

ottobock.

A Safe Return to Everyday Activities

A manual for your knee:
From diagnosis to orthosis

Quality for life

Information for patients



Torn ligaments

What now?

“My first thought was: how can I be quickly back on hand for my family?”

It can happen so quickly: a fall while skiing, a sudden stop during a game of tennis or taking what appears to be a harmless misstep – and now your knee hurts. Usually the ligaments are affected. Approximately 5-10 anterior cruciate ligament ruptures occur per 10:000 inhabitants each year in USA and Western Europe. As a result a surgery is often inevitable.

If you are among those affected, you are going to have some questions: What should I do before and after the surgery? How does a knee orthosis help me and how is it put on? Are there any specific therapeutic exercises that can help me recover? This compact manual provides answers and offers orientation so that you can quickly resume your everyday activities .

We wish you a speedy recovery!

The knee joint

A fascinating design

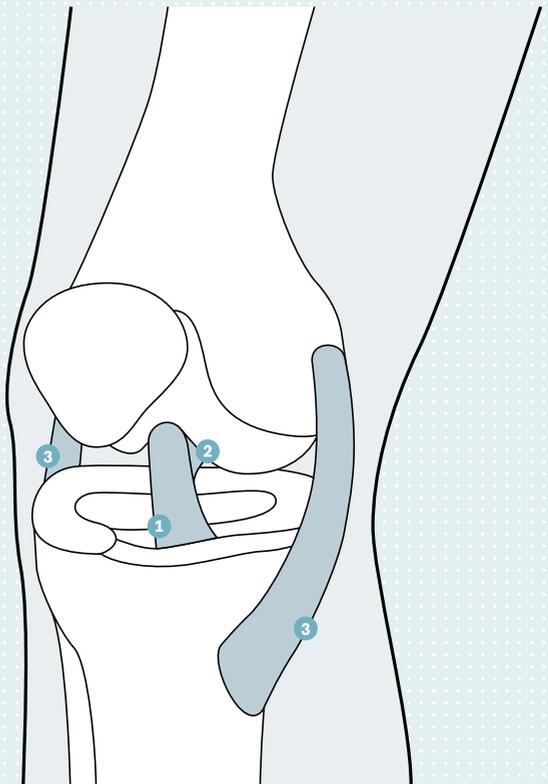
The knee is the largest joint in the human body: it mobilises the leg and ensures the required stability while standing and walking. Thanks to the knee, you are able to run, jump, stop abruptly and extend your leg. This is made possible by the complex structure of bones, ligaments, tendons, meniscuses, articular cartilage and musculature.

With serious knee injuries, the ligaments are affected 40% of the time and the meniscuses almost as frequently. A cruciate ligament ruptures in two out of three cases, usually the anterior ligament. Knee stability – the precise stability that is required – is only restored following a surgery and the subsequent healing process.

1 The natural course of the anterior cruciate ligament prevents the thigh from sliding backwards. It is supported by the capsular ligaments, the meniscuses and the knee flexion musculature. The knee loses stability when the anterior cruciate ligament tears.

2 The posterior cruciate ligament along with the knee extension musculature prevents the thigh from sliding forward. 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 exterior and interior ligaments assure stability for the outer and inner sides of the knee joint.



The path to the orthosis

Healing begins

Quick test and diagnosis

A cruciate ligament rupture can be identified by a doctor with the help of the knee anterior draw test:

- 1** If the shin can be shifted forward relative to the thigh bone when the knee joint is bent at 90°, the anterior cruciate ligament is most likely torn – one speaks of the anterior draw sign.
- 2** If on the other hand the shin can be shifted to the rear, this constitutes a posterior draw sign – the posterior cruciate ligament is torn.

This test should not be performed by yourself. Images of the knee and the subsequent diagnosis by a doctor offer final clarification.

Surgery and orthosis

A cruciate ligament surgery (cruciate ligament plasty) is a combination of an arthroscopy and the insertion of a tendon to replace the torn anterior cruciate ligament. The reconstruction of the anterior cruciate ligament is generally performed on an inpatient basis and the surgery takes on average between 1 to 1.5 hours.

You may be fitted with a rigid immobilisation orthosis in the surgical suite in order to provide the best possible protection for the graft. The sutures are removed about ten days after the surgery, usually followed by an orthosis replacement. Now a flexible rigid-frame orthosis permits controlled movement of the knee. Many patients regain confidence in their knee joint as a result. They begin to mobilise early, which is the best way to ensure that full weight can quickly be placed on the knee.

Two orthoses, one goal: Return to everyday activities

A rigid-frame orthosis stabilises your knee during the healing process and prevents undesirable movements. At the same time, the orthosis allows you to gradually expand the range of motion in cooperation with your doctor so that you can return to work and other everyday activities. Your doctor or orthotist will adjust the orthosis accordingly. When placing controlled weight on your knee and approaching the movement slowly, the orthosis continues to provide the required support where it is needed.

The Genu Arexa and Xeleton rigid frame orthoses from Ottobock adapt extremely well to your leg. They feature a firm fit and low weight. Thanks to their slim design, they can be worn discreetly under clothing. Putting them on and taking them off is easy: simply pull the orthosis over the foot up to the knee and fasten it in a few steps. For easier orientation, the straps are numbered in the sequence they are fastened.

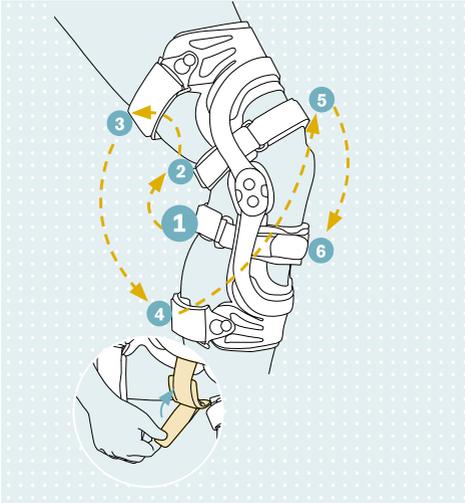




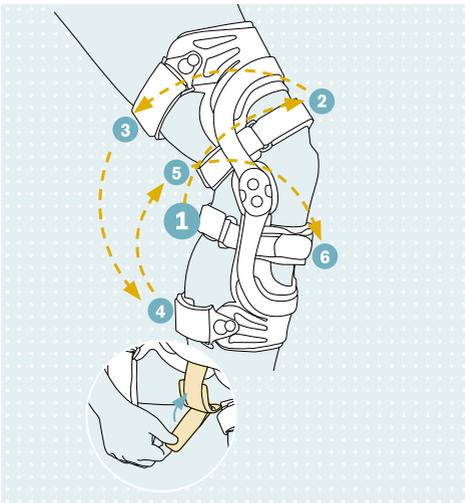
Genu Arexa

Perfectly adapted to everyday life

The Genu Arexa knee stabilisation orthosis has already proven itself over the course of many years. Thanks to its plastic shells, it automatically adapts to the shape of your leg which makes it especially comfortable. The slim design has already won numerous international awards. The Genu Arexa provides you with optimum knee stabilisation and a high level of wearer comfort.



Strap sequence for putting on the Genu Arexa following anterior cruciate ligament injuries



Strap sequence for putting on the Genu Arexa following posterior cruciate ligament injuries



Active for her child

Anna, 35, skiing accident two months ago

“I tore my cruciate ligament during a skiing holiday shortly before New Year's Eve. At first I wasn't even aware of the consequences. I even remember asking the doctor whether I could go dancing on New Year's Eve. His response was sobering. He said: 'No. Probably not until next winter.' I had a surgery in Berlin a month later.

The initial time after the accident was difficult. I had to depend on walking aids and a stretch splint, so that everyday life with my four-year-old son suddenly became a challenge. All of a sudden I couldn't even ride my bike to nursery with him.

One week after the surgery I received the Genu Arexa knee stabilisation orthosis, and that is when it became clear to me: I wanted to train, build up the muscles and be able to move my knee normally as quickly as possible. The orthosis supported me. That was very important as I had become cautious after the surgery. The Genu Arexa is very light, small and adapts to my knee. It can be opened on one side, so that I don't have to pull it over my foot but can put it on directly at the knee. After some time I was finally able to move about without walking aids and only had to wear the orthosis. This changed my life completely as I finally had my hands free.

My profession as a marketing and design expert is often challenging, but my young son is my most important project in my life. He has so much energy, runs around and wants to try out everything – for me, he is motivation enough to quickly regain my fitness. And there is one thing in particular I am looking forward to: the doctor promised that I will be able to go dancing again on my birthday in four months, provided that I continue progressing so well.”

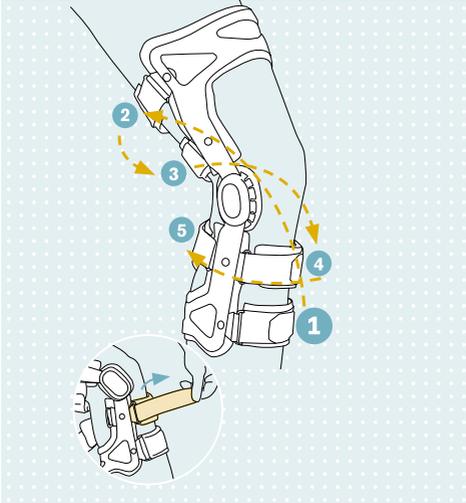
“My son has so much energy and wants to try out everything. For me, he is the motivation to quickly regain my fitness.”



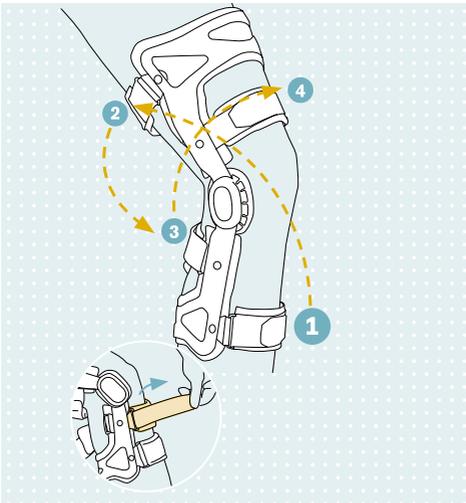
Xeleton

High-performance functionality

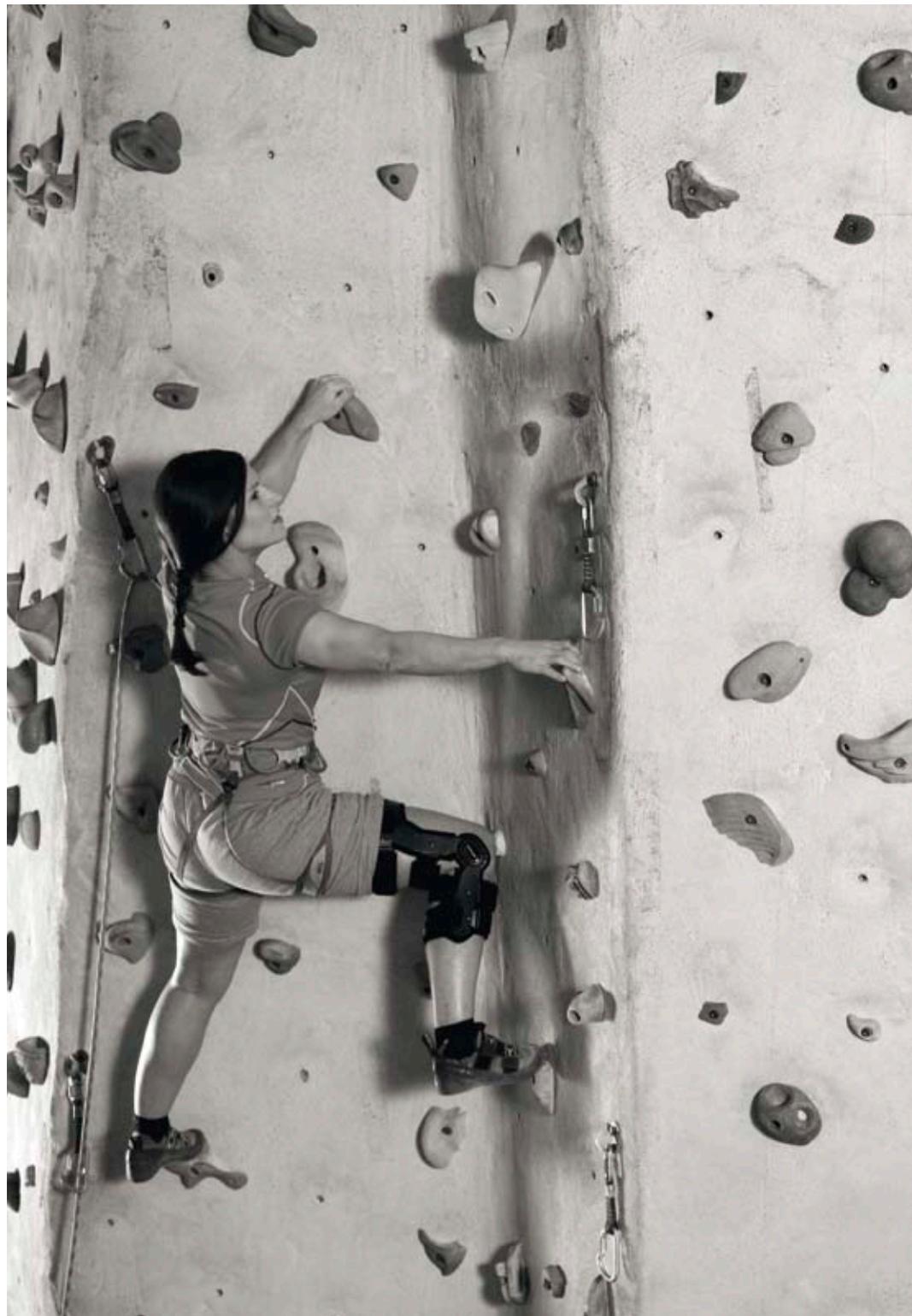
The Xeleton is an entirely new knee stabilisation orthosis from Ottobock and, like the Genu Arexa, features a close-fitting design and easy handling. The Xeleton stabilises your knee and is also extremely robust thanks to its high-strength aluminum alloy. As a result, you can use it for both everyday activities and sports – naturally, only after consulting your doctor.



Strap sequence for putting on the Xeleon following anterior cruciate ligament injuries



Strap sequence for putting on the Xeleon following posterior cruciate ligament injuries



Able to climb again

Julia, 35, sport accident one year ago

“My accident on the indoor climbing wall happened a year ago. At the time, I fell from a height of three metres during bouldering, which is climbing without a rope. At first no-one thought the knee injuries were that severe, not even the doctor. The anterior cruciate ligament, the collateral ligament, the meniscuses and especially the posterior cruciate ligament were affected. These injuries were treated in three surgeries. For the first six weeks after each surgery, I had to wear an immobilisation splint and was forced to use walking aids. I was significantly restricted – even sitting down on the underground was difficult for me.

When I was finally allowed to wear the rigid-frame orthosis, my leg was much

“The Xeleton is highly robust. I can use it for everyday activities and recreation.”

more mobile. The pads made the orthosis comfortable to wear and I was gradually able to start bending my knee. At first I could merely bend it to an angle of 45°, only reaching 90° some time later. When I wanted to turn on the spot, for example in the kitchen, the orthosis consistently provided sufficient support for the movement. It balanced out my muscular deficits which resulted from immobilisation during the time following my surgery. The knee orthosis simply allowed me to lead a largely normal life, and finally also enabled me to climb again.

Today I always use the Xeleton when I want to feel secure. For example, when I am in a crowd of people or when on the climbing wall. Come to think of it, I always have it close to hand. A month ago I went skiing. I wore the Xeleton for that too.”

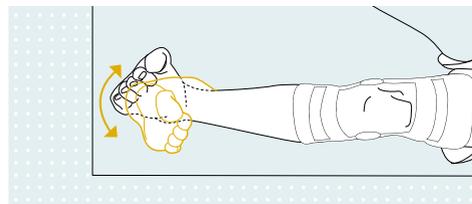
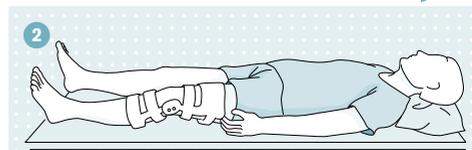
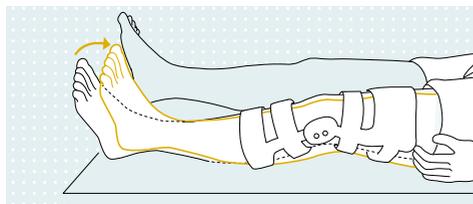
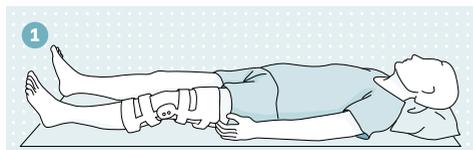
Regaining trust in your knee

Exercise by exercise

A targeted exercise programme supports the fitting of the Genu Arexa and Xeleton. Activate your musculature and promote your balance: four simple rehabilitation exercises help you improve the stability of your knee.

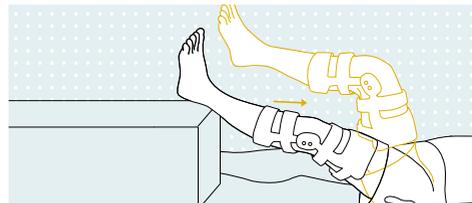
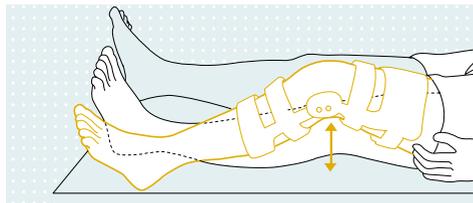
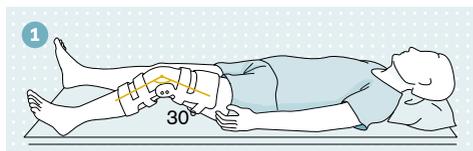
Phase 1 1x per day 15-30 min.

Surgery 1. + 2. week



Phase 2 1x per day 15-30 min.

3. - 6. week

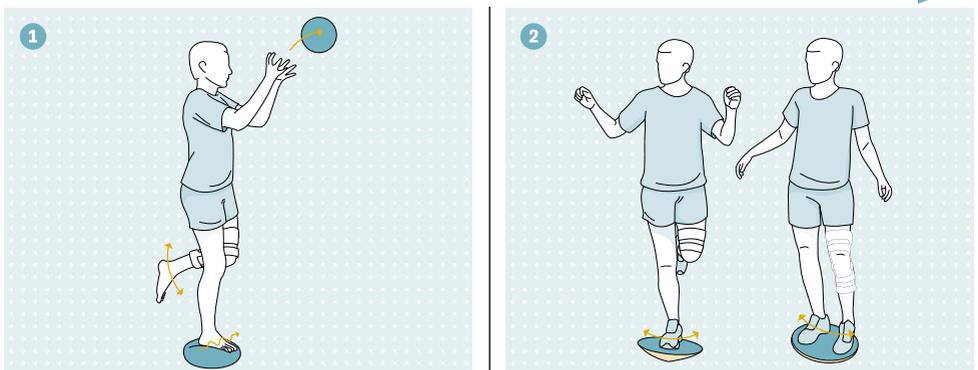


Important information:

- Please be sure to consult your doctor or therapist before beginning these exercises to confirm that they are suitable for you.
- If you experience pain during or after an exercise, please stop immediately and consult your doctor or therapist.
- Avoid overtaxing yourself in order to prevent injury.
- If you feel unsure about an exercise, it is better to leave it and perhaps try it again at a later date.
- Work with your doctor or therapist to adapt the training to your personal health and fitness level.
- The recommended duration of each exercise is only a guideline, as every case is different.
- We do not assume any liability for problems that may arise should the exercises not be performed correctly.

Phase 3 1x per day 15-30 min.

From week 7



Important questions and answers

Work with your doctor or therapist to adapt the training to your personal health and fitness level. Since healing is an individual process, your doctor will tell you whether you can remove the orthosis to sleep and for the length of time you should wear it. There is no general answer to the question of whether you can participate in sports. Your orthotist will be happy to help you with anything specifically related to the knee orthosis.

Further questions:

- ▶ How do I shower with the orthosis?
The orthosis cannot be worn in the shower. Your doctor will explain how to best handle personal hygiene and the use of the orthosis.

- ▶ Should I wear the orthosis during rehabilitation exercises?
The orthosis can be worn during exercises.

- ▶ What is the best way to clean the orthosis?
 1. Remove the straps and pads.
 2. Hand wash the straps and pads in warm water at 30 °C (86 °F) using neutral detergent.
 3. Allow the textiles to air dry.Do not expose to direct heat sources such as sunlight, a stove or radiator.



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