ELBOW JOINT REPLACEMENT

Information for Patients

WHAT IS ELBOW JOINT REPLACEMENT?

The elbow joint is formed by the lower end of the upper arm bone, the humerus, and the upper end of the two forearm bones, the radius and the ulna. It is a complex joint that allows movement in several directions. Total elbow replacement is a surgical procedure during which the elbow joint is replaced with an artificial joint made up of a humeral component and an ulnar component that are connected to each other.

The most common cause of joint destruction is degenerative arthritis (osteoarthritis); other causes are inflammatory arthritis (rheumatoid or psoriatic arthritis), previous elbow injury (dislocation or fracture), or bacterial infection.

The patients' main symptoms are pain, restricted movement, and catching or locking in the affected elbow. Elbow joint replacement is performed when all non-operative and other surgical treatment options have been exhausted. Since the replaced parts of the joint can wear out over time, we generally advise patients to put off the operation as long as possible.

WHAT ARE THE EXPECTED BENEFITS OF ELBOW REPLACEMENT SURGERY?

Elbow replacement surgery is expected to relieve pain and improve movement. Most patients cannot do heavy physical work after this operation, but they can carry out their usual everyday activities as early as 3 to 6 months after the surgery. Moderate sports activity, in particular swimming, is very beneficial, but more intensive and strenuous sports, such as tennis, alpine skiing, riding, contact sports, football and basketball, are not recommended.

Most patients are satisfied with the outcome of surgery and are able to maintain an adequate range of motion in the elbow for at least 5 years or longer.
WHAT ARE THE RISKS OF ELBOW REPLACEMENT SURGERY?

Serious complications after total elbow replacement are uncommon. In most patients, the benefits of the procedure outweigh its risks. However, complications can occur during the operation, during the hospital stay, or several years after the operation. Before deciding on surgery, you must be aware of possible complications.

- Bone fracture and nerve or blood vessel damage can occur during the procedure. Most of these complications are successfully treated directly after their occurrence.
- Blood loss during and after the operation usually does not exceed 500 ml. Greater blood loss requires replacement by transfusion.
- Shoulder surgery slightly increases the risk of blood clot formation (deep vein thrombosis, pulmonary embolism). With preventive measures (medication, early mobilisation), blood clots occur in less than 1% of patients.
- Bacterial infection of a total elbow endoprosthesis is a rare complication with serious consequences. It can develop several years after surgery as a result of spreading through the bloodstream from a distant site. Infections are prevented by the use of antibiotics during and sometimes also after the operation. Infection is treated with antibiotics given through intravenous infusion, and it often requires additional surgery.
- Dislocation of the artificial joint is hardly possible, because we implant into the elbow a constrained endoprosthesis in which the two mobile parts are attached to each other.
- A change in the length of the upper limb is possible, but this is not important for the function of the elbow operated on.
- Loosening of the prosthetic joint may develop several years after implantation as a result of wear or infection of its components.
- Fracture of a bone or a part of the endoprosthesis can occur during a fall on the operated elbow or arm.
- Stiffness in the joint after the operation can be a consequence of several factors, such as contracted tendons and muscles about the elbow or, less frequently, bone formation within the soft tissues (heterotopic ossification).
ARE THERE ANY ALTERNATIVES TO SURGERY?

If you decide against surgery, you may expect the pain and loss of motion in your elbow to grow worse over time, which means that you will eventually have a constant need for pain medication and injections into your elbow. The operation cannot improve your general health status, and your deciding against it can have no serious consequences. Patients with rheumatic diseases (e.g. rheumatoid arthritis), also receive special antirheumatic drugs.

HOW SHOULD YOU PREPARE FOR ADMISSION TO THE HOSPITAL?

While you are still waiting for the procedure at home, it is advisable that you perform regularly stretching and range-of-motion exercises for the affected elbow. With stronger muscles, you will make faster progress in your rehabilitation after the operation. Prepare in advance for your return home after the operation, for instance by reorganising your kitchen and wardrobe so as to provide easy access to the shelves. Heavy physical work and excessive strain on the elbow must be avoided after the operation.

WHAT HAPPENS ON THE DAY OF SURGERY?

You will be admitted a day before the operation. You should bring to the hospital your health insurance card and a referral note and findings received from your primary care doctor. You will be asked to sign a consent form for anaesthesia and surgery, and you will meet with your surgeon, who will answer any questions you may have. On the day before the operation, you will be given a laxative to cleanse your bowel. You will fast (have nothing to eat or drink) for at least 6 hours before the procedure. In the morning on the day of the operation, you will take only those of your regular medications that have been approved by your doctor. You will be asked to remove all jewellery, and you will take a bath or a shower. During the morning ward
round, as a safety precaution, the doctor will mark the upper limb on which the operation is to be performed.

A nurse from the ward will take you to the operating suite and leave you with the anaesthesia team. An anaesthesiologist and a nurse anaesthetist will check your identity and prepare you for the operation. Elbow replacement surgery is performed in the operating theatre under general anaesthetic, with the patient fast asleep, or under local anaesthetic which causes complete loss of sensation in the upper limb.

**HOW IS THE OPERATION PERFORMED?**

The operation takes about 60 to 80 minutes. An incision is usually made on the back of the elbow. Its length depends to a considerable extent on the thickness of the subcutaneous fatty tissue. A part of the humerus and a part of the ulna in the elbow are removed, and the two bones are shaped to receive both parts of the endoprosthesis. The upper arm and the forearm components of the artificial joint are then inserted into the prepared bones.

The choice of the type of endoprosthesis depends on the biological condition of the patient and the elbow, firmness of the bones, the patient’s age, and individual needs. Different types of elbow prostheses are available, but they are all very similar. They are divided into total and partial prostheses. In partial joint replacement, only the damaged part of the elbow (e.g. head of the radius) is replaced. The type of endoprosthesis is selected with regard to the extent of damage in the joint.

**HOW LONG WILL I NEED TO STAY IN THE HOSPITAL?**

The length of the hospital stay depends on a number of factors. If there are no complications, most patients complete their rehabilitation programme in 5 to 7 days.

After the operation, you will spend a short time in the recovery room and then in the intensive care unit (ICU), where you will receive infusions of fluids, pain medication, and occasionally an antibiotic to prevent infection. As early as the first day, you may be given a medicine to prevent blood clots from forming in your legs and lungs, if you have a reason for such
treatment (e.g. chronic heart disease). In this case, you will also be wearing compression stockings on your legs. You will start basic exercises with the physiotherapist to increase blood circulation in your upper and lower limbs. Ice packs will be applied to your operated elbow at frequent intervals.

The following day, you will probably return to the ward and continue your rehabilitation programme. You will learn how to rise from lying to sitting and standing, and you will perform passive range-of-motion exercises for your elbow on a special device, a kinetic CPM machine. Later you will have training in activities of daily life (bending forward, putting on shoes, combing your hair, brushing teeth).

During the hospital stay, your wound dressings will be changed regularly, and blood tests will be performed as required. You will be taking all your regular medication, with the exception of diuretics (drugs that increase the excretion of water from your body) and certain anti-hypertensives (blood pressure lowering drugs) on the day of surgery and in the first postoperative days. Detailed instructions will be given to you by your doctor. You will continue to receive a blood thinner if necessary, and you will be taught to administer the injections on your own.

**WHAT SHOULD YOU DO AFTER DISCHARGE FROM HOSPITAL?**

After discharge, your dressings will be changed regularly every two to three days by your primary care doctor, who will also remove the sutures or clips from your wounds about 12-14 days after the operation. After returning to your home environment, until the first follow-up appointment with your orthopaedic surgeon (1-2 months after the operation), you will exercise your operated arm, at first under the supervision of a physiotherapist and then on your own. If you are on anticoagulant medication, you will continue this treatment as instructed, and you will take your pain medication only when needed.

You can start driving once your muscle strength in the operated elbow is sufficient to allow safe turning of the steering wheel and changing of gears – usually no sooner than 10 weeks after the operation. The same restrictions apply to household chores and swimming. If you are uncertain as to when you can safely resume these activities, consult your surgeon during your first follow-up visit.
WHO SHOULD I CONTACT IN CASE OF DIFFICULTIES AFTER DISCHARGE?

If you have any kind of difficulties after discharge from the hospital, first consult your primary care doctor or, outside regular working hours, the doctor on duty in your health centre. When seeing a doctor, always bring with you your discharge summary from the hospital. In case of a major complication, your doctor will arrange an urgent appointment with an orthopaedic surgeon.

Consult your doctor if you notice any signs of infection in the operated area, such as redness, heat and swelling or a discharge from the surgical wound. If a bacterial infection is suspected, you **may not** take any antibiotics before seeing an orthopaedic surgeon.