

Client's aim

To strengthen hip muscles and improve the ability to walk.

Client's instructions

Position the child in standing with their hands resting on your hands or furniture. Instruct and encourage the child to step sideways while holding hands or furniture.



**Repeat 10 steps
each way**