



# MANUAL GENUX<sup>®</sup> OA ORTHOSIS

Part of the IMS series



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**USER**



**PRODUCT INFORMATION**



**PROFESSIONAL**

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## GENUX KNEE ORTHOSIS USER INFORMATION

The Genux is a knee orthosis for people suffering from instability of the knee, caused by for example arthrosis. The Genux stabilizes the knee and relieves the affected and sometimes painful side of the knee. With the help of a Genux, the user is encouraged to use all remaining residual function. An unstable knee can make walking difficult. There is insufficient support in the leg and sometimes also a lot of pain.

### WHEN A GENUX?

An unstable knee can have many causes. These include the effects of osteoarthritis. The knee then gives way into an x-position (valgus) or in an o-position (varus). The Genux helps to compensate this. This usually leads to a quick improvement in stability and reduction of complaints.

The Genux is also used in other knee disorders, such as hyperextension (overstretching) of the knee in early stages.

### TREATMENT IS NECESSARY

A leg which can not remain sufficiently stable, can lead to insecurity, falling, but also pain. This may hinder your mobility. It is important to start treatment in order to minimize further damage to the internal structures of the knee and to prevent falling incidents.

### THE GENUX

In cases of osteoarthritis, usually one side of the knee is worse than the other. At the most affected side the most cartilage is disappeared. The knee just drops that way which makes this part more heavily loaded. To prevent worsening of instability, that side of the knee must be relieved. This usually leads to a rapid reduction of complaints. The pain is often enhanced by the occurrence of inflammatory reactions on the affected compartment. This cannot be cured well if the load on the inflamed cartilage of the compartment does not drop below a certain level.

Relieve of the affected side of the knee (by the Genux knee orthosis) can also contribute to reducing inflammatory responses. This can also have a positive effect on reducing pain. This effect is noticeable only after a few days.

### Advantages of the Genux

- ✓ Active and dynamic correction of the leg.
- ✓ No limitation of the normal gait.
- ✓ Light weight.
- ✓ High comfort of wearing.
- ✓ Can be worn fully underneath clothing.
- ✓ Custom made and therefore great fitting.



Figure 1: Genux

### WHAT DOES THE DELIVERY PROCESS OF THE GENUX LOOK LIKE?

The Genux is an individually custom made orthopedic device. Your doctor (physiatrist or orthopedic surgeon) will decide together with you and the orthotist if a Genux will benefit you. They can also assess which type of Genux is best for you. After choosing a Genux, your orthotist can start preparing for your individual Genux. Depending on your insurance situation, he will ask for an authorization from your insurance company as a first step. If your insurer agrees, your orthotist will call you for the intake. At this appointment, the orthotist will take pictures of your leg against a special background. These photos are used to collect the correct shape and size information about your leg. The orthotist also collects all the information needed for a correct order, for example, the required type and your personal information. With this information, the orthotist maker can order a Genux at Ambroise.

At Ambroise in Enschede, a Genux is then manufactured for you, based on the data provided by the orthotist. First of all, using the specially developed software, a drawing is made of your Genux. This drawing is used during the production process to choose the right sizes and shapes. When the Genux is complete, Ambroise sends the orthosis to the orthotist. Your orthotist will then invite you to an appointment where you can fit the knee orthosis.

During this appointment, the orthotist will also need to adjust some elements of your Genux. For example, setting the lengths of the straps, but the orthotist also looks at the level of correction achieved with the Genux. If all settings are right, you can take the Genux home so you can practice using it.

### DONNING THE GENUX

The Genux is preferably worn underneath the clothing. People with sensitive skin sometimes wear a stocking or tubi-grip underneath the Genux, but in most cases the Genux is worn directly on the skin.

## Step 1 Put on the calf strap (Figure 2)

- First, the Genux calf strap must be donned. Step with the foot through this circular strap.
- Make sure that the clip is on the front of the calf strap and facing down.
- Secure the calf strap just above the widest part of the calf and just below the knee
- Evenly tighten the two ends of the strap.

## Step 2 Put the Genux on the leg

- Donning the Genux is best done in sitting position, with the knees bent in 90°.
- Now also bend the Genux with your hands till 90°.
- Now push the Genux frame on your leg.

## Step 3 Attach the Genux to the calf strap

- The calf strap and Genux are connected by means of a plastic clip. Click the two ends of the clip together (see Figure 3).
- The elastic of the calf strap will now pull the Genux upwards.

## Step 4 Push the Genux down

- Push the Genux against the tension of the elastic down until the bead bow touches the upper leg just above the knee.

## Step 5 Attach the strap just below the knee

- The first strap that is attached is the strap that is just under the knee.
- Hook the clip into the connector.
- Close the clip. (See photo series 'closing the clips' on the next page)

## Step 6 Attach the lower strap

- Attach the lower strap in the same way as the strap just below the knee

## Step 7 Attach the upper leg straps

- Attach the upper leg straps in the same way as the strap just below the knee
- If all steps are complete, you can walk with the Genux.

On our YouTube channel you can find a tutorial how the Genux can be donned and doffed.  
[www.youtube.com/AmbroiseHolland](https://www.youtube.com/AmbroiseHolland)

It will require practice to become skillful in donning and doffing the orthosis.

## DOFFING THE GENUX

When doffing a Genux, the sequence is less important. For most people, it's easy to start with the upper strap. The Genux straps can be loosened by turning them out of the connector (see photo series 'opening the clips' on page 6).



Figure 2: Donning the calf strap



Figure 3: Connecting the Genux to the calf strap

The clip that attaches the Genux to the calf strap is easy to loosen by pressing the two pins

## CLOSING THE CLIPS - when brace is on the leg.



1. Hold the clip between thumb and index finger and bring it towards the connector. Beware of any skin entrapment.



2. Connect the clip with the connector with a twisting motion. Make sure the clip is well connected.



3. Close the clip with your thumb. Beware of skin entrapment.



4. When you hear the 'click' it means the clip is closed correctly.

on the side of the clip.

- A) Click the Genux loose from the calf strap.
- B) Loosen the Velcro straps
- C) Remove the calf strap

Sometimes it is useful to first disconnect the attachment between the strap and Genux. The Genux can then be slid down slightly, leaving less strain on the straps, making them easier to loosen. This applies especially to the lower strap(s).



## OPENING THE CLIPS - when brace is on the leg.



1. Place the top of you finger behind the flap of the clip.



2. Open the clip entirely until it is in line with the rest.



3. Grab the clip between thumb and index finger and twist the clip to disconnect.



## WHY DOES THE GENUX NOT SLIP DOWN?

The Genux features a unique and patented anti-slip system. Slipping down knee braces is one of the most commonly heard complaints with these products. It causes discomfort to the user and in some cases increases the risk of further damage to the knee. In addition, it is sometimes a reason for the user to no longer use the knee orthosis. Ambroise has developed a unique system to ensure that the Genux can not slip down. The core of this system is that the orthosis allows to move the skin under the orthosis at certain areas of the leg. On those spots the Genux does not stick to the skin, as it does with most conventional knee orthoses, but allows the skin to move up and down the Genux with the aid of a beads. As a result, the skin can no longer pull the orthosis down when bending the knee. The Genux is attached to a calf strap just under the knee. An elastic is attached to this calf strap, to which the Genux is connected by means of a clip. Because of the elasticity, Genux's micro movements in relation to the skin are possible. In the end, the elastic pulls the Genux back to its starting position. The net effect is that the orthosis does not slip and remains comfortably in its place for many hours.

## FIRST USE OF THE GENUX

If you get home with the Genux, you can use the orthosis during your daily activities. Take into account that you have to get used to wearing a Genux at first use. To function properly, the orthosis should push against your leg on various spots. At these pressure points your skin must get used to the load of the brace.

It is therefore wise to slowly build up the use of the Genux. Although most users in the end wear the Genux all day, it's advisable to build up the usage time slowly in the first few days.

People with hairy legs should keep in mind that Genux's rollers may have an epilating effect, as happens in a metal watchband, for example. You can therefore choose to wear a stocking or tubi grip underneath the Genux.

Your orthotist has set up the Genux during the fitting phase. The chosen settings were at that moment carefully selected by your orthotist to best fit your situation. However, some of these settings may need to be modified later on.

In the end, only you can really judge whether the Genux is comfortable, by wearing it for hours. Therefore, it's a good idea to register your first-day experiences for yourself, for example, by writing them down. If, after a few days, you find that there is still some improvement needed in the setting of your Genux, your orthotist will get good idea of your experiences and know how to customize the Genux to meet your needs. Setting up the Genux requires a good insight into the clinical situation of your knee and the possibilities and impossibilities of the Genux. Your orthotist is trained for that. Therefore, contact him if something needs to be changed and do not change settings yourself.

## ACTIVE USE OF THE GENUX

The Genux does his job when the leg is stretched and loaded, especially during standing and walking. If the Genux is bent and/or the leg is not loaded, the corrective action of the Genux is low. Some people choose not to wear the Genux on days or dayparts that they are mostly sitting. For other people, even the few steps they make during such a day(parts) are too unstable and/or painful to do without the Genux. You can ultimately judge best for which activities you most benefit from wearing your orthosis.

Keep in mind that sometimes the reaction to overloading your knee (by not wearing your Genux) will come later, for example, at night. Most people therefore choose to wear the Genux throughout the day.

The Genux can be used for sporting activities. Exercising is healthy. If you are able to exercise again, using the Genux, we advise you do that. However, the Genux is not a sports brace. The Genux will especially benefit from sports activities where you can make steps, such as walking. For sports where the knees remain mainly bent, such as cycling, skating or skiing, the Genux relieving effect is significantly less.

Keep in mind that if you're going to walk more and faster, the Genux pushes more to your leg. This may overload the skin on the contact points with the Genux. Slowly building up activities is therefore advisable.

## PHOTO MEASUREMENT

Ambroise not only pays attention to the innovation of its products, but also to the way they are individually measured. Every Genux is custom made based on two digital photos using the Ambroise Photo Measurement Technique. (See Figure 4, page 8).

The Ambroise software converts the photos to a production drawing with the exact leg contour and sizes. Casting the leg is history at Ambroise! Step one is an investigation of residual muscle strength and mobility of the hip, knee and ankle. Then an analysis is made of your gait. The measurement process is done by appointment only and takes about half an hour.

## DELIVERY

When the orthosis is ready, a delivery appointment is made. At that time, the final check takes place before the orthosis is delivered. The process of getting you a custom made orthosis can be quite time consuming: measuring, applying to the insurer, fitting, maybe an extra correction and finishing. The delivery time of a Genux orthosis is very short despite all these steps, even though it is a fully custom made brace. The orthosis can be delivered within 2 (working) weeks (if approved by the insurance).

*Note: this is the standard procedure for orthoses made in the Netherlands. If you live outside of the Netherlands, the procedure can be different. Please contact your local orthotist about the procedure in your country.)*

## GETTING USED TO THE GENUX

When advising, measuring, adjusting and delivering your orthopedic device a lot of attention has been paid to the right fit. Still, the leg will have to get used to a new position or support. Therefore use a build-up schedule.

## CHECK-UP

It is always wise to make an inspection appointment after a few weeks. Once pressure sores occur which threatens to damage the skin, you should always contact your orthotist immediately for inspection. Particularly in this case of diabetics, additional check-ups are very important. If everything goes as planned, we recommend having an annual check-up for fitting, functionality and comfort.

## THE ROLE OF THE PHYSIOTHERAPIST, MORE THAN JUST PRACTICE

A lot of practice is needed when using the Genux. The user needs to be in control of the orthosis. The physical therapist can play an important role so that the user becomes familiar with the orthosis and can use it safely. General and daily activities need to be practised and walking needs to become an automatic rather than a conscious activity again. Think of distractions as traffic or uneven surfaces. It is also important to pay attention to the mental process. An orthosis is intended as a medical device, that you'd rather do without. Moreover, it takes perseverance to learn to handle it.

In the beginning the benefits of the brace may not immediately outweigh the disadvantages. This could mean that the user becomes demotivated. This will be prevented by proper instruction and guidance. That is why the role of a physiotherapist is so important. The orthosis is custom made and individually tuned. Residual muscle strength and mobility is taken into account. Important for the use of the orthosis is that the existing muscle strength and mobility is maintained and used correctly. Besides gait training also think about muscle strength training for remaining strength around hip, knee and ankle as far as possible and preventing contractures (shortening of muscles).

## COULD THE GENUX BENEFIT YOU?

If you're interested in additional information on the Genux or if you want to find out if the Genux could benefit you, please feel free to contact us. You can phone us at +31 53 430 28 36 or email us: [info@ambroise.nl](mailto:info@ambroise.nl). One of our clinical experts is more than happy to discuss the best solution for your problems with you. And we're more than happy to see how we can realise a well fitted Genux for you, provided that this will be a suitable option in your case. Your local orthotist or specialist should also be able to provide additional information on the applicability of the Genux in your case.



Figure 4: Photo measurement, casting the leg is no longer needed.



# GENUX KNEE ORTHOSIS PRODUCT INFORMATION

## ITEM NUMBERS

Genux Lateral Left:	400001
Genux Lateral Right:	400002
Genux Medial Left:	400003
Genux Medial Left:	400004

## MAINTENANCE

Necessary maintenance extends the life of the product. The timely replacement of simple and relatively inexpensive parts helps to reduce wear and tear on expensive and more difficult to replace parts.

The Genux is made of sustainable stainless materials. You can clean the parts of the orthosis using a damp cloth, optionally moistened with not aggressive degreasing products. When you notice the orthosis to not work smoothly, it is strongly advised not to lubricate hinges with oil or other lubricants. This seems to help initially, but greasy substances will attract dust and dirt, which will cause even more problems. In addition, lubricants can cause dirty spots in clothing. It is advised to clean the hinges with a degreasing product such as alcohol, acetone or similar products or contact the orthotist.

Desired maintenance is also important for lasting high wearing comfort by replacing in a timely manner the parts that are in direct contact with the skin, such as straps and pelottes,

It is recommended to let your Genux be checked by your orthotist once a year (with very active use twice a year). He can then judge the proper functioning of your orthosis, but can also check whether the Genux is still the best solution for your clinical situation.

## WHAT TO DO WITH PROBLEMS

Despite the care that Ambroise and your orthotist spend to ensure the maximum quality of your Genux, something can go wrong. Your orthotist is the first point of contact in case of problems. He can best judge what needs to be done to solve the problems. It may be that changing one of the Genux settings in your case is the best. Perhaps, despite all the guarantees, something went wrong. Your orthotist can judge whether he can perform the repair or that your Genux has to be sent to Ambroise. Also, your orthotist can investigate if your situation may have changed, so that Genux is no longer the best solution for you.

Also talk to your doctor about possible problems with your orthosis. An orthosis should help to reduce your complaints. If that is not the case then a solution needs to be found.

The warranty on a Genux is with normal use, one year.

## REPLACEMENT OF SPARE PARTS

It may occur that parts of the orthosis need to be replaced. Of course you can order these from us. Please contact us and we will send a replacement part.

## ADJUSTING THE ORTHOSIS

If you have the feeling the orthosis is too tight (pinches) or too loose (slips) it is important that the orthosis will be properly fitted by your orthotist.



Figure 5: Genux medial side.

# GENUX KNEE ORTHOSIS

## INFORMATION FOR THE PROFESSIONAL

### CONTRAINDICATIONS:

- Overweight (> 120 kg)
- Knee flexion contracture > 10°
- Full instability: valgus and varus
- Non-correctable valgus / varus > 10°
- Quadriceps < 4 (MRC scale. A UTX can be considered as an alternative)
- Hyperextension > 20° (in that case choose a UTX POST)

### ADJUSTMENT OF THE PELOTTE CARRIER

1. Remove the pelotte (see page 13)
2. Unscrew the locking screws of the FS cable in the connector
3. Use the Ambroise bend pliers to bending the pelotte carrier
4. Reattach the FS cable
5. Place the pelotte back

On our YouTube channel [www.youtube.com/AmbroiseHolland](https://www.youtube.com/AmbroiseHolland) you can find a tutorial how to adjust the pelotte carrier.



## PHOTO MEASUREMENT GENUX

### Focus points by the preparation of the photo measurement

- Fold the poster on the black line and attach it to the wall.
- Measure 2m distance from the wall.
- Mark the floor at 2m distance from the wall.
- Determine the anatomical knee axis.
- Mark knee center at the lateral side of the leg, positioned at the anatomical axis.
- Mark the lateral malleolus of the ankle (only UTX).
- Mark the medial malleolus of the ankle (only UTX).

### Focus points when taking the photos

- Frontal photo: the heel against the line indicated. Make sure the feet point straight forward so all the markers are visible while taking the frontal photo, and the leg is not internally or externally rotated.
- Make sure the medial side of the foot hits the line while taking the sagittal photo.
- Take the frontal photo at knee height, 2 meters from the wall. Hold the camera vertically (Portrait).
- Make sure at least 3 of the 4 corner markers on each side of the grid are visible on the photo.
- Take the sagittal photo at knee height, 2 meters from the wall. Hold the camera vertically (Portrait).
- Make sure that the legs are fully in frame, from the feet up to the groin. Remove unwanted concealing clothes.

- Measure distance lateral malleolus till floor (only UTX).
- Measure distance medial malleolus till floor (only UTX).
- Measure distance lateral malleolus till knee center (only UTX).
- Write the measurements on the measurement form.

**Send the completed form to: [genuxorder@ambroise.nl](mailto:genuxorder@ambroise.nl)**

You can order the photo measurement poster by sending an email to [info@ambroise.nl](mailto:info@ambroise.nl)  
Order code 300187 for the UTX/Genux background kit, including markers.



## PLACING PELOTTES

Placing pelottes. Identical for all IMS pelottes. In this series you see the application to the UTX.



IA: outer shell IB: inner shell



2. Slide the outer shell on the tube (matte side out).



3. Remove the yellow strip, and press the flaps of the inner shell through the first groove of the outer shell.



4. Shape to an S-bend. Press the flaps of the inner shell through the outer groove of the outer shell.



5. Remove the yellow cover to stick the foam to the surface and press tightly.



6. You can find the size of the shell on the inside of the outer shell.



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