

These days there are several ways of delaying the wear and tear on a joint and there is also a chance of bringing it to a complete standstill. However this is not always possible. Frequently, it can lead to a progression of the disease which considerably restricts the quality of life.

Today modern endoprosthetic methods, hence the artificial replacement joint, enable virtually all patients to be free of pain and to nearly regain normal mobility. Each year in Germany about 200,000 hip joints and 180,000 knee joints are implanted.

Meanwhile there is a diverse range of models which can be individually customised. However, this is not always sufficient. Preparing the patient in advance and post-operative care are both becoming increasingly important. The joint specialists Dr. Manfred Krieger and Ralf Dörrhofer take their patients by the hand and prepare them in the best way possible for life with an artificial joint regardless of which prosthesis or operational method they have chosen.

ISBN 978-3-943587-16-6





My New Joint

A Guide for the Recipients of a
Hip and Knee Endoprosthesis

MANFRED KRIEGER
RALF DÖRRHÖFER

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1st Edition 2016

dpv - deutscher patienten verlag gmbh
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ISBN 978-3-943587-16-6





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Foreword

Many people delay the implantation of an artificial joint for as long as is possible. Yet the “new hip joint” has long since become a routine operation. The progress of the last few years in this field has been immense. Even as late as the 1990s patients often had to stay in hospital for more than a month and were even dependent on crutches for a long time. Fortunately, this is only very rarely the case today due to muscle and soft part sparing operational techniques, advanced prosthesis developments and last but not least, an intensive and effective follow-up treatment which focuses on the patient, all of which make returning to work and everyday life quicker and easier. With this book I would like to alleviate your fears and at the same time show you what you can do before and after the operation to enable pain-free mobility.

Contents

| | | |
|----------|---|-----------|
| 1 | Structure and Function of Healthy Joints | 8 |
| 2 | The Diseased Joint – Arthritis | 14 |
| | - Hip Arthritis | |
| | - Knee Arthritis | |
| 3 | Delaying the Disease Progress | 18 |
| | - Lifestyle | |
| | - Physiotherapy and Muscle Strengthening | |
| | - Medication | |
| | - Operative Measures | |
| 4 | When is an Artificial Joint Necessary? | 24 |
| 5 | What does Rapid Recovery – fit again quicker mean? | 28 |
| 6 | Operation Preparation | 32 |
| | - Selecting the right hospital | |
| | - Initial Talk and Operational Planning | |
| | - Patient School | |
| | - Checklists | |
| 7 | What else is important? | 40 |
| | - Protection from germs | |
| | - Taking Blood Thinning and Clotting Medication | |
| | - Blood Replacement or Autologous blood Donation | |
| 8 | Types of Prostheses | 44 |
| | - Individual Needs Differ | |
| | - Bone Saving Implantations | |
| | - Standard Hip Joint | |
| | - Short Shaft Hip Joint | |
| | - Total Knee Joint Replacement | |
| | - Partial Knee Replacement (Oxford Knee) | |

| | | |
|----|--|----|
| 9 | What does a Minimally Invasive Operation mean? | 48 |
| | - Hip Operation | |
| | - Knee Operation | |
| 10 | What am I allowed to do the first few days after the operation? | 52 |
| 11 | Mobile and Motivated Rehabilitation | 54 |
| 12 | How can I support the Healing Process? | 56 |
| | - Exercises for the New Joint | |
| 13 | Home again. What am I allowed to do? | 64 |
| | - Every day at Home | |
| | - At work | |
| | - Sport | |
| | - Travelling | |
| | - Love-making | |
| 14 | 6 Months Later: the joint replacement is forgotten | 72 |
| 15 | The Ten Most Frequently Asked Questions | 74 |
| 16 | Curriculum Vitae: Krieger and Dörrhöfer | 78 |

The Structure and Function of Healthy Joints

Our joints differ in their structure and thus in their stability

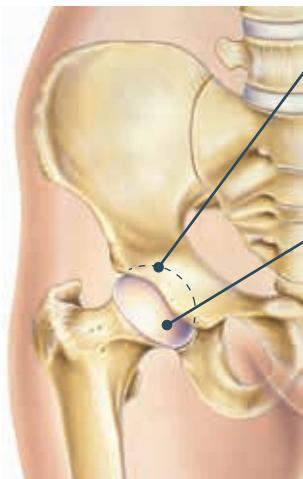
Our knees and hip joints are complex formations made out of bone, cartilage, ligaments, muscles and tissue. Without them we would be unable to walk or stand. However, the structure of the knee joint and the hip joint differ from each other. The hip is classified as a ball and socket joint whereas the knee is classified as a hinge joint. Consequently, this results in a very different range of movements and capacity to bear weight. In principle all our joints are designed to last for many decades. This is also possible under optimal conditions.

The Hip Joint

The hip joint connects the upper body to the legs. The ball-shaped femoral head is positioned at the top of the thigh bone and sits on the femoral neck. It is covered by the socket in the pelvis which simultaneously provides protection and control. Both the socket and the joint head are covered by a thick layer of cartilage. This allows the joints



to glide smoothly against each other and acts like a natural layer of Teflon. A funnel-shaped joint capsule encapsulates the joint stabilizing it. This tight, closely fitting hip joint capsule is the thickest and strongest part of our movement apparatus and consists of two layers: one is an outer fibrous membrane rooted in the labrum and the other is an inner synovial membrane. The synovial membrane produces joint fluid which lubricates the joint space and is constantly



The pelvis: the pelvis mostly encases the femoral head therefore providing the optimal muscle strength for the joint.

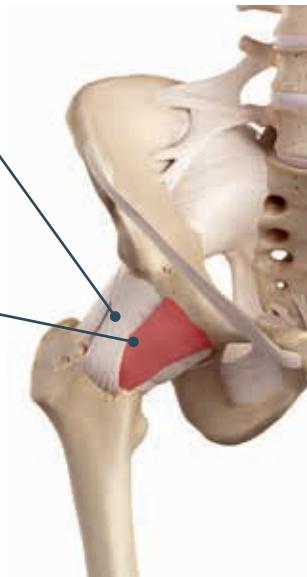
The joint capsule: the joint capsule protects the interaction between the joint parts and protects it from dislocation. The inner membrane of the joint capsule produces joint fluid which is responsible for lubricating it.

squeezed into it when it moves. This significantly reduces the frictional resistance. The joint capsule and therefore the hip joint are completely surrounded by strong ligaments which protect the joint capsule from damage and at the same time guarantee a high resilience and flexibility. This explains why the hip does not dislocate when doing the splits. Other joints in our body like the shoulder for example are nowhere near as physically resilient as the hip joint. The muscular system surrounding the joint is crucial to sta-

bility. This gives firm support and good joint control. Without it standing one-legged for example would not be possible. An artificial hip joint is likewise dependent on a strong muscular system. The stronger and more agile it is the better able a replacement hip joint can function.

The joint head: the femoral head sits on the thigh neck and is wrapped in a layer of cartilage like the joint capsule.

The ligaments: healthy ligaments of the hip joints can withstand very strong tensile forces.



The Knee Joint

The thigh bones (femur) and the shinbone (tibia) are both the strongest and longest long bones of the human body. Together they form the knee joint. The upper end of the shin bone and the lower end of the thigh bone are wider and form two circular, cylindrical shaped bumps known as the condyles. These are covered with up to a 5mm layer of cartilage. Together they form the joint surface of the knee joint. When the curved femoral condyles are compared with the plateau-shaped tibial condyles it can be seen that they do not fit snugly together. To compensate for this, two c-shaped fibrous cartilage discs lie between the upper leg and lower leg, known as the menisci. They expand the surface area or the contact area between the joint parts to prevent a concentration of force on the joint cartilage. The menisci discs are located between the upper and lower leg. They act like a cushion and are located on the ends of the condyles. Hence, they are able to adjust to different movements and keep the knee joint stable. Furthermore, the knee joint is protected by tough ligaments. Tight collateral ligaments, classified as medial and lateral, particularly support the extended leg. The medial collateral ligament is like a flat band on the inside of the knee and is joined to the capsule. In contrast the lateral collateral ligament is located like a solid cord-like band on the outer part of the capsule. Both ligaments have the function of protecting the leg from hyperextension and rotational movement. When the knee starts to bend they slacken and the protection of the knee is taken

The condyles are covered with a thick layer of cartilage

The ligament system gives support and stability

over by a second ligament system known as the cruciate ligaments. The cruciate ligaments are classified as posterior and anterior ligaments. They cross each other like an “X” and are located in the centre of the knee joint. When the knee bends the cruciate ligaments induce a minimal internal rotation as they coil tightly around each other. On the other hand, the ligaments uncoil from each other on an external rotation so that this process is impeded only by the pressure from the medial collateral ligament. When the knee is extended the ligament system gives it the strongest support and stability.

The hinge joint has two degrees of freedom, this means the joint can perform two active rotational movements: firstly, bending and straightening and secondly, the lower leg can rotate independently of the upper leg. When it is relaxed a minimal pulling and pushing motion can be carried out.

A special feature of the knee is the patella, or the kneecap. It sits like a triangular shaped bone in the tendon of the thigh muscle. On the one hand, it covers and protects the front of the knee. On the other, the thigh muscle’s leverage is strengthened by the patella and distributes weight more evenly. Each time the knee extends the patella glides several centimetres up and down between the femoral condyles. This general process places a severe strain on the knee and very frequently leads to the development of arthritis behind the knee cap.

The anterior and posterior cruciate ligament:

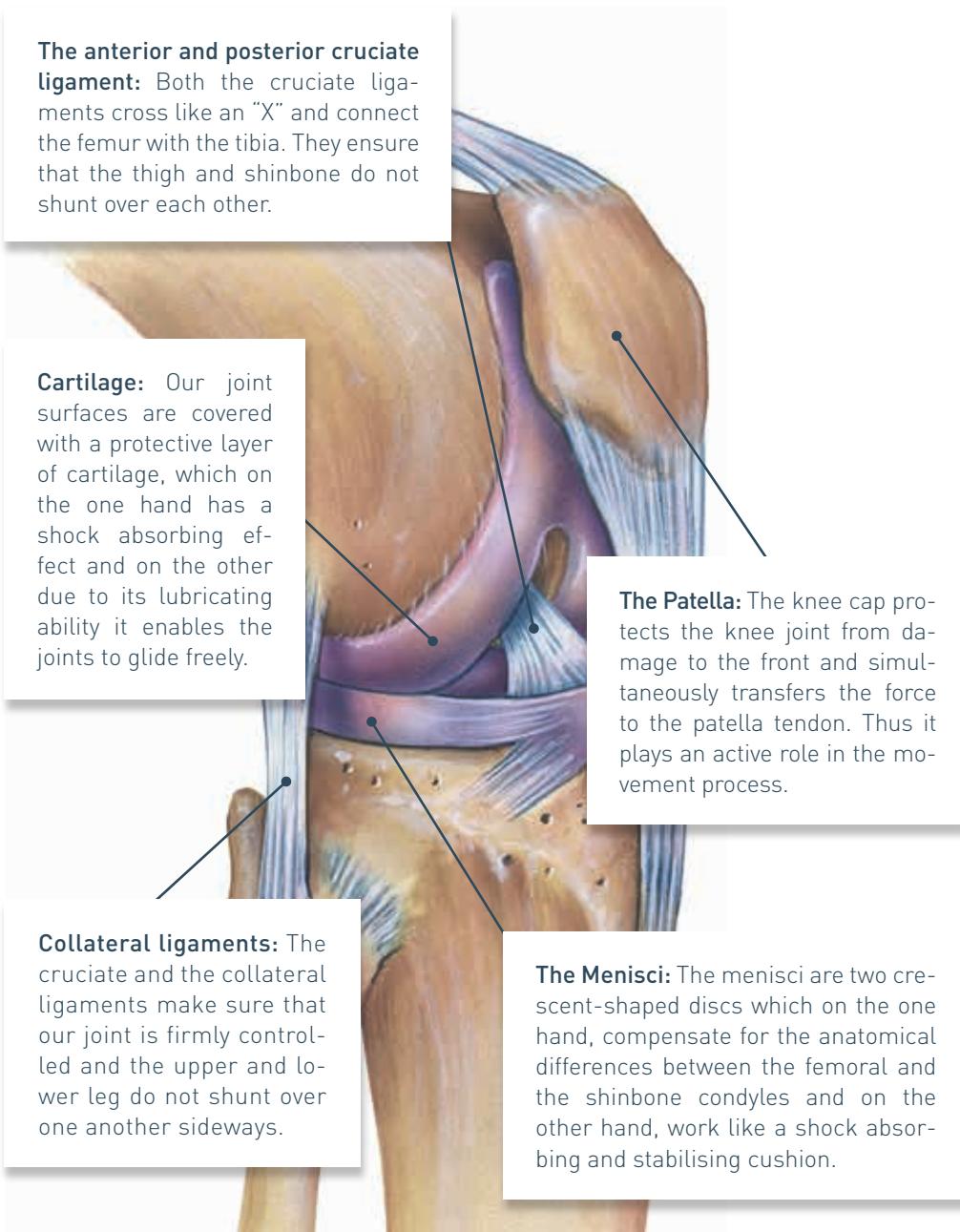
Both the cruciate ligaments cross like an "X" and connect the femur with the tibia. They ensure that the thigh and shinbone do not shunt over each other.

Cartilage: Our joint surfaces are covered with a protective layer of cartilage, which on the one hand has a shock absorbing effect and on the other due to its lubricating ability it enables the joints to glide freely.

Collateral ligaments: The cruciate and the collateral ligaments make sure that our joint is firmly controlled and the upper and lower leg do not shunt over one another sideways.

The Patella: The knee cap protects the knee joint from damage to the front and simultaneously transfers the force to the patella tendon. Thus it plays an active role in the movement process.

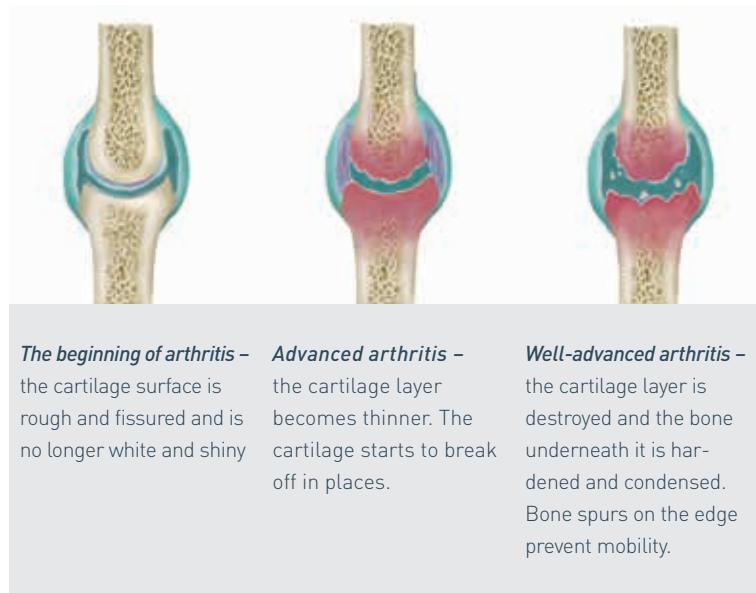
The Menisci: The menisci are two crescent-shaped discs which on the one hand, compensate for the anatomical differences between the femoral and the shinbone condyles and on the other hand, work like a shock absorbing and stabilising cushion.



Arthritis

The diseased joint

Even if a joint disease like arthritis is not life-threatening it can lead to considerable restrictions to the everyday life of those affected. Pain and restricted mobility reduce the quality of life and not infrequently lead to a withdrawal from social activities.



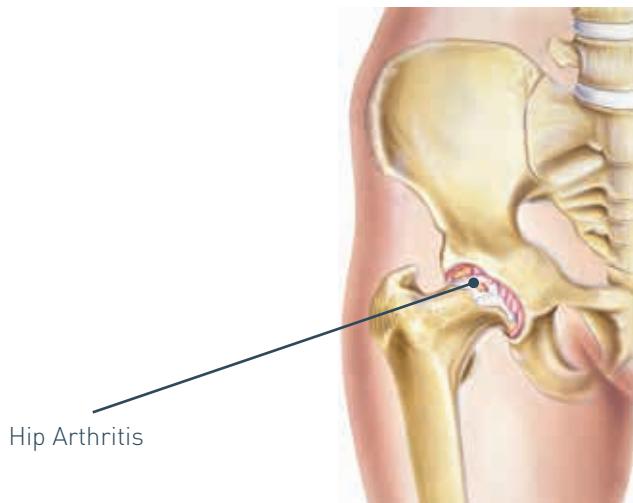
The beginning of arthritis – the cartilage surface is rough and fissured and is no longer white and shiny

Advanced arthritis – the cartilage layer becomes thinner. The cartilage starts to break off in places.

Well-advanced arthritis – the cartilage layer is destroyed and the bone underneath it is hardened and condensed. Bone spurs on the edge prevent mobility.

Hip Arthritis

Hip arthritis today belongs to one of the most degenerative diseases of all. Nearly every one of us knows someone within our circle of friends or acquaintances who has already had one or two new hip joints. However, the causes of hip arthritis often



cannot be attributed to any one particular pattern of behaviour. Even people, who have maintained their ideal weight their whole life long, have had a varied diet and have been moderately physically active, can suffer from arthritis.

Cartilage degeneration initially makes itself known by what we call “start-up” pain, which starts in the morning after getting up or during the daytime when you put weight on the knee after a long period of rest. The characteristic pain becomes more noticeable with time and after a longer period of putting weight on it. In the course of time however, the pain-free intervals become increasingly shorter and at some point the joint is painful even with a light weight load or even whilst resting and leads to stiffness of the joint. The joint is automatically handled with care. However, this weakens the muscular system and the nourishment of the cartilage deteriorates dramatically which

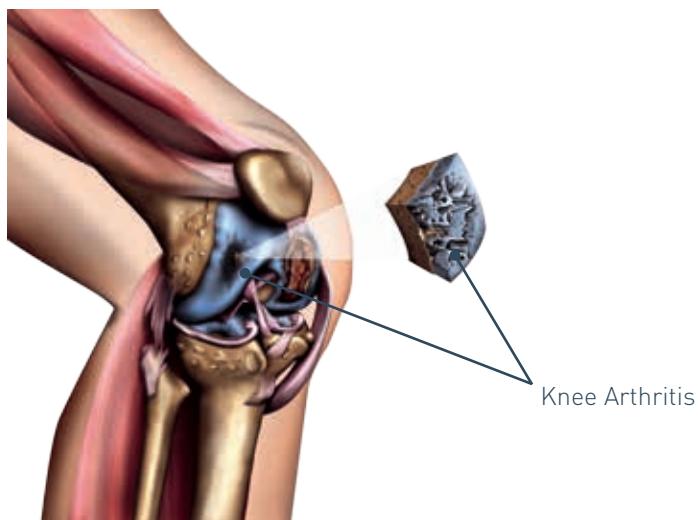
*Anyone can suffer from
degenerative joint disease*

further accelerates the degeneration of the cartilage. For a while, a moderate quality of life can still be maintained either by taking painkillers or by injecting medication directly into the joint. Nevertheless, for about 200,000 patients a year in Germany an artificial hip joint has to be implanted at some point. The operation itself has long since become routine and there is a wide range of knee joints to choose from. The surgeon will advise you on the one they think will suit you best.

Knee Arthritis

Arthritis of the knee can even result from general wear and tear with no obvious causes, yet there are a number of risk factors which can promote or accelerate cartilage loss. Excess weight is a frequent cause of this. This is because the knee is not protected as well as the hip socket which is surrounded by a

*Strain and wear and tear
are the main causes of
knee arthritis*



strong girdle of muscles. However there are some types of sport which put a lot of strain on the joints like football or a leg malalignment which can cause arthritis in the knee.

Typical characteristics of this are dull pain in the knee or the feeling of pressure on the knee space which begins to appear when climbing the stairs. If the knee cap is also affected by arthritis then pain is felt at the back. In advanced stages of arthritis the knee hurts with every movement and feels hot. This is a sure sign that the lubrication of the joint is no longer functioning well. Due to the increased rubbing of the joints against each other it can lead to an inflammation known as activated arthritis. At this stage there is generally only one form of therapy possible which is a replacement knee joint. Today this has also become a routine operation. Depending on which part of the joint is affected, there is a possibility of completely replacing the knee joint or replacing only the worn out parts.

Pain when climbing the stairs can be caused by knee arthritis

Delaying the disease process

A diagnosis of hip or knee arthritis does not automatically mean an immediate replacement of the joint. Today there are multiple ways of at least slowing down further progression of the disease if it cannot be entirely stopped. Studies have shown that knowledge of the disease plays a significant role in this process. Informed patients have fewer fears, endure pain better and develop strategies of dealing with the disease more easily. This often leads to very small changes which can bring relief.

Lifestyle

An important risk factor in causing an abrasion of the hip or knee is literally excess weight. This is why reducing weight plays a significant role in relieving the joint. It has been proven that a combination of moderate sports activity (walking, Nordic walking, cycling on level surfaces, swimming, dancing, Tai Chi, Qigong, water gymnastics) and a change of diet is especially advantageous to weight loss. Vegetables, fruit, low fat dairy products, cold pressed oils and cold water fish are specifically recommended to those suffering from arthritis. Meat, sausage, sugar, sweets and alcohol are only to be consumed in moderation. In addition, you can make your everyday life easier in many small ways. This is why carrying one-sided weight loads and heavy lifting/carrying should be avoided. By contrast, frequently alternating between standing, sitting and lying down relieves

Excess weight is a main risk factor of causing arthritis

the joints. Wearing shoes with flexible, shock absorbing soles when possible make walking easier. Where necessary you should consider changing your occupation in order to relieve the hip and knee long term.



Movement is good for the joints, strain is not

Physiotherapy and Muscle Strength

There is almost nothing as effective as having a strong muscular system around the large joints to relieve them. Whether the muscles are strengthened at home with the aid of physiotherapeutic instructions, in groups e.g. sports clubs or a prescribed rehabilitation sport this choice remains entirely up to you. What is crucial is that the exercises are performed regularly. Nevertheless, training too intensively can also be damaging to the joint under certain circumstances. What is important – and this does not only apply to joint problems – is to take responsibility yourself for your own body and to take the care and hygiene of

No additional warmth for activated arthritis

your movement apparatus as seriously as e.g. cleaning your teeth.

Medication

If the above mentioned measures are not sufficient in the long term to achieve satisfactory relief from pain (analgesia) then using medication for support might be necessary. For the treatment of arthritis four groups of medication are largely used.

Many patients prefer plant-based substances like e.g. Devil's claw. These are certainly justified for mild complaints.

For more severe pain, steroids (analgesics) ought to be used at an early stage to avoid the pain caused by



the muscles tensing up as a result. Analgesics should only be taken in consultation with a doctor. Today pain relieving and anti-inflammatory substances are generally verified according to pain intensity by the World Health Organisation (WHO).

This is because the pain not only has to be alleviated but often an infection has to be treated, too. Then, non-steroidal anti-inflammatory drugs (NSAIDs) are used for this. Alternatively, these substances can also be applied as a cream, instead of, or as well as taking tablets. Preparations today consist of very effective concentrations of substances which are thoroughly capable of seeping through to the tissue. Generally, and in some cases, an injection of glucocorticoid (GCs/steroid injection) directly into the joint can make more sense and can bring longer lasting pain relief, especially for the knee joint.

Inflammation of the joints must always be treated consistently

Cartilage-protection preparations like hyaluronic acid which is injected directly into the joint, improves the structure of the joint fluid and have proven effective over the years. Hyaluronic acid soothes the joint and in many cases helps maintain long term pain relief.

Operative Measures

In some cases a pain-free functioning of the large joints can be achieved by an operation on the joint. As a rule, they are arthroscopic which means an endoscopy is performed. The arthroscopy, whereby the joint is cleaned and washed out, have shown no long term advantages when compared with more conservative

treatments according to studies. In cases of isolated cartilage damage however, which can result e.g. after an accident, operations like this have become routine and proven effective over the years. The processes chosen depend on the extent of the cartilage damage. In what is known as a mosaicplasty (cartilage replacement) small hard cartilage plugs are removed from an unaffected area of the knee and transferred to the damaged part of the knee. In cases of pridie drilling, microfracturing and abrasion arthroplasty the layer of bone marrow, which is affected, is opened up. The stem cells which seep out then attach themselves to the damaged area and in the course of the next few weeks produce a solid, durable, replacement cartilage tissue. In recent years, the biological processes for regenerating cartilage have become very popular. In this process the growth of the body's own cartilage

cells are stimulated and the cells multiply replacing the defective ones.

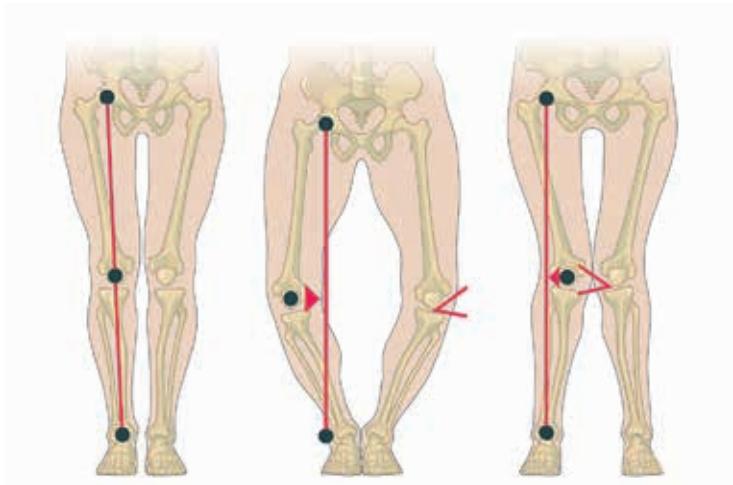


This is what your doctor will look like when you meet him in the operating room

In some cases, arthritis of the knee or the hip is caused by severe misalignment, e.g. knock knees or bandy legs, or by an anatomical hip disorder which results in an abnormal strain on the joint. Then a major operation, known as an adjustment osteotomy is performed to avoid a further deterioration of the

joint. This returns the joint shape back to normal and redistributes the weight.

In severe cases and in older patients, a replacement joint is generally a better alternative than a realignment of the hip.



There is a range of processes available for treating isolated cartilage defects

When is a joint replacement necessary?

The answer to this question cannot be given by a doctor or an x-ray. There are patients who have tolerated severe degrees of arthritis without any complaints. By contrast, there are patients who suffer considerable pain even when the disease in the joint is not very far advanced. Obviously the advice of the consulting doctor needs to be taken into consideration. Yet, the right time for a replacement is generally a decision you have to make as a patient. One patient is unwilling e.g. to take regular medication whilst another would like to delay an operation for as long as possible. Naturally the age, domestic and professional situations and the demands of sports activities play a role. When conservative measures no longer provide sufficient pain relief, especially causing sleep to be consistently disrupted, the quality of life suffers, limited mobility, social interactions/activities are restricted, then the time has come for an artificial joint.

Many factors influence choosing the right time for a joint replacement



An x-ray of advanced arthritis

Precise planning with the help of a computer is always required



A one-legged image for digitally planning the operation



Post-operative result
(knee endoprosthesis)



Digitally planning hip surgery



Post-operative result
(short shaft prosthesis)

What does Rapid Recovery – fit again quicker mean?

*An effective pain therapy
is crucial for the
rehabilitation process*

The days are over when you first had to learn to walk again after a hip operation. Nowadays, patients can stand up shortly after surgery and often, they can also bear the full weight on the joint on the same day without needing to take strong painkillers as they will not experience any severe pain. This is due to a sophisticated combination of muscle-saving operation and the principle of the Rapid Recovery Programme.

In the Rapid Recovery Programme the patient is an independent partner in the treatment process. The programme largely consists of four modules which are the Patient School, the Coach Principle, Early Mobilisation and Pain Therapy. Thus, a person, who is close to the patient, is trained so that they can actively accompany them during the rehabilitation process. What is crucial to the early mobilisation module is the highly effective pain therapy. Today we operate using a spinal anaesthesia or a general anaesthetic, and beyond that we use a local (infiltrations) anaesthetic. Thus, we are able to dispense with sedating painkillers. We no longer need to use a wound-drain, which confines movement, which considerably enhances the comfort and mobility of our patients. The type of medication used to prevent thrombosis after the operation depends on the individual needs of each patient. Thus, both heparin,

Shorter In-patient Stays

In former times, patients used to stay for up to 3 weeks in hospital after a hip replacement and afterwards have a 3-4 week rehabilitation period. Today five days are spent in hospital and two weeks in rehabilitation as a rule. Some patients fear that because of this they will experience considerable disadvantages and their operation results might not be as good. Studies have shown however, that the opposite is the case. Muscle-saving operations and excellent pain therapy make an immediate and complete exertion of weight on the hip possible because no muscles have been damaged. Thus, with the combination of modern rehabilitation techniques it is possible today to achieve a good joint function much earlier than five to ten years ago.

which is injected into the hypodermis, and has been used for decades, as well as a form of modern medicine, which can be taken orally, is used.

Our patients leave the clinic only when they have fulfilled the jointly determined interdisciplinary discharge criteria. The positive effects of the Rapid Recovery Programme confirm the results of our own data on patient satisfaction.

Can every patient be treated according to these principles?

Yes! There is nothing to stop anyone from having this operation, as now we are able to use nearly all endo-



prosthesis models available, apply the muscle-saving process and follow the treatment up with the

Discharge Criteria

- ✓ *Looking after your body independently must be possible.*
- ✓ *You should be able to manage a walk of at least 50 metres.*
- ✓ *You should be able to climb the stairs.*
- ✓ *You should be able to use the toilet independently.*
- ✓ *You should be able to get in and out of bed unaided.*
- ✓ *Getting up and sitting down on a chair should be possible.*
- ✓ *The wound should not be unpleasant to look at.*

principles of the Rapid Recovery Programme. Thus, all patients with the exception of a very few can benefit from it, which might have an effect especially on the activity level after surgery and of course on the long term satisfaction with the treatment.

Preparing for the operation

Selecting the right hospital

Once the decision has been made to put a stop to the pain felt in the hip or knee by a replacement joint then the question is: where shall I have the operation? Sometimes the consulting doctor recommends a hospital to the patient for treatment. Frequently, members of the family, friends or acquaintances share their experiences. In our modern world of media today, the internet is a good place for finding out which hospitals for which operation come into question.



*Ask everything which
is worrying you in the
initial appointment*

When making a decision for or against a hospital, several different aspects need to be considered. The decisive thing is what kind of experience the surgeon has, how often they have performed the operation and whether the whole procedure prior to and post operation is coordinated. Ask the appropriate questions in an initial talk.

The Initial Appointment and Operational Planning

Once you have decided on a treatment with Fachärzte Rhein-Main you will receive a date for an initial appointment with your specialist. In this appointment the doctor will enquire about the nature of your complaints, analyse the X-rays which you have brought with you and may organise some further necessary examinations. They will discuss the advantages as well as the possible risks with you and explain which replacement joint is best for you and how the operation will be carried out. Other potential aids such as a walking aid might already be prescribed for you. When everything has been clarified an appointment for the operation will be set.

The Patient School

Once the appointment for the operation is fixed, you will be invited one or two weeks before to attend a Patient



A personal "coach" gives you security

School. At this stage you will be asked to bring your personal “coach” to this appointment with you, who will be accompanying you to the patient seminar and also later in the recovery phase. This enables them to have access to the same information as you too, and can help you through each phase and support you. This coach is often your spouse, but can also be a friend or another trusted person. Older patients find this especially pleasant and it makes them feel more secure.

Pain Management with Rapid Recovery

Pain management using LIA, local infiltration analgesics, plays a major role in the Rapid Recovery Programme. Due to this locally applied pain therapy the pain is directly restricted to the location where it occurs, patients are able to be mobilised early so that they do not end up lying down in the first place. In fact, the patients are already able to get up, bear full weight on the joint, and walk about the room. What is especially pleasant, is that no wound drain is used which means that right from the beginning there are no annoying tubes.

Part of the pain concept is also determining in advance which pain killers each patient can have when required, so that e.g. in the middle of the night should the patient be in pain, immediate pain relief medication can be issued without first having to wait for a prescription. Furthermore, the patient is asked to keep a pain diary, so that any potential problems arising can be recognised early on.

You will meet the other patients, who will be operated on at the same time as yourself, in the 'living room' of the hospital where you will have your meals together during your in-patient stay. Hence, you will become familiar with the rooms and your 'fellow sufferers' who will be staying at the hospital with you, too. In this seminar you will also meet all the people you will spend time with during your stay.

The surgeon will present to you in detail different types of replacement joints, operational techniques and the



operational procedure. The anaesthetist will explain the different anaesthesia options, although based on experience over 90 per cent of patients go for a general anaesthetic. On request a spinal anaesthetic is also an option. The modern forms of anaesthesia today have a very short half-life, and a general anaesthetic can be controlled so that at the end of the operation a patient is not sleepy but fully awake very quickly and has full concentration. Furthermore, the anaesthetist presents

the pain concept to the hospital to ensure that you will have no pain during or after the operation. A representative of the nursing team will explain to you what you will already be allowed to do yourself and when you will need further support. They will tell you about the schedule of the hospital e.g. when meals are served and everything else you need to know during your stay.

The physiotherapist will introduce themselves and will practise using walking aids with you within the framework of a “walking school”. This is so you are fit by the time of the operation and a few hours after surgery you will be able to get up and walk about.

Checklist 1

The following items should be arranged before you go into hospital:



- Are your neighbours informed of your absence?
- Have all appointments been cancelled?
- Who will look after your mail and empty the letter box?
- Has the newspaper been cancelled or forwarded?
- Who has a spare house or flat key in case of an emergency?
- Who is looking after your pets and who is watering the plants?
- In winter: who will clear away the snow?
- Has transport to the hospital and back home again been organised?

A representative from social services will explain the differences between an outpatient and in-patient rehabilitation and will answer any questions you may have on the subject.

Last but not least, an occupational therapist will show you any aids you might need (forearm crutches, a raised toilet seat) or which are desirable and possible (long handled reacher grabbers, wedge cushions) and are available at the hospital and which might make life easier back home.

After one or two hours of Patient School you will effectively change from a treatment patient to an independent patient. The information received will make you feel considerably more secure and will enable you to look forward to your operation with confidence.

*You learn to walk with aids
before the operation*





Checklist 2

What do you pack in your suitcase for hospital?

Clothing:

- Nightwear*
- Underwear*
- Socks*
- Nightgown or/and a comfortable track suit*
- Comfortable, firm slip-on shoes (no laces) like slippers*
- Outdoor wear and shoes for walks and possibly jacket/coat, hats and scarves*

Toiletries:

- Soap, shower gel, shampoo, body lotion*
- Hand towels and flannels*
- Toothbrush, toothpaste, possibly sterilising agents and container for dentures*
- Comb, hairbrush and hairdryer*
- Nail scissors and nail file*
- Personal body care and toiletries*

Personal Utensils:

- Glasses*
- Hearing aid*
- Dentures*
- Mobile phone*
- Personal Identification or passport*
- Small change*

- Cheque Card*
- Something for boredom (book, magazine, crossword puzzle, portable music player)*

Documents:

- Health Insurance card*
- Hospital referral from doctor*
- Medical documents such as X-rays pictures, or CT scans*
- A List of medication which you have to take regularly*
- A Vaccination passport*
- An Allergy, X-ray, heart, diabetes or anticoagulant pass*
- Perhaps proof of additional insurance for treatment by a chief consultant and/or a single room*

What else is important?

Protection from Germs

Some patients are worried about becoming infected with the multi-resistant germ like MRSA (Methicillin resistant staphylococcus aureus) during an in-patient stay in hospital. This is certainly not an unfounded concern as about 20 per cent of the staphylococcus aureus bacteria examined in German hospitals are multi-resistant. These germs are most frequently brought into the hospital by patients who are unknowingly carriers of these bacteria, and do not show any symptoms of it. With comprehensive preventative measures, which are checked and monitored by both a hygiene specialist and a specialised hygiene doctor, every measure is undertaken by the hospital to prevent a further increase of the germ in hospital. Thus, all patients are routinely swabbed even on registration in order to identify the MRSA carriers and to apply the necessary measures.

As a visitor of the hospital you should carefully observe the recommended hygiene measures and in particularly disinfect the hands on entering and leaving the hospital. Should you be accepted as a patient for a joint replacement in a hospital, you have to make sure that you do not carry any infection. Alongside infections like colds or flu generally any infection of the teeth, bladder or e.g. an ulcerated leg, are the ones to be aware of. Additionally, it is important that you support the hospital's hygienic measures by your own behaviour. This includes e.g. showering carefully and twice before

Observe the recommended hygiene regulations of the hospital both as a patient and as a visitor

Infections of the replacement joint are particularly problematic

Our organism normally possesses effective strategies to protect itself from germs entering it. However, if pathogens enter e.g. a surgical wound – especially when the immune system is weak and when they enter in large numbers it can cause an infection with serious consequences. As replacement joints do not have their own immune system protecting them against bacteria, the pathogens can stick to the surface of the prosthesis and create what is known as a biofilm, which protects it from the body's own immune system and from antibiotics. Infections like these are fortunately very rare. Their number remains under one per cent with the appropriate pre-operative care and techniques. However, when they appear, they require quick and consistent treatment.

re admission to eliminate as many germs as possible which might be residing in the nasal atrium, throat, shoulders and groin. If you do this the evening before admission then fresh sheets should be put on the bed so that the germs cannot re-establish themselves, these germs are not only passed on from person to person but also from object to object.

A considerable measure in preventing these problematic germs from being transferred is to keep the period of stay in hospital as short as possible. This is the reason why operational techniques and the post-operative care are managed so that the average duration



of stay for an artificial knee or hip joint from admission on the day of operation until the day of discharge is about 5 days. This means when you are admitted and have surgery on the Monday, you will already be allowed to leave on Friday. This ensures the maximal reduction of a possible risk from infection, as the longer the stay the higher the risk.

Home again after an average of about 5 days

Taking blood thinning and anticoagulant medication

More patients are increasingly reliant on taking blood thinning and anticoagulant medication and are unable to simply discontinue them. Severe haemorrhaging could result during an operation depending on the substance used. This is the reason the procedure needs to be agreed upon with the doctor individually. Heparin can often be adjusted to restrict the blood from clotting (thrombosis prevention) and yet will not increase the risk of haemorrhaging. Pa-

tients who have been prescribed preparations containing acetylsalicylic acid e.g. for heart attack or stroke prevention, may continue with this medication as a rule. Discuss the fact that you are taking an anticoagulant, whatever kind, with the consultant in the initial appointment.

Blood Replacement or Autologous Blood Donation

Many patients ask whether they can donate their own blood before the operation, so that, should the case arise, they are not reliant on the blood donations of others. We address this problem in two ways. Firstly, all patients are examined for possible anaemia before the operation and are treated where necessary. What is more crucial is our operation technique which uses the joint's natural pathways and does not lead to any severance of the muscles. Therefore the risk of losing blood during the operation is extremely reduced. This is demonstrated by the low transfusion rate which currently lies at 1.6 per cent with a decreasing tendency. Therefore the subject of autologous blood donation is actually of no relevance to our patients.

*Minimal blood loss with
tissue-conserving
operation techniques*

Types of Prosthesis

Individual Needs Differ

There is not only one type of procedure, one type of prosthesis or one form of aftercare, but there are many different options available which the patient can choose from, to find the one most suitable for them. It is important to take into consideration how mobile and sporty the patient still is, or would like to be again after the operation. An amateur athlete as a rule needs a different kind of treatment when compared to someone who only undertakes the occasional cycle ride or shopping trip in the city. Some are happy with a pain-free everyday life whereas some would like to do ambitious mountain hikes. Fortunately there is a suitable implantation for everyone.

*There is a suitable implant
for everyone*

Bone Saving Implantations

In principle, for every prosthesis operation regardless of whether it is on the hip or the knee as little bone as possible should be lost and the body's natural anatomy and biomechanics should be retained where possible. Although some modern joint replacements have a lifetime of up to 20 years, this is not long enough to last a lifetime. A follow-up or revision surgery might be necessary at some stage and in many cases, both without any complications. It is a major advantage when the first operation to implant a suitable prosthesis incurs a minimal amount of bone loss. Then the new prosthesis can find sufficient support and be fixed firmly in the bone.

Standard Hip Replacement Joint

Standard hip replacement joints can either be implanted with a "Press Fit Process" (cement free) or be cemented. They offer a wide range of flexibility for different bone qualities, so that patients with osteoporosis can be treated appropriately. There are many different types of joints (material combinations) for hip head and socket available, so that the right solution can be found to suit every patient. In the meantime, standard hip replacements joints are inserted using minimally invasive surgery and are gentle to the muscles. Due to the decade long experience of these implantations the procedure is considered very safe and free of risk.



The standard stem cup prosthesis is cement-free and like the cemented implantation effectively proven over decades

Short Shaft Hip Replacement Joint

What is known as a short shaft hip replacement joint has been used for many years. They can also be implanted cement free. The short shaft is fixed at several places, so that long term the results are on a par with conventional hip replacements. In contrast to these – which are especially used in older patients or revision operations – the short shaft system is often used in younger patients using minimally invasive surgery. Later, revision operations are easier to plan with better conditions.



Short shaft prosthesis offer the ideal conditions for a potential revision operation

Total Knee Replacement (Bicondylar Knee Replacement)

Modern knee prostheses are not simply a “hinge”, but replicate the original joint’s complex roll-glide movement by using a sophisticated mechanism. Thus, an optimal function of the joint is achieved and the anatomy remains largely unaffected. Today, prostheses can easily be matched to each individual’s body due to the combination of many different sizes of thigh-sided and shinbone-sided components which are available for men and women. There is no longer a need to reconstruct a knee according to gender.



Bicondylar Knee Replacement

Partial Knee Replacement (Oxford Knee)

An Oxford Knee is the type of knee replacement whereby only the parts of the knee which are actually damaged are exchanged. The partial knee replacement has been successfully used for many years. The folding back of the knee cap for the implantation is no longer necessary. The whole of the knee’s stretching/flexing mechanism remains unaffected by the operation so that a time-consuming rehabilitation necessary for many other knee operations is not

needed. However, specific conditions have to be met by the patient for using this kind of implantation. Hence, the wear and tear damage caused by arthritis should only have spread to the inside of the knee and for reasons of stability the anterior cruciate ligament should still be intact. To attach the joint replacement an incision along the knee cap of only 6-8cm long is necessary. The implant fulfils all the criteria of a genuinely minimal invasive operation – which in Great Britain and the USA is largely performed as an outpatient operation.



Oxford Knee

What does a minimally invasive operation mean?

In conventional hip operations parts of the hip and buttock muscles are frequently removed or severed, in order to be able to insert the hip prosthesis more easily. Unfortunately, the price for this is very high, as the patient only has a fraction of the muscle strength they need after the operation. It often takes months for the healing process of the injured muscles to come to an end and in some cases some damage remains. Some patients today also complain of a persistently impaired gait known as "Trendelenburg" limping. It has taken its name from Friedrich Trendelenburg, a surgeon from Berlin, who was the first one to discover the weakness of the gluteus medius muscle as the cause of this kind of limping.

The alternative to this is minimally invasive surgery (keyhole surgery). This term has cropped up in recent years and requires some explanation. It is frequently used as a synonym for a cosmetic and attractive operation result which leaves behind only small or minimal scarring. However, this aesthetic aspect is secondary when compared to the significance of the functional advantages. With reference to orthopaedic surgery "minimally invasive" in the first place means that only the most essential incisions necessary for the performance of the operation will be made, wi-

*Minimally invasive means
not only cosmetically ap-
pealing but above
all tissue-conserving*

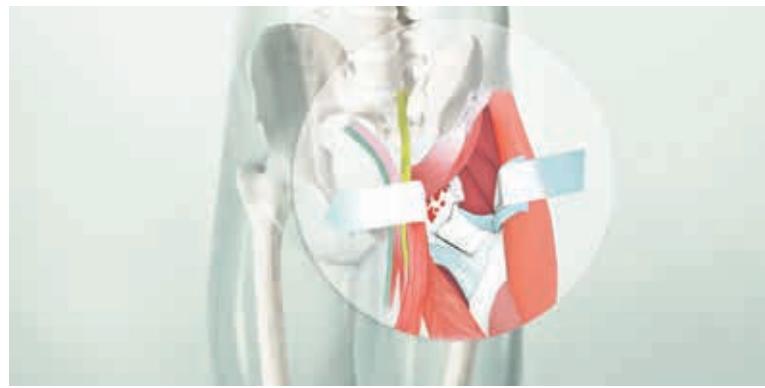
thout them the operation will simply not be possible. It means that the important joint coordinating muscles will not be injured by the operation. Minimally invasive also means that the use of wound drains, tubes and catheters are not needed, and therefore do not hamper early mobilisation.

As with all operations there are some risks and these naturally apply to minimally invasive ones, too. Nevertheless, in comparison with conventional operation techniques these are significantly reduced. This applies to the general operational risks such as; haemorrhaging, buttock and nerve damage, thrombosis and the risk of an embolus (pulmonary embolism) as well as e.g. joint adhesion and growth or leg length differences which might occur, too.

The operational risks of minimally invasive techniques are significantly reduced

The minimally invasive hip operation

A minimally invasive hip operation means we can operate through the natural opening of the muscle bundle. The muscle compartments offer sufficient space to allow the prosthesis to be inserted safely using the latest operational tools. The muscles and tendons which lie in the entryways can be pushed to the side or held so that they do not need to be severed and will not tear as a result of the tension upon them during the operation – this can also be a problem when other entryways are used. After inserting the hip socket and the prosthesis the soft tissue mantle encases the joint again as before. Only the muscle sheath and skin incision has to be sewn up, which facilitates a much quicker healing process. The muscles are not harmed but are kept to provide the



Adequate pain therapy is an important component of gentle operation techniques

optimal conditions for an artificial replacement needed at a later stage in life. At the same time, for the operation we only need to make a relatively small incision. For the patient this means there is less blood loss, less pain and above all, a quicker recovery. To enable early mobilisation, it is very important to have highly effective pain therapy both during and after the operation. We operate using a spinal or general anaesthetic, and additionally to this we may use a local anaesthetic. The patients can be mobilised not only on the day of their operation but a day later they can already climb the stairs – this was unimaginable before.

The minimally invasive knee joint operation

The advantages of a knee prosthesis using a minimally invasive implantation are quite similar to the aforementioned. Here it depends in the first place on how much the soft part mantle has been taken care of. Furthermore, the extent of the bone damage plays a significant role. The modern surface replacements of today enable only the part of the joint surface which

is actually worn out to be replaced. In some cases this only needs to be the base of the femoral condyle, known as a unicompartmental replacement or a partial knee replacement. Modern entryways ensure that during implantation the knee cap no longer has to be folded back as they used to be – this is a huge advantage for patients enabling them to recover from the operation much quicker.

However, minimally invasive approaches particularly in knee endoprosthetics must be proceeded with very carefully. The risk of positioning the prosthetic component wrongly is significantly bigger in the knee than during the implantation of a hip prosthesis. This would cause the functioning of the replacement joint considerable impairment later on, as a deviation by only a few degrees from the ideal position would considerably influence the knee's maximum angle of flexion and the ligament tension.



A minimally invasive subvastus entryway for a knee operation

What am I allowed to do in the days following the operation?

Many patients expect to follow a long list of rules on how to behave, at least in the first few days after the operation. With the Rapid Recovery Concept these kinds of restrictions and controls largely belong to the past.

Restrictions and controls

largely belong to the past

From the first day on you will be able to put full pressure on the joint and do everything within reason that you want to. You may lie in bed in a position most comfortable for you, sleep in your favourite position even on the side you have been operated on as there are no positioning splints to get in the way and annoy you.

You will not have a catheter but you will need assistance the first time you get up after surgery but after that you can and are encouraged to get up and move around with a walking aid, as you like. Hence, you will be able to go to the toilet alone, your personal sphere of intimacy is protected, and your morning and evening routine can be done by yourself.

You may also wear your own clothes. So, the feeling of being ill does not arise and having communal meals in the “living room” will remind you more of a hotel on holiday than a hospital.

To make sure you can walk safely in hospital, it is also best to wear low flat slip-on shoes without laces

which you can slide your feet into. Backless slippers do not give enough support in the first few days. A long shoe horn can make putting on shoes easier.

On the first day after the operation you may already climb up as well as down the stairs which you should be able to do with ease.

Bearing the full weight early on and being mobile promotes rehabilitation and a quick return to daily life. This is supported by regular exercises under the care of an experienced physiotherapist as well as by lymphatic drainage which is provided to reduce the swelling of the joint which can occur even with the most gentle of operation techniques. Enjoy this relaxing treatment! Intermittent cooling of the operated area also reduces the swelling, limits the infection and soothes the pain.

When you have questions or something is not clear please ask a member of the nursing team. All your questions will be taken seriously and answered quickly and completely.

*Small aids which can make life more comfortable:
a long shoe horn,
a reacher grabber*

Motivated and Mobile Rehabilitation

Four days after the operation you will be discharged from hospital and transferred to an in-patient or out-patient rehabilitation. At this stage you will have had many positive experiences, received praise from your visitors who will be surprised at how fit you are and gained confidence in walking. Your fear that your stay in hospital is too short in comparison to how it used to be, you will discover, is unfounded and instead of experiencing any disadvantages you will have gained. A short treatment period is not a disadvantage but a sign of quality, for it is not the duration but the quality of the treatment which counts.

Meanwhile increasingly more patients take up the opportunity to have post-operative rehabilitation as an outpatient. For many patients the combination of being picked up from home in the morning, train at the rehabilitation establishment in the daytime and return home for the evening and night is ideal. The functional results of an in-patient or outpatient rehabilitation are absolutely identical.

Outpatient rehabilitation is becoming increasingly more popular

Competent post-operative care plays a large part in achieving good results after an endoprosthetic operation. This is why it is important that the hospital and the rehabilitation teams work well together. The rehabilitation establishment will help you make a good recovery after the operation using a therapy plan

which has been put together according to your specific needs. There you will train the muscles and coordination, and continue to improve your ability to walk, in order to cope best with the future stresses awaiting you at home. After completing the “Reha” programme you should be able to manage your daily life independently much better than before the operation.



Supporting the Healing Process

With your new hip or knee joint you will soon be active and can participate in everyday life without restrictions again. Muscle strength, range of movement, coordination and your sense of balance will benefit enormously from exercises, which you will already have started before the operation. For the exercises presented in this chapter you will need no other items except a chair, a blanket and a towel.

Exercises PRE HIP operation

Prior to the operation it is especially important to keep the muscles mobile and prevent them from shortening which can be painful and restrictive. You can do the exercises in a standing position as well as in a lying position.

Lie on your back

Raise your leg and with your hands place them behind the knee, pull it towards you with your toes pointing upwards towards the sky. Pull your leg towards you until you feel it stretching. The other leg remains flat on the floor as much as possible.



In a standing position

- ① Stand upright holding onto the wall for support. Stretch the affected leg backwards keeping your foot and heel flat on the floor. Put your weight on to the front leg, until you can feel it stretching in the calf muscles. Hold the position for a few seconds and relax.



- ② Stand upright holding onto the wall or table for support. Bend the affected leg and hold the top of your foot. Pull the heel towards you until you can feel it stretching in the front of the thigh. Hold the position for a few seconds and relax.

Exercises which are good for you in the acute phase **AFTER** the **HIP** operation

Lie on your back

- ① Bend and straighten your ankles briskly. This will activate the muscular venous pump and prevent thrombosis.

- ② Pull your foot towards you pressing the back of the knee and thigh firmly into the floor.
- ③ Pull the operated leg up towards you keeping your foot flat on the floor. Make sure that your hip joint does not bend more than 90°. Then straighten the leg again.
- ④ Pull the leg which has not been operated on towards you as far as possible.



Stand upright:

holding onto a chair or table for support.

- ① Place your feet a hip length apart. Lightly bend the knee and gently shift your whole body and its weight from left to right several times.
- ② Lift up the operated leg up and then put it back down again. Make sure that the leg does not bend more than 90°.
- ③ Stretch the operated leg backwards without mo-





ving the upper body. Return the leg back to its starting position.

- ④ Stretch the operated leg sideways from the mid-line without bending the upper body. Return the leg back to its starting position.

Exercises which help **HIP patients improve their strength and coordination **DURING** Rehabilitation**

- ① Lie on your side on the leg which has not been operated on. Lift the leg upwards, the upper body and the lower leg form a straight line.
- ② Lie on your stomach. Bend the operated leg almost to a right angle. Make sure that the pelvis remains firmly on the ground.
- ③ Lie on your back. Put your legs out straight.



Bending your knees and keeping your feet flat on the ground, lift your hips up until your thighs and upper body to form a straight line. Hold this position for a few seconds and then lower your hips back towards the ground.

- ④ As in exercise 3, but lift one foot up off the ground and alternate.
- ⑤ As in exercise 4, but stretch the raised leg until it is in line with the body.



Exercises which are good for you **AFTER** a **KNEE** operation

Lie on your back

- ① With straight legs move your feet back and forth. This will activate the muscular venous pump.
- ② Make circles with your feet in one direction and then in reverse.
- ③ Pull the tips of your feet upwards and press



both knees firmly towards the ground. Hold for several seconds.

- ④ With the foot flat on the ground bend the operated leg as much as possible towards you.
- ⑤ Straighten the knee and press the back of the knee onto the ground.
- ⑥ Place a rolled up towel under your knee. Point the tips of your toes up and lift the ankles off the ground. Whilst doing this try to stretch the knee and then relax.



In a sitting position

- ① Pull the tips of your feet upwards and stretch the knee completely. Try to avoid lifting the thigh off the seat. Then relax.

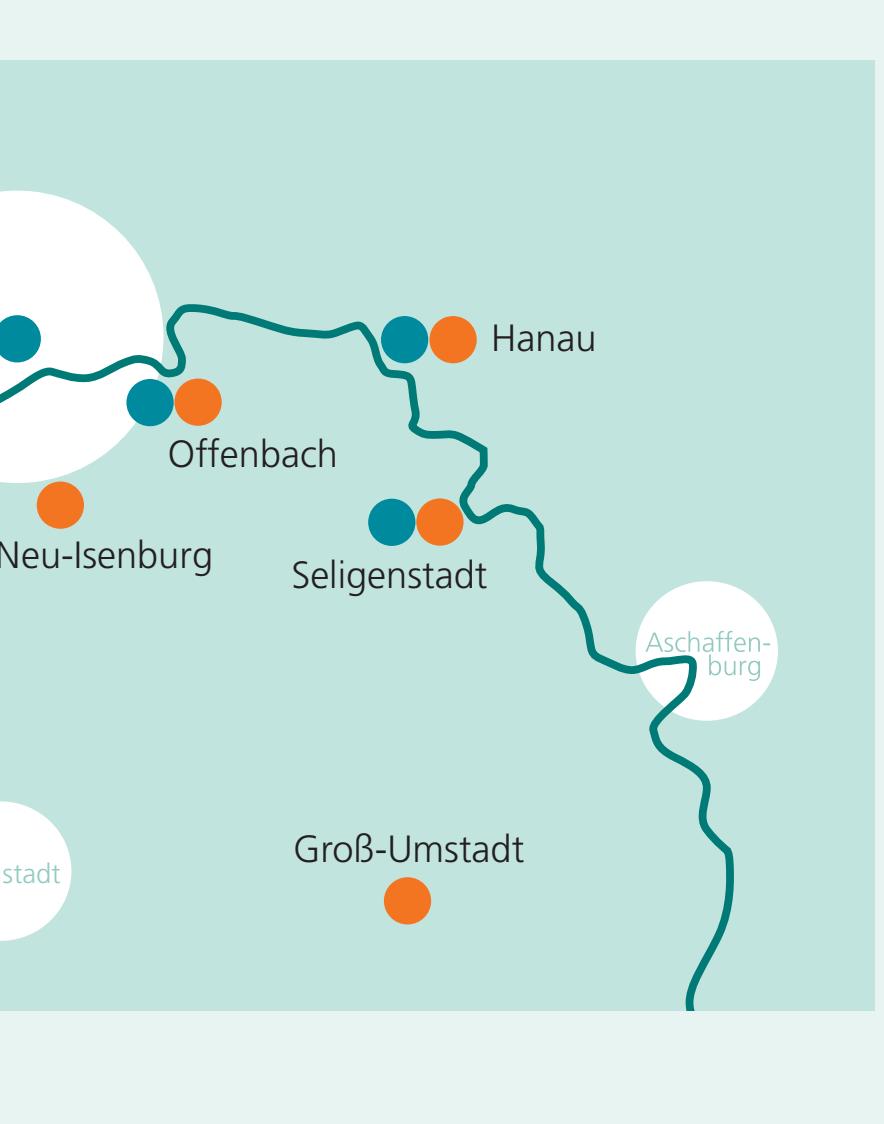


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Back at Home. What am I allowed to do?

Although you will be happy to be at home again in a familiar and homey environment, the initial period at home will probably be mixed with a degree of insecurity. At first, you will have to adjust to managing a household independently again, without being able to rely on help each time. However, with the confidence you have gained from your progress at hospital and from rehabilitation and with a little preparation prior to the operation, potential hurdles can be removed and make your return easier.

Everyday life back at home

Remove potential stumbling hazards

Remove all potential hazards such as cables, loose rugs or carpets, in the bedroom and bathroom. Check the height of your bed. Ideally the surface of the mattress should be at about knee height. If it is considerably lower, then where possible you should raise the bed at least for the first few weeks. You should also prepare the bathroom for your return. You should definitely make sure that there is a non-slip bath mat in the bath tub and/or shower. At first use a shower stool/chair to sit on whilst taking a shower where possible. If your bathroom does not have a shower but a bath tub you might be able to use a bath chair or a bath lift.

In the first few weeks, especially for hip patients, all objects which you regularly need e.g. kitchen equipment

should be arranged so that you can reach them without bending or stretching. Take a look at your favourite chair. Does it have the right seat height? Often the seating surface of the sofa or couch is very low and stooping low down to sit at an angle of more than 90° is not appropriate in the beginning. It is best to sit on a comfortable seat with a raised seat level or on a chair with armrests. However, after about three months it will be possible to sit normally again without any restrictions.

At work

If you are working, you will be able to return to work about six weeks after the operation, as a rule. This naturally depends on the physical demands of your job. Freelancers who do not perform heavy physical work and are able to manage their time as they like, will be able to start again significantly earlier, at least on an hourly basis. For jobs which e.g. involve a lot of bending or kneeling you should wait for the approval

*Returning to work
depends on the job*



of your consulting doctor, even if you already feel fit enough to work.

No matter when you start again, you definitely have to be sensitive to the potential of overstraining your body and to behave appropriately giving your body rest when it is needed.

Sport

Patients who have always been sporty, but during the time before the operation have been forced to take it easy, can scarcely wait to get started again. When the right time is for this, you ought to discuss with your surgeon. Generally, the complete sports ability will have been restored after about six months and all the kinds of sport, which have been technically well mastered, can be practised once more – after accustoming yourself to it again. However, for those who have never skied before they should not start to learn to ski after the operation. Cross country skiing (langlauf) can be attempted once appropriate muscle training has been undertaken.

*Sports activities enrich
your life*

Caution is advised for all kinds of competitive sports (handball, football, volleyball, basketball, Judo, Karate), especially if you like to enter into dual combat and, as a natural born fighter, want to win at all costs. By contrast, all sports which move rhythmically and steadily and with controlled movements are to be recommended.

In principle, a certain degree of sports activity is seen as thoroughly positive. It is not only the muscles which are trained. The circulation, breathing, the cardiovascular system and metabolism all benefit from

Recommended types of sport with a hip or knee replacement

- ✓ Hiking or walking with or without poles
- ✓ Aqua walking or aqua jogging
- ✓ Cycling in an upright position (on a relatively flat surface)
- ✓ Swimming
- ✓ Cross country skiing (langlauf)
- ✓ Dancing
- ✓ Playing golf (with a prosthetic fitted specially for this)



physical activity. Furthermore, the risk of thrombosis and an infection to the airways is reduced. Additionally, the coordination ability is improved and the risk of falling is reduced. Weight can be controlled better and, last but not least, sport in the fresh air is good

for the soul. You do not need to worry about the hip joint loosening prematurely as a result of moderate sports activity. It has been proven that the loosening rate of the joint is actually smaller in people who are physically active.

Travel

With the regained pain-free mobility, many prosthetic wearers have the desire to quickly catch up on lost opportunities. They yearn to go on that long-awaited holiday and be able to do carefree travelling. In principle there is nothing to prevent them. The world is open to you for both those with a hip or knee prosthesis. You are also free to choose your choice of transport, when you observe some rules of behaviour. Make sure you wear comfortable, loose clothing and firm shoes. Plan and arrange regular breaks for moving about.

Travelling by car make breaks easy to arrange when you need them, but depending on the type of vehicle little room for movement is available. As long as you are dependent on crutches for support, you should not drive a car. Before you get behind the wheel, speak to your doctor about it.

Always take the endoprosthesis passport with you when travelling

Long distances can be overcome by flying. However, there is also little room for moving about, the space is very tight and the possibility of stretching your legs is more restricted. Additionally, there is a risk of developing deep vein thrombosis on long distance flights. Discuss with your doctor, whether it is advisable for you to take additional thrombosis protection. Be aware that metal in the new

joint can set off the metal detector alarm at the security check. Always carry your endoprosthesis pass with you.

Travelling by train offers the best chance of alternating between sitting, standing and walking. Furthermore there is the possibility of travelling luggage free using the railway's door-to-door service. The staircase which usually leads to the platform should not present any problems as climbing the stairs should already have been learnt in the clinic directly after surgery.

Love-making

The pain experienced in the period before the operation will often have prevented even thinking about caresses and sexual intercourse. However, once the pain has disappeared and the joint mobility is available again, the feelings of desire return once more and thus the wish for physical love. Yet what are you allowed to do and what should you rather omit with a newly inserted prosthesis? There is no general answer to this question. Previous experience, the general physical sense of well-being and personal preferences are very individual. Furthermore, which joint has been operated on plays a role. If you have the courage talk to your partner about your wishes and carefully begin to try out which position is possible and pleasant for you. What is crucial is that neither of you experiences any pain when making love.

If you have a new knee joint, then there are no physical restrictions when love-making either for the

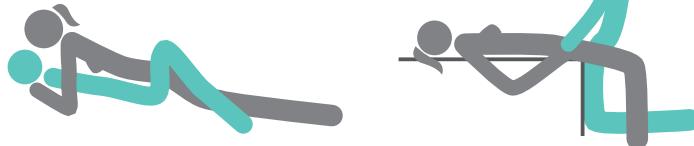
The missionary position is the most well-known position for sex. However, it is difficult to avoid bending the hip joint over 90°. This position is less likely to be considered suitable for the newly operated hip joint.



If the **WOMAN** has been operated on then the following positions are possible:

The reverse missionary position

Kneeling position on the end of a bed



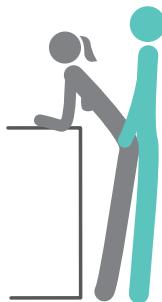
man or the woman. All positions are possible as long as no pain occurs.

In the first three months of having a new hip joint, you ought to observe the rule of avoiding positions where the hip has to bend to an angle of more than 90°. This is because there is a risk of the hip dislocating from its joint. It is very important that at first you are cautious and proceed gently and that the operated partner has a more passive role during the love act. Use this unfamiliar situation and experiment. In the beginning, carefully and then more confidently, until you have discovered what you like best. Generally what is important for a successful

If the **MAN** has been operated on the straddle position is recommended.



For both partners the standing position is suitable but the angle of 90° should not be exceeded



sexual relationship is to talk with your partner about your reservations, desires and possible complaints. Then there is nothing to stand in the way of a fulfilling love life.

Use the opportunity to try out new positions during love-making

Six Months Later

Although an artificial hip cannot replace the body's own healthy joint 100 per cent, everyday life after the operation will have returned to normal for nearly all prosthetic carriers and the prosthetic joint will have become fully integrated into their well-being and behaviour. However, patients who have a knee prosthesis can sometimes feel a sensitivity to changes in the weather after half a year. By this stage, the surrounding joint capsule will have healed and stabilised the implantation, so that the risk of dislocation will have considerably decreased. Still, extreme movements as well as heavy impact due to sudden movement or straining the joint to its maximum should be avoided. Physical activity, such as walking or hiking over a longer period should no longer be a problem now. The days spent no longer thinking about the new joint are increasing and it is almost forgotten.

Life is back to normal, still extremely heavy impact and extreme forms of movement should be avoided

Yet, there are some situations when you will be reminded that you are a prosthesis carrier. Hence, you can set off the metal detector alarm when you pass through security controls. Therefore, you should always carry your endoprosthesis pass with you to avoid difficulties. Bear your prosthesis in mind when you are planning dental or urological operations. Let the consulting doctor know in time and talk with him about potential antibiotic protection if necessary, as it is important to protect the artificial joint from infection. Also do not wait for a long time, should you have any complaints or pain in the artificial joint area, but consult your doctor as quickly as possible.

Last but not least, you should consider regular visits to the specialist doctor even when you do not have any kinds of complaint. With the modern gentle operative processes, routine examinations are undertaken once every two or three years instead of the yearly controls that used to be necessary. After about ten years the examination intervals might become shorter to note any changes as timely as possible.

In case of complaints consult a doctor in good time

When you look after your prosthesis well, as with a car which you want to drive for a long time, the conditions can largely be met to ensure that the joint will last for many years and you will be able to gradually look forward to regained pain-free mobility.

The ten most frequently asked questions

How long do I have to stay in hospital?

You will be discharged once you have met the discharge criteria. Generally this is three to five days afterwards.

When will I be able to walk normally again?

Immediately after the operation you will be able to bear your weight fully on the joint. However, in the first few weeks you should use forearm crutches to improve co-ordination and to avoid any potential high impact loads e.g. like stumbling. How long this is for will differ from individual to individual. Generally it is between two and six weeks.

When can I drive a car again?

After five days when you are discharged from hospital as a passenger. For very low lying seats you should use a cushion to sit on. You can steer a car yourself after about four to six weeks as long as you do not need any forearm crutches.

How long do I have to take it easy at work?

This depends on the type of job you do. A desk job where you spend a lot of time sitting or a job which alternates

between sitting and standing can be taken up after about six weeks. A job where you spend a lot of time standing e.g. shop assistant or a hairdresser, you should have a break of about eight weeks. Work which entails climbing up and down a ladder or a scaffold or demands a frequently bent stance – as with most skilled labour jobs, can be taken up again after about three months.

When can I start playing sport again?

This strongly depends on the individual's condition. The kind of sport, age, level of training, general physical fitness and the gait stability achieved all have to be taken into account. Cycling on even surfaces without heavy resistance is generally possible after four weeks, dancing and swimming after six weeks. For jogging, tennis and skiing you need to wait for about three months.

How long does a prosthesis last?

Modern prostheses have a lifespan of about 20 years, in many cases even longer.

How do you become aware of the joint loosening?

Pain, gait instability and a newly appearing shortening of the leg should always be checked.

How often do I have to be re-examined?

An artificial joint implanted with tissue saving techniques and also when you have no complaints, should

be professionally examined about every two or three years. This will be documented in your prosthesis pass.

How much can I carry with a prosthesis?

When you are able to walk without crutches, then there are no more restrictions.

When am I allowed to have sex again?

After a knee replacement - very quickly. After a hip replacement you should carefully try out what is comfortable and avoid positions exceeding 90° angles of the hip.



Dr. Manfred Krieger

- ✓ Specialist for hip and knee replacement (300 personally conducted operations each per year)
- ✓ Experience in muscle-sparing operational techniques and giving lectures internationally
- ✓ Head consultant of the orthopaedic clinic at the Rüsselsheim Clinic (Mainz university medical school)
- ✓ User of the “Rapid Recovery Programme” since 2010
- ✓ General Hospital Practitioner at the Emmaklinik in Seligenstadt, and private specialist consultant covering different hospitals in the Rhine Main region
- ✓ 28 years of surgical experience with more than 10,000 operations personally conducted on the hip and knee joint
- ✓ Specialist medical training in Darmstadt and Wiesbaden
- ✓ Study of medicine in Italy, USA and Germany



Ralf Dörrhöfer

- ✓ Specialist for hip and knee replacement
- ✓ Experience in muscle-sparing operational techniques
- ✓ Head consultant of the Endoprosthetics Department at Klinikum Hanau (Frankfurt university medical school)
- ✓ General Hospital Practitioner at the Emmaklinik in Seligenstadt, and private specialist consultant in Frankfurt
- ✓ 18 years of surgical experience with more than 5,000 operations conducted on the hip and knee joint
- ✓ Specialist medical training in Frankfurt and Alzenau
- ✓ Study of medicine in Frankfurt



