



EPISURF POST-OPERATIVE REHABILITATION

PATIENT USE

rehabilitation

(n.) recovery, improvement

The action of restoring someone to health or normal life through training and therapy after illness. Commonly referred to in its shortened version, "rehab".

ABOUT EPISURF

Episurf produce the Episealer®: a product designed for patients who have a cartilage lesion with an underlying bone defect. In young patients these defects are often treated ‘biologically’. Once this window of opportunity has passed and lasting biologic treatments are no longer an option, Episurf produce an innovative treatment option. Episurf have developed technology that allows your surgeon to customise a solution, tailor-made for every patient, targeting only the damaged cartilage. The implant is designed to stop or delay the need for joint replacement and restore your normal function, whilst reducing your pain.

To ensure a perfect fit, the implant is customised based on your anatomy and the area of damaged cartilage, using details obtained from specialised MRI scans.

The implant is manufactured using cobalt chrome alloy. The underside is sprayed with a layer of pure titanium and a top coat of hydroxyapatite on the underside. Once in contact with bone, these specialised materials enable your body to grow onto the implant to keep it firmly in place. The top surface of the implant is polished to an ultra-smooth finish to ensure a smooth articulation in your knee.

There are many factors to be considered during rehabilitation after Episurf surgery. This document aims to guide you through a goal-orientated programme to restore good knee function. Recovery from your procedure is a unique and personal experience. Following this guide will optimise your outcome but results may be different from patient to patient.

PHYSIOLOGICAL SURFACE

- Recreates the natural shape of your knee
- Glides over opposite cartilage smoothly
- Perfectly reconstructs your knee anatomy

CHONDROPHILIC COATING

- Seals the implant into your knee
- Allows healthy cartilage to fix your implant

BIOLOGICAL COATING

- Promotes rapid bone ongrowth
- Allows long term fixation of your implant
- Provides initial stability during the healing phase





“

*The grinding pain that
has constantly been
in the background has
gone.*

- Nicklas, 41 year old Episealer patient

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FEATURES OF EPISEALER POST-OPERATIVE REHABILITATION

STRENGTH WORK



PROPRIOCEPTION BALANCE WORK



STRENGTH AND MOVEMENT



PHASES OF REHABILITATION

Phase 1 RECOVERY FROM SURGERY

Phase 2 STRENGTHENING AND MOBILITY

Phase 3 RETURN TO FUNCTIONAL ACTIVITY

PHASE 1: RECOVERY FROM SURGERY

The initial post-operative phase usually lasts about 10-14 days. The main priorities during this period are to control inflammation and swelling. Early mobilisation and use of your knee as described in this document will help to promote healing and encourage the biological coating on the implant to integrate well with your bone.

RECOVERY FROM SURGERY GOALS

- Get your knee straight
- Control pain and swelling
- Get quadriceps muscles firing

WEIGHT BEARING

You will be taught how to use elbow crutches before you leave the hospital. For the first four weeks after surgery you will be partial weight bearing (PWB). You can take weight through your operated leg and will be using the elbow crutches provided at all times when mobilising. Four weeks after your surgery you can begin to take full weight on your operated leg. It is advised you continue to use the crutches until 6 weeks after your surgery as you increase your weight bearing and activity levels.

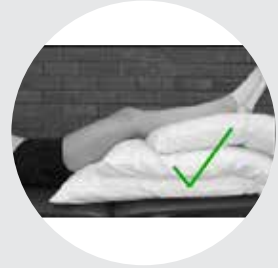
ICE TREATMENT

Ice treatment after your surgery is very important to keep the swelling of your knee under control. You should use an ice pack or Cryocuff (see image) on your knee for 15-20 mins every two hours during the day for the first 7-10 days after your operation. It is expected that your knee will continue to swell for up to 3 months after your surgery, hence icing regularly until 3-6 months post operatively is recommended.



ELEVATION

During the first phase of your rehabilitation you should aim to be resting your operated leg for significant times. Your knee should be elevated with the leg straight and your ankle raised above your hip. This helps to keep the swelling under control in your knee.



NUMBNESS

Patients often describe an area of numbness around the operation site. This is not unusual and very common. Moderate symptoms of numbness and tingling around the knee are common. However, if you are concerned or these symptoms worsen, please advise your physiotherapist.

PAIN

Patients' experience of pain varies between individuals. It is essential that you have regular and adequate pain killers so that you can begin to move and gain control of your operated knee. Let the nursing staff know how you feel as they can vary the medication appropriately and also give anti-sickness drugs if required.

WHAT YOU SHOULD AND SHOULD NOT DO

- DO follow the advice and exercises in this guide
- DO massage the skin around the knee to help reduce the swelling and to allow the skin to become more supple
- DO use your elbow crutches as instructed

- DON'T sit with your operated leg down for long periods
- DON'T sit or lie with anything under your knee as this may cause your knee to stiffen and prevent it from fully straightening
- DON'T sit or lie with your legs crossed

PHASE 1: RECOVERY FROM SURGERY

The success of your surgery has a large bearing on the amount of effort you are willing to invest into your own rehabilitation. Although you are likely to be in some discomfort after your surgery, it is vital you start to complete the exercises below to regain movement and activate muscles after your operation. A physiotherapist will teach you these exercises prior to your discharge home.

KNEE FLEXION

Sit on the edge of the bed or on a chair and gently bend your knee as far as you can. Hold the end of the range for 5 seconds. Slowly release the contraction. You may find it easier to do this with a plastic bag under your heel. Repeat this 10 times. Repeat up to 5 times daily. The goal is to sit comfortably in a chair with your knee at a right angle as soon as possible.



KNEE EXTENSION

Sit with a rolled towel under your ankle without anything underneath your knee. Allow gravity to help to passively stretch your knee. Start this for 2 mins and gradually build up as your pain allows. Repeat 5 times daily.



It is very important to regain full straightening of your knee in the first 6 weeks.

PHASE 1: RECOVERY FROM SURGERY

PATELLA MOBILISATION

- a) Inferior Glide- With thumbs on upper border of the patella, gently push your knee cap towards your foot. Hold 5 seconds. Repeat 10 times.
- b) Superior Glide- With thumbs on lower border of patella, gently pull kneecap towards your body. Hold 5 seconds. Repeat 10 times.
- c) Medial Glide- Using a pincer grip, grab the inside and outside edges of your kneecap and gently push your kneecap in towards your other leg. Hold 5 seconds. Repeat 10 times.
- d) Lateral Glide- Using a pincer grip, grab the inside and outside edges of your kneecap and gently push your kneecap out. Hold 5 seconds. Repeat 10 times.

STATIC QUADRICEPS

Sit or lie with your leg out straight, tighten your thigh muscles and push your knee down firmly against the bed. Hold for 5 secs. Repeat 10 times.



STATIC HAMSTRING

Sit on bed or floor, bend your knee slightly, then push your heel into the bed keeping the knee slightly bent. Hold for 5 secs. Repeat 10 times.



PHASE 1: RECOVERY FROM SURGERY

CALF STRETCHES

Stand with support facing a wall. Keeping one leg forward, foot flat on the floor, extend your opposite leg straight backwards placing your heel flat on the floor. Try to keep your back knee straight and gently bend the front knee. Lean in towards the wall until you feel a stretch in your back calf. Hold for 30 seconds, repeat 3 times on each leg.



HAMSTRING STRETCHES

Sit on a firm surface, with both legs out straight in front of you. Try to ensure both legs are as straight as possible. Lean forwards trying to reach your toes. Hold for 30 seconds. Repeat 3 times.



As able and weight bearing allows, progress to hamstring stretches whilst standing. Bend your left knee slightly and keep your right leg outstretched in front. Keep your abdominals tight, place your hands on you left thigh and gently lean forward until you feel a stretch down the back of your right thigh. Repeat for both legs.

Criteria for progression to phase 2

- Full extension to 0 degrees
- 90 degrees flexion
- Mobilising without elbow crutches
- Minimal swelling
- Minimal pain
- Straight Leg Raise without lag

PHASE 2: STRENGTHENING AND MOBILITY

STEP UPS

Stand at the foot of the stairs or in front of a small step, using the handrail or a crutch for balance if necessary. Leading with your operated knee, bend the operated knee as you place the foot up onto the step. Return the foot to the floor. Repeat 10 times.

Progression: Once you are comfortable with this exercise, begin to bring your weight forward over the foot on the step. You will feel the knee bend more, try to maintain this stretch for 10 seconds. Relax the knee in between stretches and repeat.



HEEL RAISES

Stand whilst holding onto a stable surface. Push up onto your toes. Slowly lower your heel. Repeat 10 times. This exercise will improve the blood flow in your legs and help to reduce swelling, it will also improve the strength of your calf muscles that are used when walking and going up stairs.



HIP ABDUCTION

Lie on your side on a mat, with your legs straight away from your body. Keeping your abdominal muscles tense, gently raise the upper leg keeping your lower leg on the floor. Hold for 5 seconds and slowly return the start position. Repeat 12 times, keeping your body straight and your abdominals firm throughout the exercise. Roll over and repeat the sequence on the opposite leg.



PHASE 2: STRENGTHENING AND MOBILITY

HIP EXTENSION

Stand holding on to a work top or the back of a chair, keep the toe of the leg that is to be exercised pointing forwards. Bring your leg backwards, keeping your knee straight. Keep your upper body straight, do not lean forwards. Repeat 12 times on both legs.



STANDING TERMINAL EXTENSION

Stand holding on to a work top or the back of a chair and slightly bend your operated leg. Gently pull back your knee using your quadriceps muscles in your thigh to straighten your knee. Hold for 5 seconds. Repeat 8 times.



STATIC EXERCISE BIKE

Using a static bike without any resistance will benefit your quadriceps muscles as well as your range of movement of your knee. Aim to start using the bike for 5 minutes every other day and build this up by two minutes every week.



PHASE 2: STRENGTHENING AND MOBILITY

CARDIOVASCULAR EXERCISE

From around 6 weeks post operatively, it is recommended that you try to do 20-30 minutes of cardio exercise at least 3 times a week, ideally 5 times a week. This should be low impact activity such as walking, static exercise bike or swimming.

SINGLE LEG STANCE

Remove shoes and socks. Stand still on one leg for 20 seconds without allowing you elevated foot to touch the ground – vary this exercise with eyes open and closed and arms at your sides or raised. You may need to hold on to the wall or a chair to start with. Repeat 3 x 20 secs daily.



CRITERIA FOR PROGRESSION TO PHASE 3

- Full range of movement
- Comfortable gait pattern
- Minimal to no swelling
- No requirement for pain relief

PHASE 3: RETURN TO FUNCTIONAL ACTIVITY

All patients are individual and subsequently rehabilitation goals must be designed to reflect the unique social demands of each person following surgery. It is imperative that these goals are the centre of the rehabilitation of the patient and this is the basis of the third phase.

CONTINUED STRENGTHENING

All major muscle groups of the core and lower limb will need to be strengthened further. Large deficits in individual muscle groups can have a significant effect on functional ability and your eventual return to function. Effectively you are only as good as the weakest link in the chain. Our aim is that each patient should be assessed individually to identify the specific areas of weakness needing to be addressed.

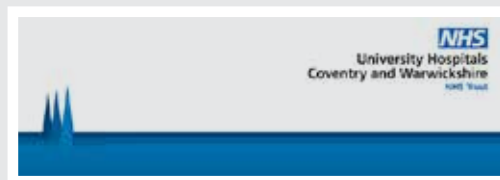
LOW LOAD SAFE GUARDED RETURN TO ACTIVITY

Aim for progression through increasing level of activity as strength and movement patterns progress. This is patient-specific and depends on goals for returning to activity e.g. different muscle strength is required for cycling versus hill walking. This is the vital last piece of the jigsaw. If muscles of the lower limb are not used in a safe co-ordinated way, then the hard work of rehabilitation to this point will not be best put in to practice.

THINKING LONGER TERM

Following the information in this guide will help your rehabilitation from your Episealer surgery. Due to the biomechanical forces placed on the knee during deep, full range squats and lunges we advise that these exercises are avoided in order to protect the healing of your new implant. Cycling and walking put the lowest stresses on the joints of the lower limb and these are the long term activities we would recommend you look to return to.

This postoperative rehabilitation programme has been produced in conjunction with the physiotherapy team at University Hospital Coventry and Warwickshire NHS Trust, UK.





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