

Xeleton and Genu Arexa

Two orthoses, one goal – a safe return to everyday activities



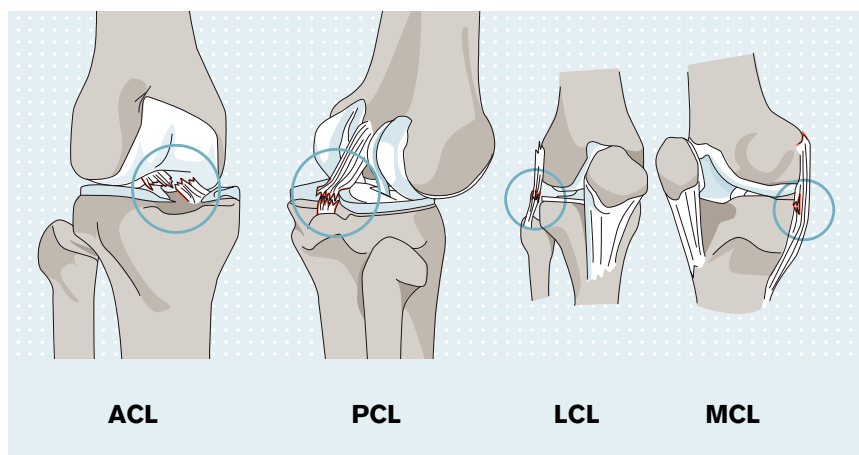
How orthoses help after ACL reconstruction

A slip playing tennis, a fall playing basketball, or a foul playing football can be all it takes to injure your knee. The Xeleton and Genu Arexa rigid frame knee orthoses enable you to better support the healing process in both postoperative or conservative treatment. The Xeleton is a completely new development, while the proven, international award-winning Genu Arexa has been given a fresh new look.

Incidence

Some 40% of all knee injuries involve ligament damage – two thirds of them ruptures of cruciate ligaments. Statistics show that the anterior cruciate ligament is affected ten times more often than the posterior cruciate ligament; 70% of injuries occur during sports involving running and just as many occur without any direct physical contact. Most patients are between 15 and 45 years old, with women having a

significantly higher risk of suffering an anterior cruciate ligament rupture owing to anatomical, hormonal and neuromuscular factors. In Germany alone, 80,000 anterior cruciate ligament ruptures occur every year. Knee stabilising orthoses such as the Genu Arexa and the new Xeleton ensure optimal stability and a safe return to everyday activities, and are therefore a key component of successful treatment.

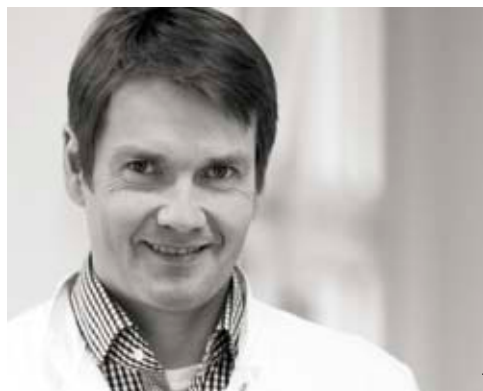


Indication

Genu Arexa and Xeleton are suitable for the treatment of knee pain with severe or complex ligament laxity, with or without the feeling of instability, and provide the option of limiting range of motion.

- ACL and/or PCL rupture and reconstruction
- Instability of the knee joint (ACL, PCL, MCL, LCL)
- Collateral ligament injuries
- Stabilisation and/or limitation of movement after meniscus surgery
- Knee osteoarthritis
- Rheumatoid arthritis

“I regularly use rigid frame knee orthoses for postoperative care following anterior cruciate ligament reconstruction.”



Prof. Dr. Wolf Petersen

Director, Department of Orthopaedics and Traumatology, Martin Luther Hospital, Berlin Grunewald

“A number of studies have shown that wearing a hinged rigid frame orthosis has no effect on the clinical result after ACL reconstruction. There may be several different reasons for this. Either rigid frame orthoses have no benefit, or the positive effects could not be measured in these studies, possibly because the scoring system used did not provide for differentiated results, or

because the validity of these studies was too low.

A survey has shown that despite the lack of evidence, the majority of surgeons do use an orthosis.

The question is: are all of these physicians wrong? Basic research has provided enough evidence that knee orthoses do protect a cruciate ligament graft. We know from animal tests that cruciate ligament grafts undergo remodelling after implantation, and that due to this remodelling process, there is a marked reduction of tensile strength in the graft during the first 6 to 8 postoperative weeks. It is therefore helpful to protect the graft from excessive forces during this phase. If we look at the

stress behaviour of the cruciate ligament graft, we can see a significant increase in stress from about -5° extension and above 90° flexion. It can therefore be useful to limit the range of motion of the knee in the early postoperative phase, for example via a rigid frame orthosis.

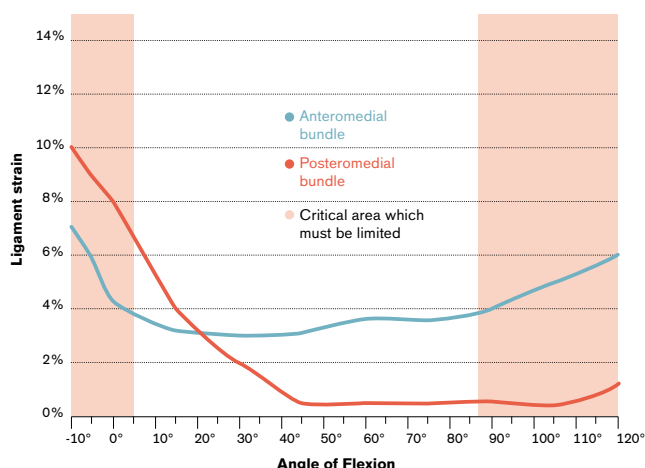
But there is more evidence in literature of the positive effect of the postoperative use of orthoses. Various studies have demonstrated a positive effect of hinged knee orthoses. The Georgoulis working group was able to show that the use of orthoses can reduce rotational instability in patients with ACL insufficiency during high-demand activities.”

Source: Strutzenberger et al. (2011) examined 28 patients with cruciate ligament rupture. The results show a significant reduction in knee laxity of between 14% and 33%. In addition, they found that balance was improved and less force was generated.

Rishiraj et al. (2012) found significantly lower ground reaction forces in patients fitted with an orthosis. In this way, the cruciate ligament can be protected from harmful forces until the active muscular stabilisers can be activated.

The Effect of Knee Braces on Tibial Rotation in Anterior Cruciate Ligament-Deficient Knees During High-Demand Athletic Activities. Giotis D, Zampeli F, Pappas E, Mitsionis G, Papadopoulos P, Georgoulis AD. Clin J Sport Med. 2013 Jan 23.

Stress behaviour of the anterior cruciate ligament



From Bach et al. (1996)

Source: Direct measurement of Strain in the posterolateral Bundle of the anterior cruciate ligament J. M. Bach,* M. L Hull* and H. A. Patterson * Biomedical Engineering Graduate Group; Department of Mechanical Engineering; and 7 Department of Anatomy, University of California, Davis, CA 95616, U.S.A.

There is a consensus opinion that the use of knee orthoses results in improved joint stability



“Wearing knee orthoses in the early postoperative period allows patients to be mobilised sooner because they perceive greater stability. This allows safe restoration of full loading and therefore a return to work and normal daily activities.”

PD Dr. med. Sven Scheffler

Specialist for Orthopaedics and Traumatology
COPV (Surgery and Orthopaedic Practice Network), Berlin

“For follow-up treatment after anterior cruciate ligament reconstruction, I proceed as follows:

1. Immediately after surgery

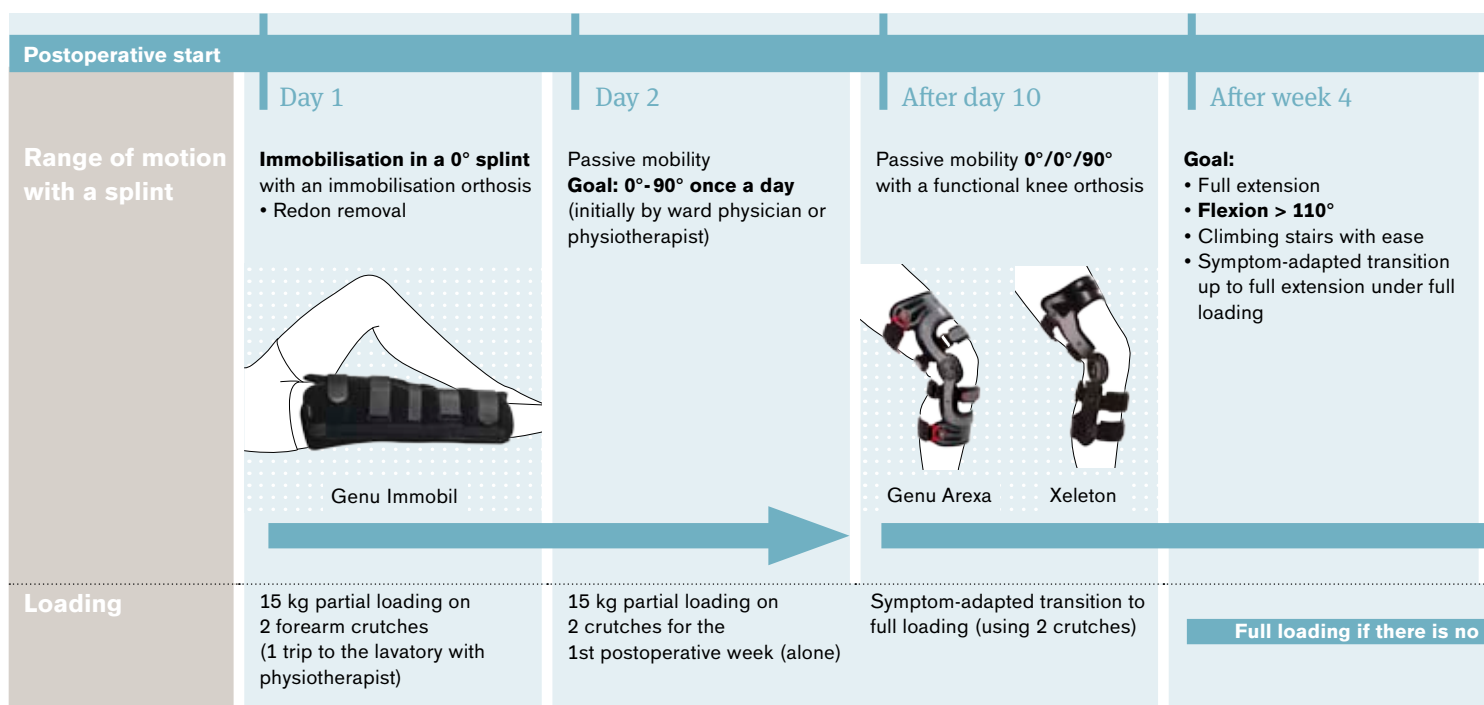
The patient is fitted with a rigid 0° immobilisation orthosis while still in the operating theatre. This is to allow stable partial loading using 2 forearm crutches. Various studies have shown that in fact, with a rigid 0° orthosis, only low quadriceps strength is required to achieve stabilisation of the leg. Due to swelling in the knee, the quadriceps can be used only to a limited extent postoperatively, so this mechanical support is helpful to the patient at this time.

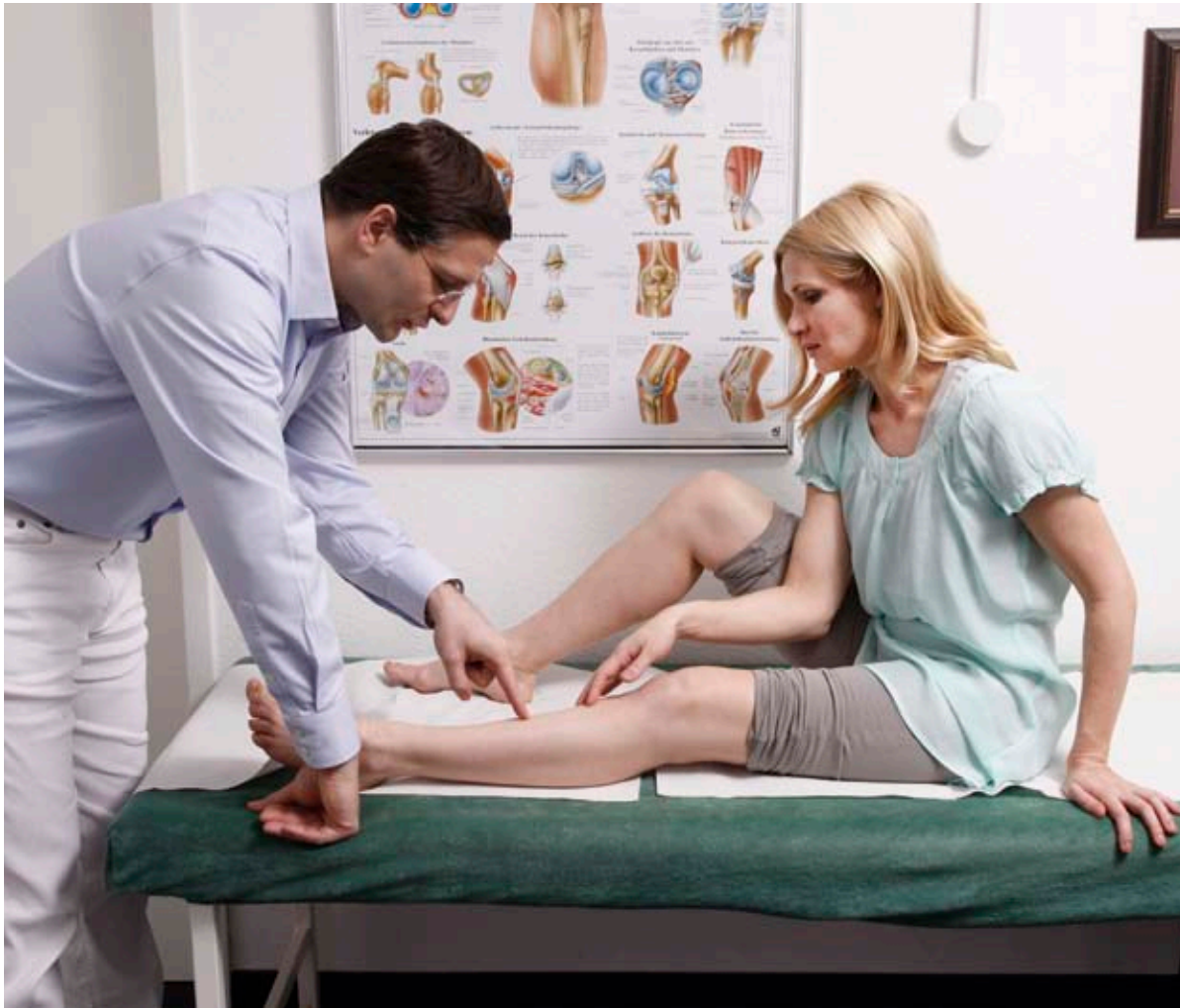
2. Fitting a rigid frame orthosis

Ten days after surgery, the patient comes to have their sutures removed. The orthosis is then replaced by a rigid frame orthosis. After the first ACL reconstruction, flexion is

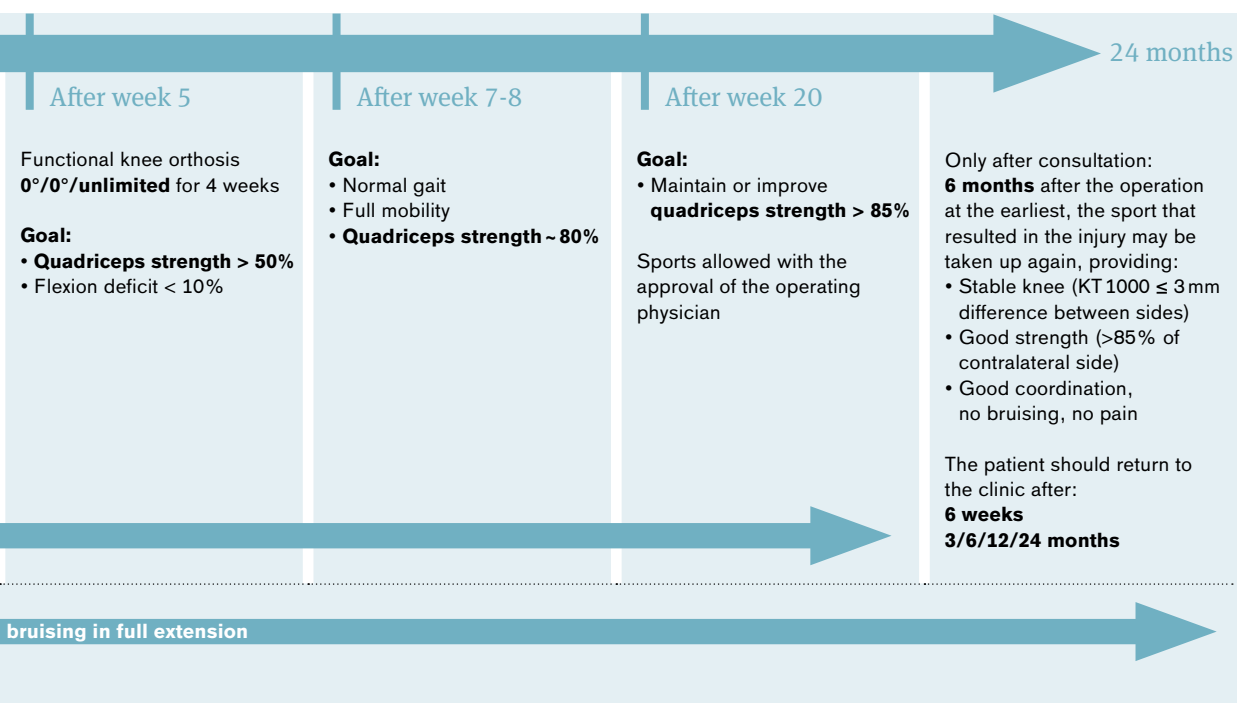
limited to 90° and extension to 0°. This is because the forces acting on the ACL increase significantly, both when flexion increases above 90° and when the knee is hyperextended. The orthosis should prevent this in the first 6 weeks and counteract any potential weakening of the graft.

A key benefit of the orthosis is that patients have more confidence in the joint due to a perceived improvement in joint stability when wearing the orthosis. This makes early mobilisation with full loading possible: this is crucial for restoring the overall function of the leg, as it makes it possible for the patient to recover, begin routine activities and return to work sooner.”





Anna had a skiing accident two months ago and tore her anterior cruciate ligament. She started wearing the orthosis 10 days after the operation.



Functional knee orthoses

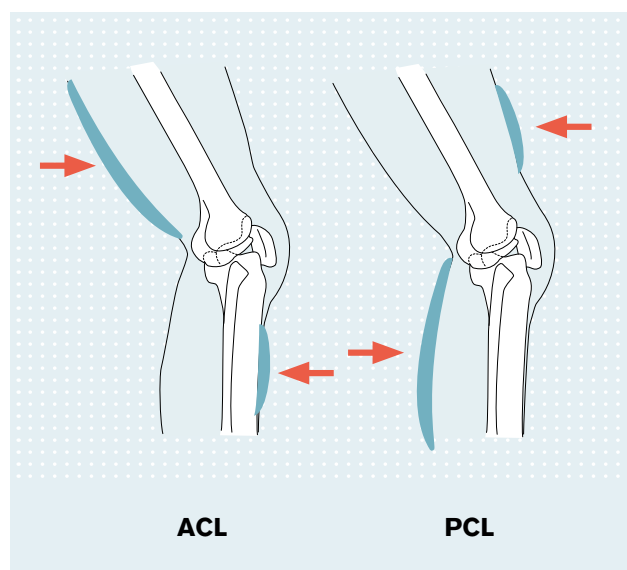
Easy handling for improved patient satisfaction

Both the Xeleton and Genu Arexa rigid frame orthoses are easy to handle, being particularly easy to don and doff. Due to their stability, both orthoses provide good support – thus aiding the patient's recovery and swift return to normal activity.

Mechanism

Genu Arexa and Xeleton enable optimal care of the injured knee:

- Guidance and stabilisation of the knee at all levels
- Limitation of the anterior and/or posterior Draw test
- Reduction of collateral instability
- Adjustable limits of range of motion (ROM) in extension and flexion
- Protection against hyperextension of the knee



1 Click-2-Go system

The innovative Click-to-Go system allows the required range of motion limits to be adjusted quickly and without tools. The knee width can also be adjusted just as easily, again without tools, for example to adjust the orthosis according to the level of swelling in the joint. In just a few simple steps, five millimetre wide spacers can be inserted into the joints.

Flexion: 0°/10°/20°/30°/45°/60°/75°/90°
Extension: 0°/10°/20°/30°/45°

4 TechnoGel condyle pads

The TechnoGel condyle pads with their skin-friendly fabric cover are made from a high-quality material that allows for optimal pressure distribution, while at the same time having excellent hygiene properties.

2 Anatomically shaped shin pad

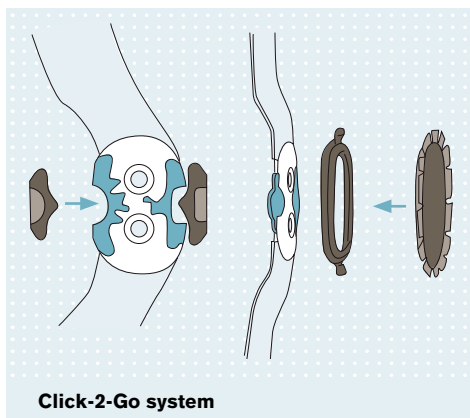
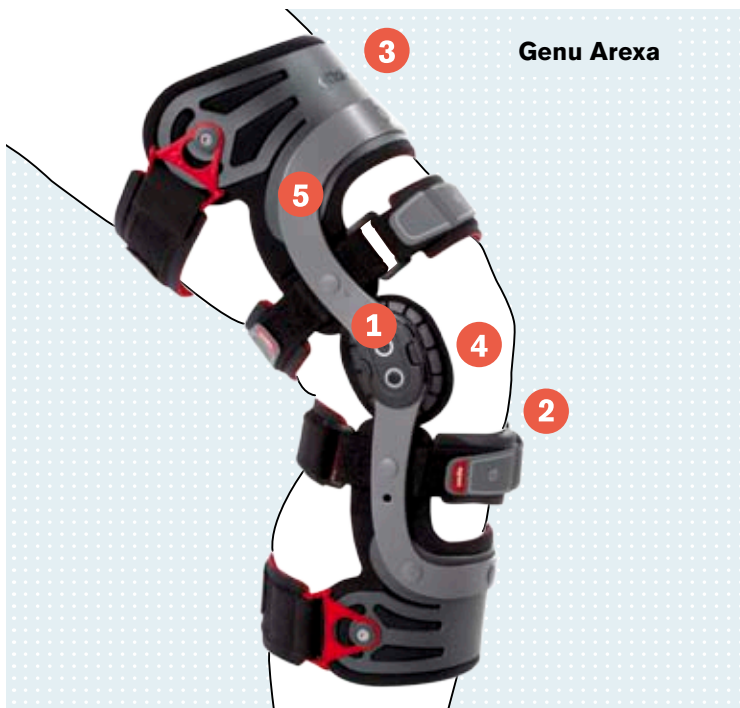
The tibia area in particular can be very sensitive to stress. The strap below the knee therefore has a special anatomical pad to prevent pressure points on the shin. At the same time, this prevents undesired rotation of the orthosis.

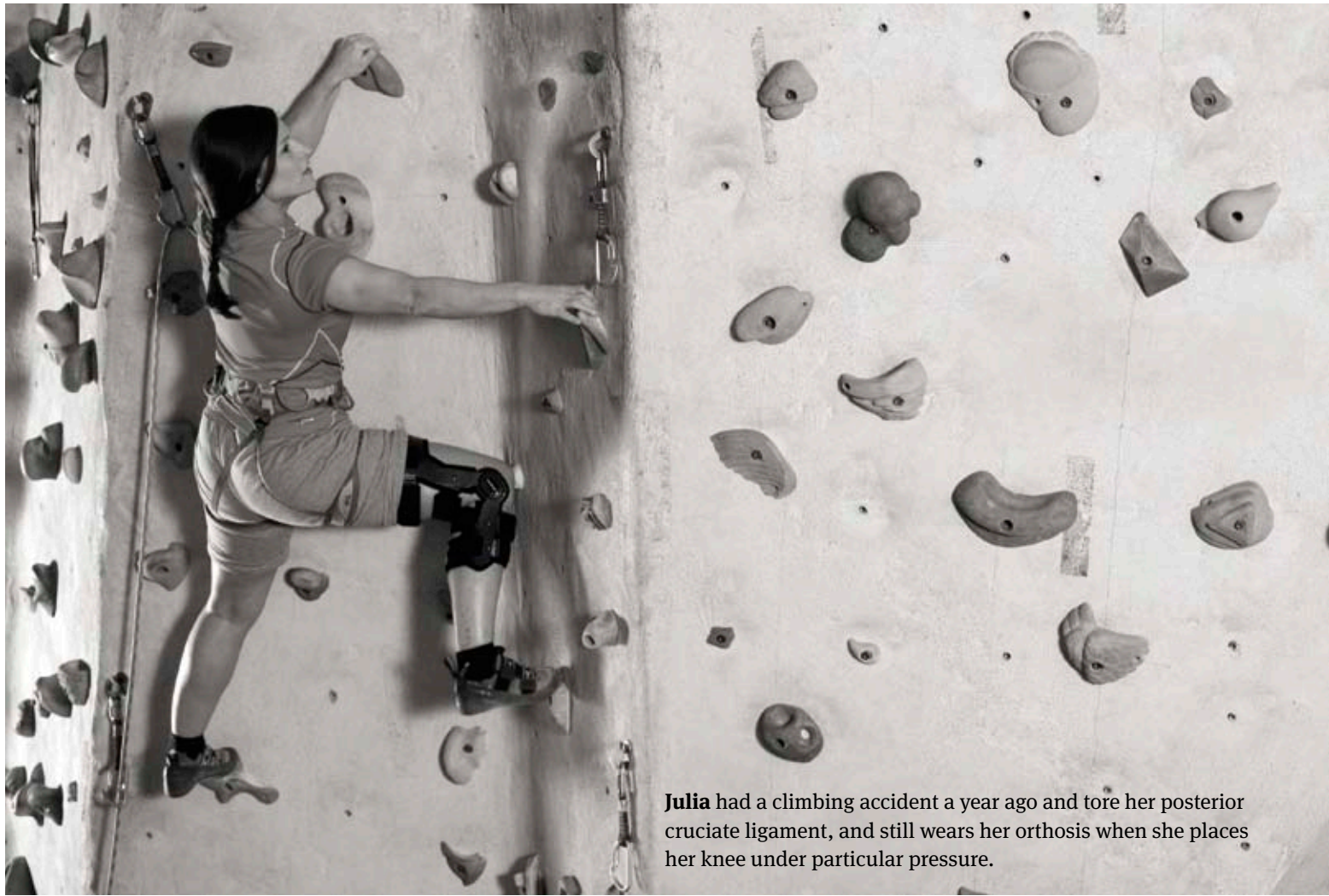
5 The frame is made from a high-strength aluminium alloy

The frame's design offers optimal stability and torsional stiffness.

3 Slim, lightweight design

The orthosis can be worn comfortably and discreetly beneath clothing, thanks to its slim, close-fitting design. In addition, its low weight does not restrict the patient any more than necessary.





Julia had a climbing accident a year ago and tore her posterior cruciate ligament, and still wears her orthosis when she places her knee under particular pressure.

High performance functionality

Xeleton

Excellent stability and robust construction.

This new knee stabilisation orthosis combines stability with good user-friendliness with robust construction. The close-fitting frame is made of a high-strength aluminium alloy and has sturdy guide loops to ensure safe support in every situation.

Two versions – standard or long – ensure optimal fit for any height. Easy to slip on, the Click-2-Go system allows the range of extension and flexion to be adjusted easily and without any tools.

"Xeleton" – the X stands for the cruciate ligament – has a "skeleton fit" which is perfectly adapted to the body.



Independently movable calf strap
 The calf strap can move independently of the front straps, ensuring good support as well as being particularly patient-friendly.

Features **Benefits**

- Click-2-Go system
- **Easy to adjust extension and flexion limits without tools**

- Independently movable calf strap
- **Close fit**

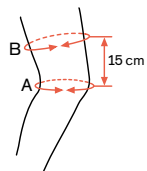
- Anatomically shaped shin pad
- **Pressure is taken safely off the sensitive tibia area**

- Close-fitting and robust frame made of a high-strength aluminium alloy
- **Highest stability and torsional stiffness for everyday activities and sport**

- Available in both standard and long versions
- **Excellent fit**

Art. no. 50K30

Order no: Article number=Side-Size-Height | Example for ordering: 50K30=R-M-1



Side	Size	Body height (1= long, 2= standard)		Circumference B	
		< 1.83 m	> 1.83 m	cm	inch
L/R	XS	2	1	33 – 39	13.5 – 15.4
L/R	S	2	1	39 – 47	15.4 – 18.5
L/R	M	2	1	47 – 53	18.5 – 20.9
L/R	L	2	1	53 – 60	20.9 – 23.6
L/R	XL	2	1	60 – 67	23.6 – 26.4
L/R	XXL	2	1	67 – 75	26.4 – 29.5
L/R	XXXL	2	1	75 – 81	29.5 – 31.5

Perfectly adapted to everyday life

Genu Arexa

A high level of patient acceptance.

The best orthosis will be ineffective without patient compliance, and the Genu Arexa enjoys an especially high level of acceptance. This is due not only to the international award-winning and improved design, but because it is uniquely comfortable to wear. The Genu Arexa knee stabilisation orthosis adapts perfectly to the knee

thanks to its auto-adaptive plastic shells, intelligent padding, and other well designed details. This protects the knee while providing optimal stabilisation. The Click-2-Go system is particularly practical, allowing you to set the range of motion prescribed by the physician in just a few seconds – without needing any tools.

“My son is very active and needs me.
That's why I need to recover as soon as possible.”



Features **Benefits**

Click-2-Go system

Easy-to-adjust, tool-free extension and flexion limits

Auto-adaptive plastic shells

Excellent fit to leg shape

Anatomically shaped shin pad can be adjusted in height if needed (for example, after surgery)

Pressure is taken safely off the sensitive tibia area

Close-fitting frame made of high-strength aluminium alloy

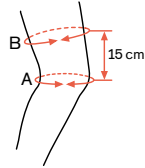
High stability and torsional stiffness for everyday activity

Applied from the front

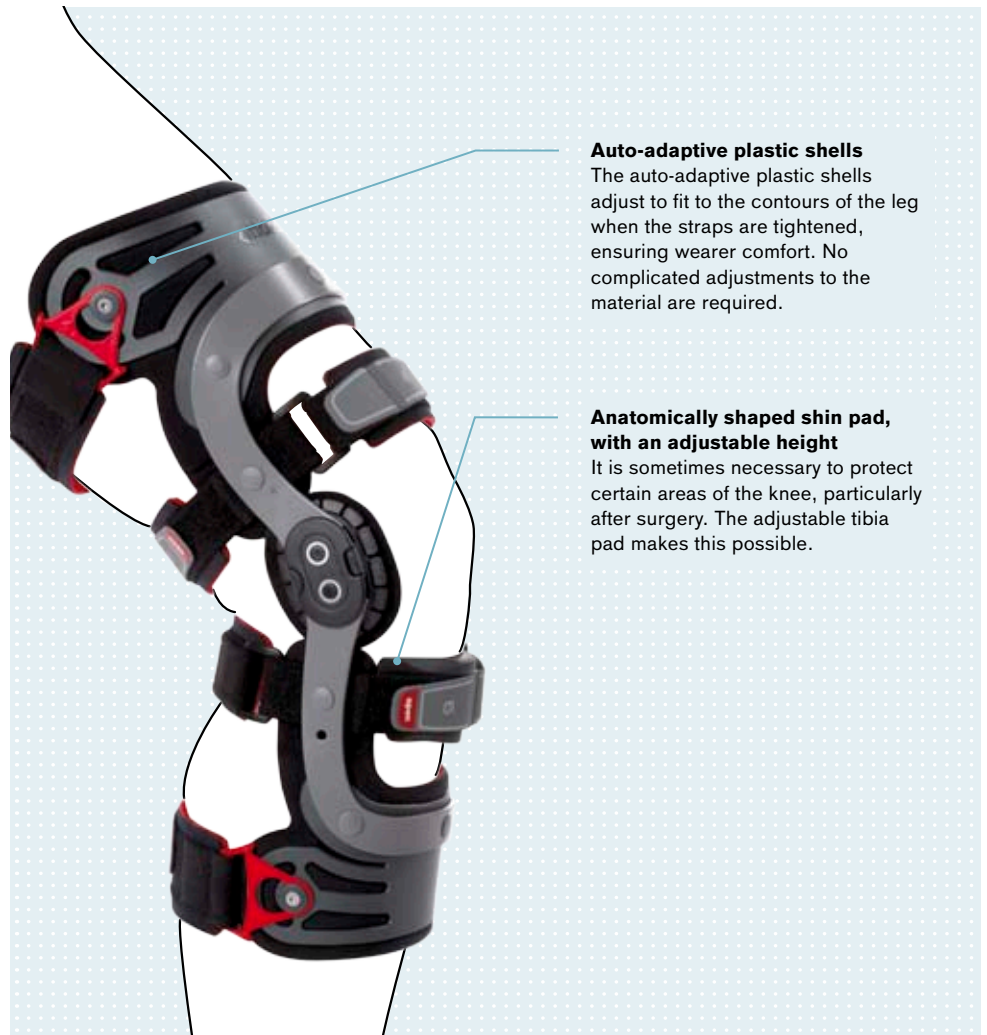
Easy, pain-free application even if movement is impaired

Art. no. 50K13N

Order no: Article number=Side-Size | Example for ordering: 50K13=R-XXL



Side	Size	Circumference A		Circumference B	
		cm	inch	cm	inch
L/R	S	32 – 37	12.6 – 14.6	39 – 46	15.4 – 18.1
L/R	M	37 – 41	14.6 – 16.1	46 – 53	18.1 – 20.9
L/R	L	41 – 46	16.1 – 18.1	53 – 61	20.9 – 24.0
L/R	XL	46 – 50	18.1 – 19.7	61 – 69	24.0 – 27.2
L/R	XXL	50 – 56	19.7 – 22.1	69 – 79	27.2 – 31.1



Auto-adaptive plastic shells

The auto-adaptive plastic shells adjust to fit to the contours of the leg when the straps are tightened, ensuring wearer comfort. No complicated adjustments to the material are required.

Anatomically shaped shin pad, with an adjustable height

It is sometimes necessary to protect certain areas of the knee, particularly after surgery. The adjustable tibia pad makes this possible.

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