

Neurosurgery – Selective Dorsal Rhizotomy (SDR)

Introduction

The Covid pandemic has had a significant impact on the NHS ability to provide routine elective services. We recognise that patients are waiting longer than we would all like and it is not always possible to identify when treatment will take place. This document provides you with information on how you can support your child while waiting to attend the hospital.

Guidance for Patients

Sample exercises for patients preparing for Selective Dorsal Rhizotomy (SDR)

It is important that your child has a pre-operative strengthening and stretching programme in place, and is regularly practising it, before they have their SDR procedure. This may take the form of formal exercise, or it may be activity related e.g. Walking practise, bike riding, swimming. It is suggested that levels of activity begin to increase at least 6 weeks before their surgery

This pre-operative programme should be discussed with your local physiotherapist as you may already be practising some of these exercises with your child. Your local physiotherapist may want to modify some of these exercises, as they know your child, and what their specific therapy needs are. Therefore, this booklet should serve only as a guide, and is not prescriptive. Agreement regarding type and number of each exercise is important, as well as whether it is appropriate to introduce weight resistance.

Some children will benefit from stretching exercises for muscles which are tight. These may include the hip flexors muscles (at the front of the hip), hamstring muscles (in the back of the leg) or calf muscles. If your physiotherapist thinks that your child needs these exercises it is important that they demonstrate them to you so that your positioning and stretch is correct.

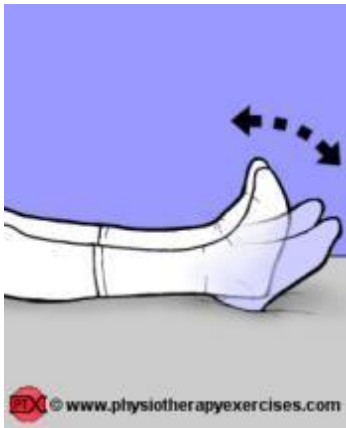
SDR surgery will help to reduce the spasticity (stiffness) in your child's legs, and there will be some muscle weakness following the surgery. A pre-operative programme will help to strengthen the muscles that will be weak and familiarise your child with the exercises they will be expected to complete post-surgery.

Weakness in the post-operative period may mean that your child may not be able to perform movement tasks that they could pre-operatively. Their walking may appear different, and their type of, or need for, a walking aid may change. This is normal and will improve as your child becomes stronger during their post-operative rehabilitation.

The more strengthening, and activity, your child does, the quicker they will improve. There are no rules regarding the frequency that your child will need to see a trained physiotherapist, but it is important that your child carries out either a formal exercise programme, or a physical activity, each day, in preparation for surgery, and afterwards, in order to maximise the benefits of the surgery.

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Ankle dorsiflexor/plantarflexor strengthening in supine without weights

**Client's aim**

To strengthen your ankle muscles.

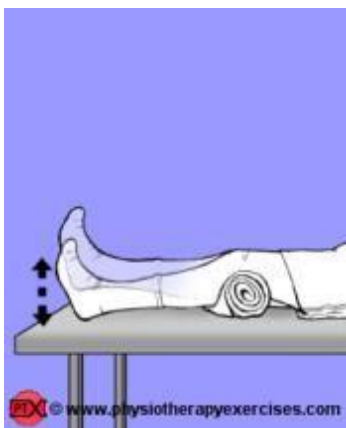
Client's instructions

Position yourself lying on your back. Start with your toes pointing down. Finish with your toes pointing up.

Progressions and variations

More advanced: 1. Progress using strength training principles.

Knee extensor strengthening in supine without weights

**Client's aim**

To strengthen the muscles at the front of your thigh.

Client's instructions

Position yourself lying on your back with a rolled towel under your knee. Start with your knee bent. Finish with your knee straight.

Progressions and variations

More advanced: 1. Progress using strength training principles.

Hip abductor/adductor strengthening in supine without weights

**Client's aim**

To strengthen the muscles at the side and on the inside of your hip.

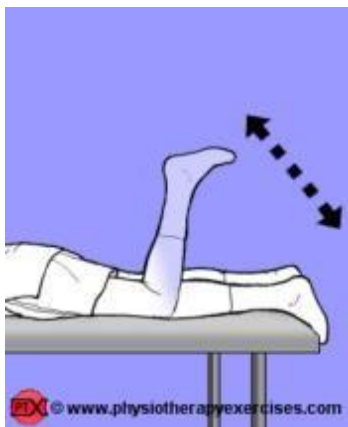
Client's instructions

Position yourself lying on your back. Start with your leg parallel to your other leg. Finish with your leg out to the side. Ensure that your foot is kept vertical.

Progressions and variations

More advanced: 1. Progress using strength training principles.

Knee flexor strengthening in prone without weights

**Client's aim**

To strengthen the muscles at the back of your thigh.

Client's instructions

Position yourself lying on your stomach. Start with your knee straight. Finish with your knee bent.

Progressions and variations

More advanced: 1. Progress using strength training principles.

Sitting on a moving lap / sitting on a ball

**Client's aim**

To improve the ability to sit unsupported.

Client's instructions

Position the child sitting forward on your lap, or on a ball, so they are not leaning backwards. Instruct and encourage the child to sit upright while moving your knees up and down, or the ball side to side

Progressions and variations

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

Precautions

1. Maintain a secure hold on the child.

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

**Client's aim**

To improve the ability to stand up and sit down.

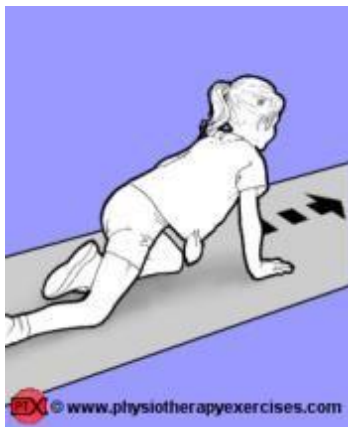
Client's instructions

Position the child sitting on your lap 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. More advanced: 1. Provide less assistance. 2. Change height of bench to make it harder or easier

Crawling



Client's aim

To strengthen your shoulder and hip muscles and improve your ability to move about on the floor.

Client's instructions

Position yourself on all fours on the floor. Practice crawling forwards along the floor.

Progressions and variations

More advanced: 1. Crawl over obstacles (eg. cushions). 2. Balance activities on all 4's

Reaching in four-point kneeling



Client's aim

To strengthen your shoulder, back and hip muscles.

Client's instructions

Position yourself kneeling on your hands and knees with some objects on the floor in front of you. Practice reaching for an object and moving it to another position while holding yourself up with your other arm.

This can also be changed to weight bear through upper limbs and raise one leg out behind.

Progressions and variations

Less advanced: 1. Perform four-point kneeling only. 2. Lift the unaffected arm off the floor without reaching for an object. 3. Reach a shorter distance. 4. Decrease the height of the table. More advanced. 1. Increase the height of the table. 2. Reach further forwards.

Bridging while rolling a ball under the body

**Client's aim**

To strengthen the muscles at the back of your hip.

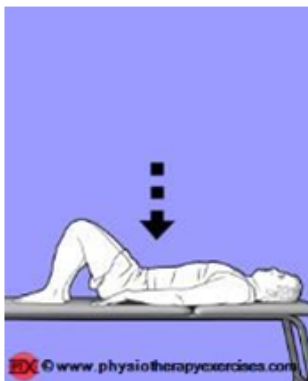
Client's instructions

Position yourself lying on your back with your knees bent up and feet flat. Practice lifting your bottom up and rolling a ball underneath you from one side to the other.

Progressions and variations

Less advanced: 1. Perform bridging only. 2. Use a small ball. More advanced: 1. Use a large ball. 2. Hold one leg in the air while maintaining the bridge position.

Abdominal strengthening

**Client's aim**

To improve your abdominal strength

Client's instructions

Position yourself in supine with your knees bent. Gently draw your navel towards your spine.

Once this lower abdominal contraction can be achieved and held for a few seconds add in lifting and flexing one leg slowly while maintaining the lower abdominal contraction. Return leg to mat and switch legs.

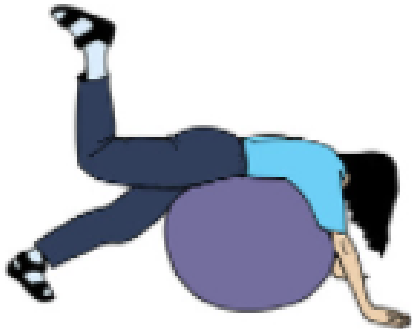
Progress this by bringing up both legs one at a time before lowering.

Progress further by tapping heels one at a time to bed/floor gently and returning to the leg up position.



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Hip extension / donkey kicks over a gym ball



Client's aim

To strengthen the muscles at the back of your hip and your core

Client's instructions

Lean onto a gym ball with your feet on the floor, lift one foot and kick your leg out behind you, lifting from your bottom as high as possible and kicking your knee out straight.

Reaching in kneeling using one arm



Client's aim

To improve your ability to reach forward when kneeling.

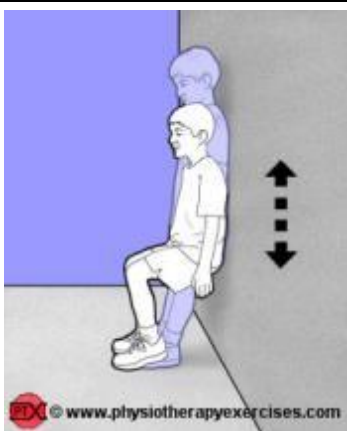
Client's instructions

Position yourself kneeling with objects placed at arms-length in front of you. 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.

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 yourself standing with your back against a wall and both feet a little away from the wall. Practice bending and straightening your knees to slide your back up and down the wall. Ensure that your feet and knees are not pushing together, your knees do not lock back past straight and both of your feet point forwards.

Progressions and variations

Less advanced: 1. Decrease knee flexion. More advanced: 1. Increase knee flexion. 2. Place one leg on a step to increase weight through the other leg. 3. Use a backpack to add resistance

Stepping sideways with assistance

**Client's aim**

To improve the ability to walk.

Client's instructions

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

Progressions and variations

Less advanced: 1. Provide more assistance. More advanced: 1. Provide less assistance. 2. Remove the table support.

Precautions: Ensure the table or support used is stable

What should I do if my child's health is deteriorating?

If your child's health deteriorates within the time frame of waiting for the operation, particularly when coming up close to your operation date, it is important you let us know via the details below. Hopefully there will be no need to change the operation date but your child's safety is paramount and letting us know will allow appropriate plans to be put in place.

Contact Us

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