

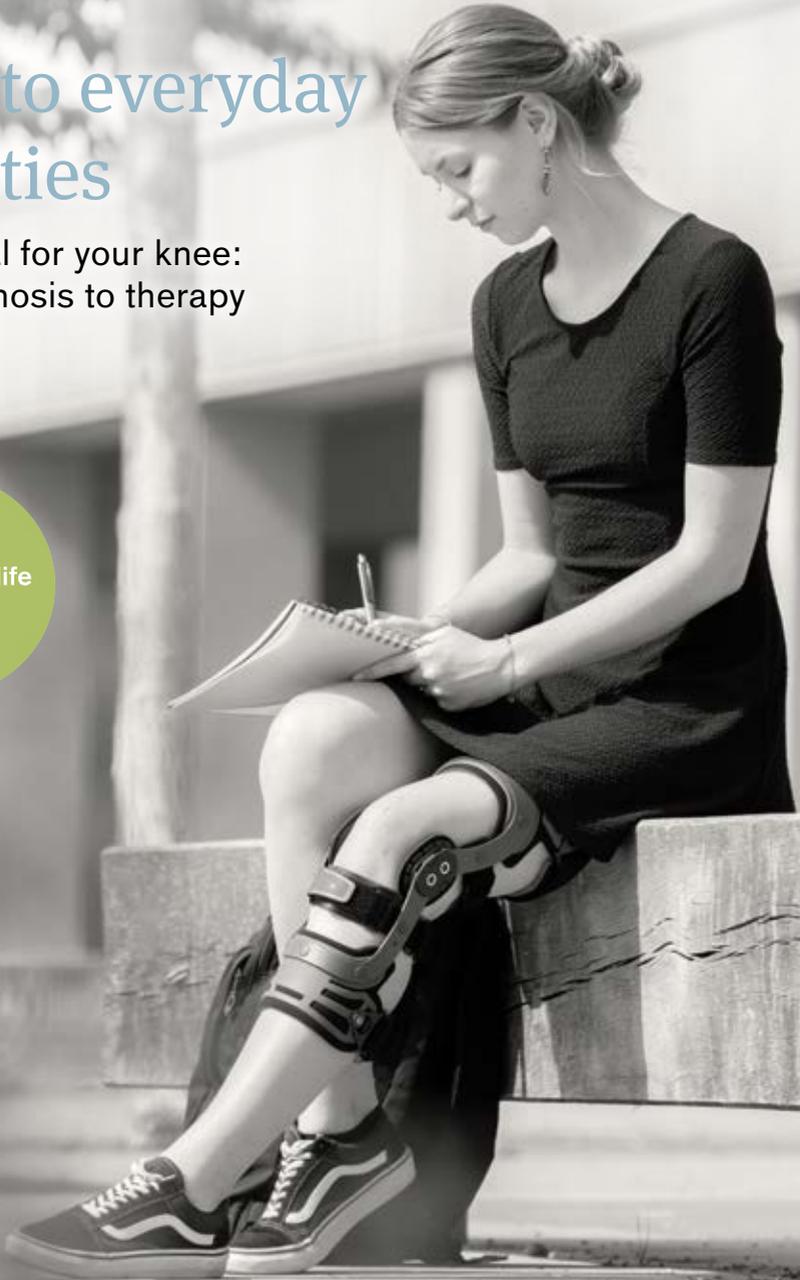
ottobock.

Back to everyday activities

The manual for your knee:
From diagnosis to therapy

Quality for life

Information for patients



“When I was skiing rapidly down the slope, I suddenly had to brake sharply. Then I felt severe pain in my knee. I was in pain, but I thought if I took things easy for a while it would go away. Unfortunately, I tried to do too much too soon. A couple of weeks later while I was dancing, it happened. Cruciate ligament tear. I just was not aware of what had happened to my knee in the winter.”

Jessica, 21, student





Jessica's anterior cruciate ligament was torn during a sudden braking manoeuvre when skiing. This is a typical sports injury because the knee is flexed in this situation, curved inward slightly, and is simultaneously rotated outwards (valgus stress). The anterior cruciate ligament is also often torn during football and other ball sports with rapid changes of direction.

The posterior cruciate ligament is torn less frequently, mostly due to powerful external forces. A posterior cruciate liga-

ment may be torn, for example, in a traffic accident when the knee is pressed against the dashboard in flexed position.

If you have had a cruciate ligament tear, use this brochure as a practical aid for returning to everyday activities.

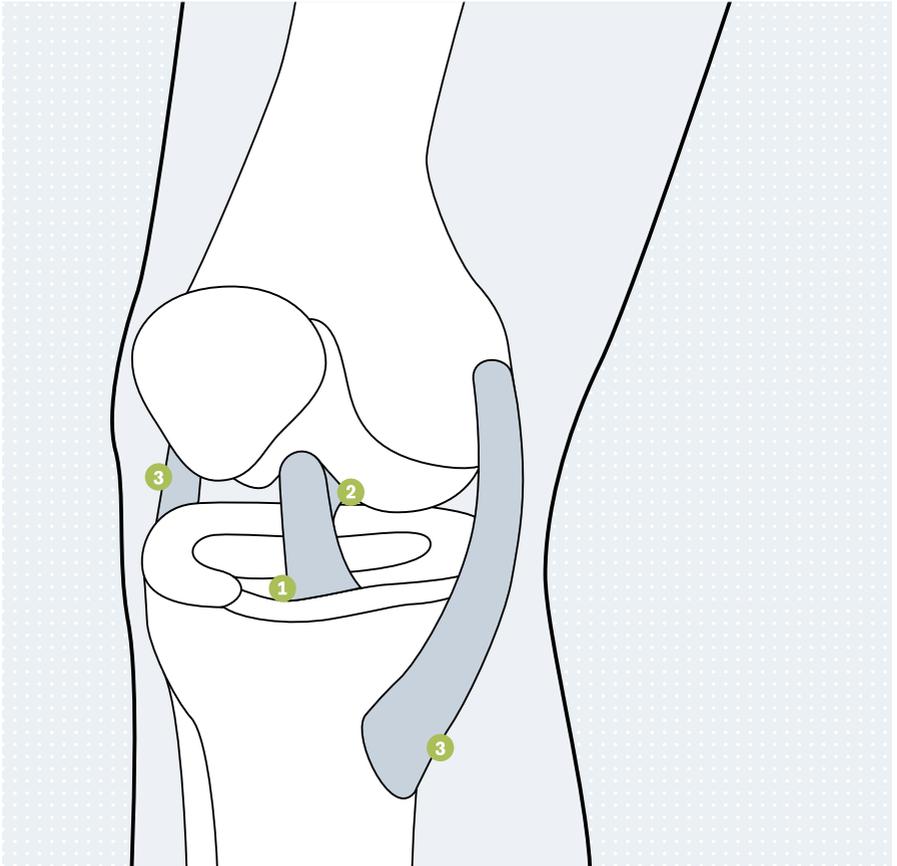
We wish you a speedy recovery!

What happens in the knee when the cruciate ligament tears?

1 The anterior cruciate ligament prevents the lower leg from gliding forwards. It is supported by the capsular ligaments, the menisci and the knee flexor muscles. The knee loses stability when the anterior cruciate ligament tears.

2 The posterior cruciate ligament, along with the knee extensors, prevents the lower leg from sliding backward. It is supported by ligaments that run through the hollow of the knee. When the posterior cruciate ligament tears, the knee joint loses stability.

3 The lateral and medial collateral ligaments ensure the stability of the outer and inner sides of the knee joint.



How is a cruciate ligament tear treated?

If you have suffered a cruciate ligament tear, you generally will need surgery. The operation combines an arthroscopy with inserting a tendon to replace the torn cruciate ligament. The procedure takes one to one-and-a-half hours on average and is usually performed on an inpatient basis. Immediately afterward, you will be fitted with a rigid immobilisation brace to provide the best possible protection for the graft. Around ten days after the operation, the sutures are removed and the rigid brace is replaced with a flexible rigid-frame brace such as the Genu Arexa. Using it, you can carefully move the injured knee again.



Frequently asked questions

Is it normal after surgery for

- **... me to be in pain?**
If pain persists, you should consult your physician. Generally, pain is normal in the first two weeks, but should steadily decrease.
 - **... my knee to feel warm and swollen?**
Yes, but only if the symptoms improve slowly, but steadily. Consult your physician if you have severe pain and swelling.
 - **... me to be nauseous?**
When patients feel nauseous after surgery, it is often due to the anaesthesia. After a few days, nausea should subside rapidly. If it persists, consult your physician.
 - **... me to have difficulty raising my leg?**
Yes, especially if the patellar tendon or the quadriceps tendon was used as a graft for the cruciate ligament. In that case, you should start with light isometric exercises for the knee extensors immediately after surgery.
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When after surgery may I

- **... lie on my side?**
Generally immediately after surgery, but if there is an additional collateral ligament injury, only with a brace.
 - **... change the bandage?**
Bandages should be changed every two to three days.
 - **... use a cold compress?**
Please only in the first two to three days after surgery for no longer than 10 minutes, then no cooling for three to four hours (wrap the compress in a cloth). Use cooling ointment, quark compresses and the like only after asking your physician and when the wound has completely closed.
 - **... bathe/shower?**
Only when the wound has healed well and no longer oozes. Consult your physician.
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How long does it take until the injury is healed?



It takes around six to eight months for the graft to be completely healed. That seems long, but the strength of the joint returns sooner in many cases. Some patients can walk and move again with nearly no limitations after around four months.

But continue to be careful for a while even after an initial success. Wait as long as your physician recommends before starting any sports or strenuous activities. It may take a year before you can do everything again. But that being said, how fast healing takes place and how long the individual phases last varies widely from person to person and depends to a great extent on your own participation.

What is the healing process?

In addition to physiotherapy that you should always have after the operation, you should actively promote the healing process. You will find practical exercises to do at home in the appendix of this brochure.

Phase I From week 1

The knee will be sore immediately after surgery. There will be pain and swelling. The aim of the first phase of healing is to alleviate and manage these symptoms. Patients can start to train extending the knee joint now.

i You can find these and other exercises in the pamphlet for the Genu Move exercise programme



STRENGTH FROM PHASE I

• **Quad sets**

Light strengthening and active stretching for knee extension

Phase II Week 3 to 6

The ability to extend the knee achieved in phase I should now be maintained. So continue the exercises from phase I.

Aims of phase II are further improvement of mobility and muscle strength and normalisation of the gait pattern.

Phase III Week 7 to 14

In the third phase of healing, mobility should be increased until it is equivalent to the healthy knee. To achieve this, you can now start with stretching exercises for the quadriceps muscle in the thigh. The aims of this phase are to restore full mobility and increase endurance, strength and coordination.

Phase IV Week 15 to 22

If you are like the majority of patients and have trained regularly, you should be able to move naturally without pain again now. Even jumping safely should be possible again in this final phase. Congratulations! Training paid off.



BALANCE FROM PHASE II

• One-legged balance exercise

Improve coordination and strengthen the small, important stabilising muscles surrounding the joint



BALANCE FROM PHASE III

• Knee bends with lunges

Strengthen the quadriceps and gluteus muscles



BALANCE FROM PHASE III

• Balance with ball

Strengthen the thigh flexors, gluteus and back muscles





i Frequently asked questions

When can I

● ... drive again?

Around four to six weeks after surgery, but by law, only if there is no “physical impairment”, i.e. if the leg is completely fit in accordance with the requirements. Have your physician assess this.

● ... go back to work?

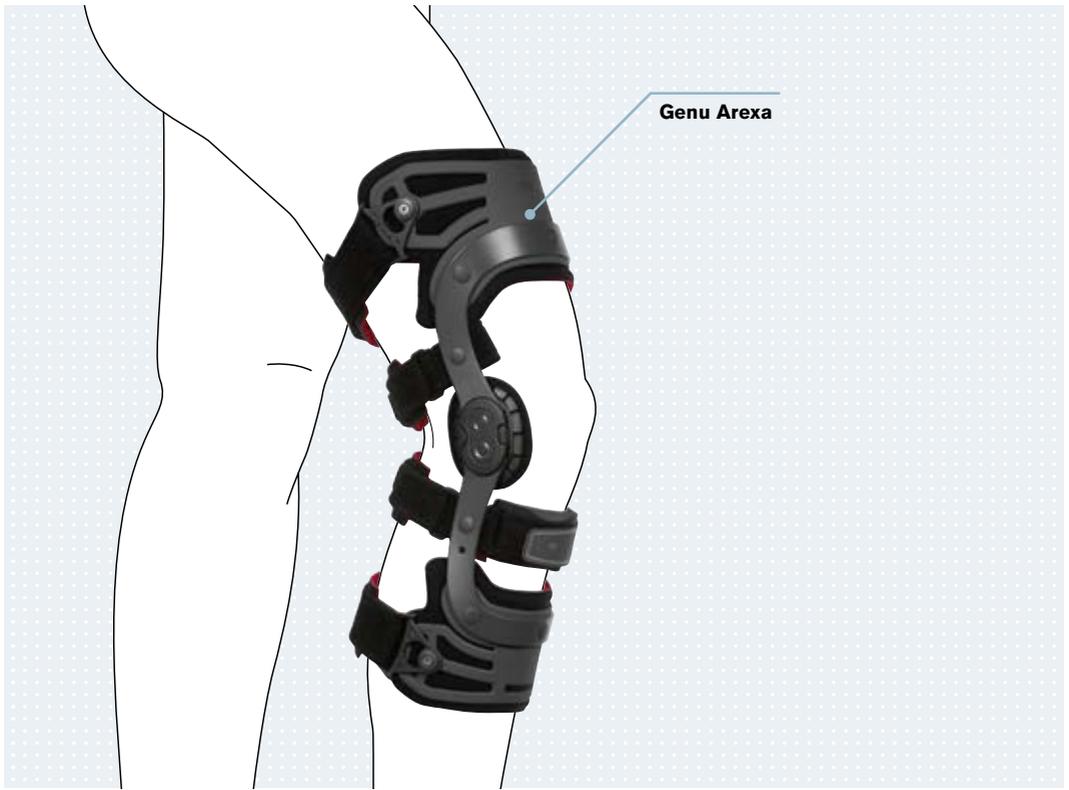
For sedentary jobs after around two to four weeks, for manual work after two to four months. For jobs that require athletic activity (e.g. police, fire department), after around half a year.

● ... go swimming again?

Around eight weeks after surgery. This may vary depending on the healing process; consult your physician.

● ... go jogging again?

At least eight weeks after surgery indoors on the cross trainer; around ten weeks after surgery you may also jog outside (only if you can walk safely!). This may vary depending on the healing process and your fitness; ask your physician or physiotherapist.



Genu Arexa

Why should I wear a brace?

A rigid-frame brace like the Genu Arexa not only stabilises the injured knee, it also prevents undesirable movements. Simultaneously, it allows you to control weight-bearing on your knee and gradually transition to movement. With the Genu Arexa, you can gradually expand the range of motion after consulting with your physician so that you can return to work and everyday activities. Your physician or O&P professional will customise the brace for you.

The Genu Arexa brace has already proven itself over the course of many years and is continuously developed. The plastic shells adapt automatically to the shape of the leg and are especially comfortable to wear thanks to the soft, washable padding.



“The brace did three things in particular for me: It stabilised my leg, made me feel safer when walking and prevented me from moving the wrong way and risking setbacks to the healing process. It simply gave me more confidence in my own movement.”

Jessica, 21, student



i How do I put the brace on?

The straps on the brace are numbered. Place the brace on the front of the leg and fasten the straps in numerical order. It is recommended that you wear the brace at night as well, especially in the beginning, to avoid undesirable movements. If you elevate your leg and immobilise it during the day, you may remove the brace.



“When I didn't do the exercises, the pain became stronger again. Movement alleviated the pain. Today, four months after surgery, I can walk without pain and recently I have been riding my bike to the university. My goal is to go skiing again next winter. But of course I will take things slowly. If I have adjusted to anything during this time, then to that. But I don't think that is necessarily a disadvantage in my life.”

Jessica, 21, student

Exercise and make progress with Genu Move

► **Talk to your physician before starting to exercise.**

The best thing is for you and your physician to select suitable exercises and make an exercise plan.

► **Exercise every day.**

But don't be too strict with yourself. If you are having a bad day, you can make an exception.

► **Don't demand too much of yourself.**

Do not exceed your own capacity or pain threshold; the healing process cannot be speeded up!

► **Exercise in your daily routine as well.**

Train situations in which your knee is especially important: Climb stairs or practice walking on uneven ground, for example a walk in the woods.

► **Gradually step up the exercise.**

Try to step up the level moderately, but continuously.

The exercises in the appendix to this brochure are proven, simple training units for at home. You do not need any special equipment. All exercises can be done using everyday objects. Adhere to the following guidelines:

The information in this brochure was compiled carefully. It reflects the experience we have had, but does not rule out alternatives or deviations in individual cases. We do not provide, nor intend to provide, medical care, treatment or consultation. Our information is not a substitute for this. You should therefore always consult a physician or an alternative practitioner if you wish to apply the information in this brochure and ensure ongoing treatment by your doctor or alternative practitioner and follow their instructions. The contents of this brochure cannot and may not be used to make your own diagnosis or start or conduct treatment and therapy; it is intended solely for general information. Ottobock does not guarantee the timeliness, completeness or accuracy of the information.

