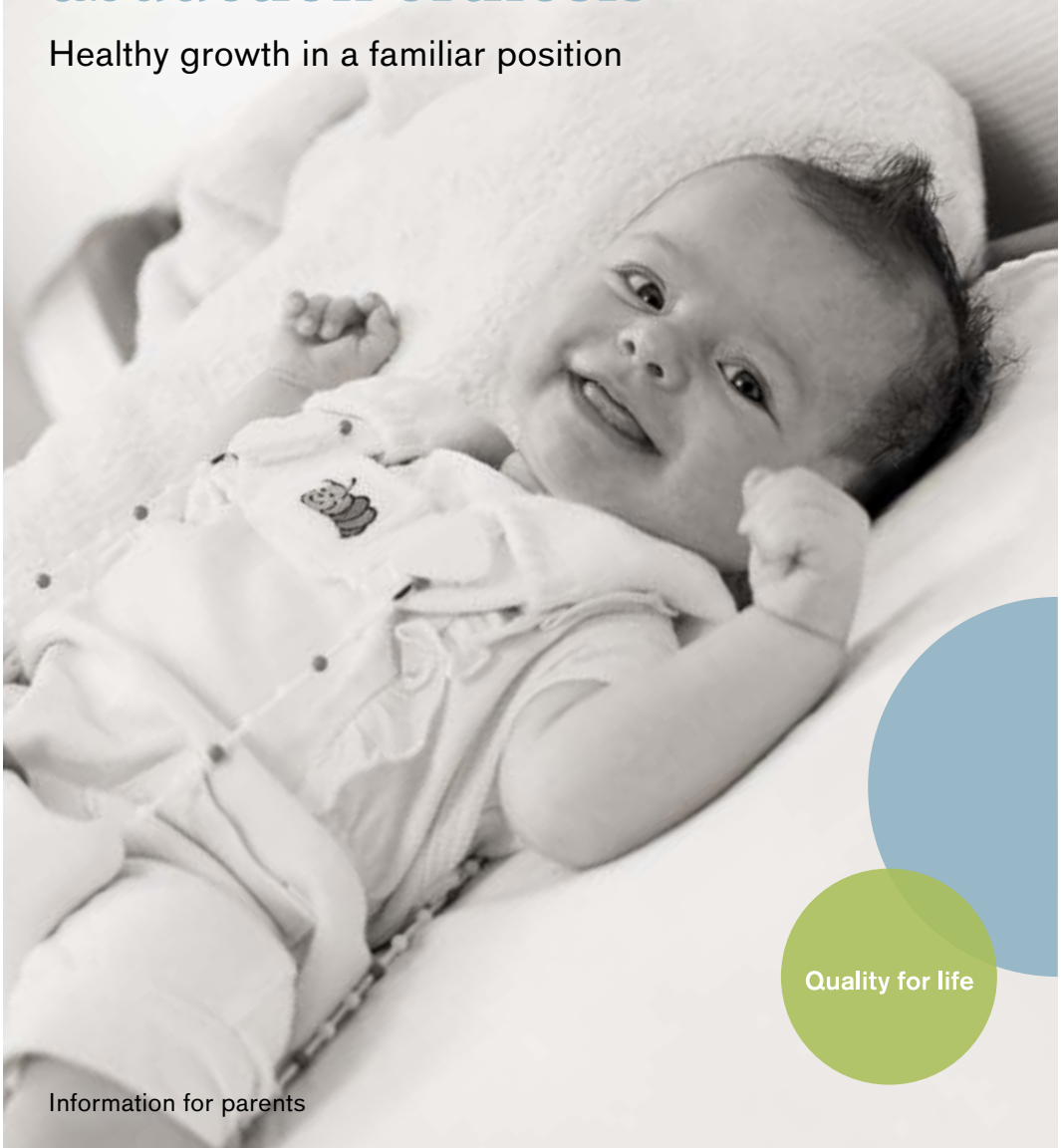


**ottobock.**

# Tubingen hip flexion and abduction orthosis


Healthy growth in a familiar position



Quality for life

Information for parents





“This might be a difficult time for you as parents. Your baby was only just born, and now you’ve been told he or she will need an orthosis. You’ll naturally be quite concerned at first. But I also want to give you the best news in the world: Hip dysplasia is an orthopaedic condition that can be completely cured. However, the only way to do this is by using a hip flexion and abduction orthosis for a certain time to regulate the position of your baby’s legs. That’s why I want to impress on you how important it is to be consistent at this point – and you will soon have this diagnosis far behind you. I wish you and your child the very best!”

Dr Heiko Lorenz  
Göttingen University Hospital  
Senior Consultant for Pediatric Orthopaedics



“Our daughter Tilda has hip dysplasia. She was three days old when we got the diagnosis after an ultrasound exam. We were naturally shocked at first. When I saw the orthosis, I wasn’t sure I would be able to manage it – but it’s really simple to use. Tilda didn’t respond very well to the orthosis initially, and she cried. But it soon became part of our routine.”

Steffi, 34, Tilda's mother

# What is hip dysplasia?

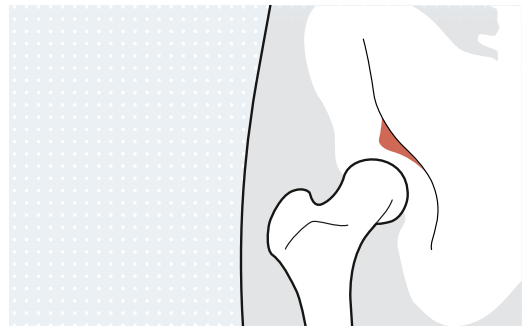
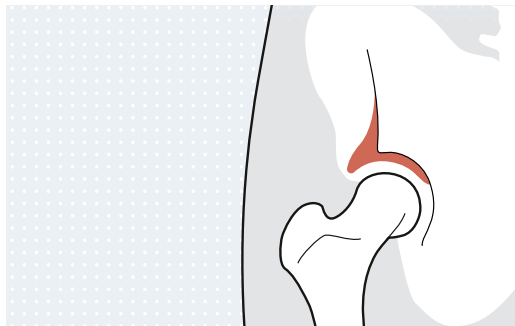
Hip dysplasia is quite common amongst newborns. Around 2–4% of newborns in Germany alone have this condition, in which the head of the hip joint (femoral head) is not optimally positioned in the socket. The sooner the immature joint is treated, the better. Optimum development of the hip joints is most readily influenced in the first few weeks of life.

## Normal hip development

Babies instinctively assume a very specific favourite position in the womb. The hips are flexed at more than 90°, and the legs are turned outward at an angle of 30° to 45°. This puts the femoral heads in an ideal position in the sockets. By assuming this position, your baby is actively promoting the development of his or her hip joints.

## Immature hip joint

If your baby doesn't assume the favoured position in the womb – due to a breech presentation, for example – a bone defect may occur at the top of the socket or the socket itself is too shallow. As a result, the head of the hip joint on the thigh bone is not covered by the socket as it should be. This is where the Tübingen hip flexion and abduction orthosis comes into play. The orthosis replicates the natural position of the hips in the womb and therefore gives your baby's joints a bit more time to mature.



# The therapy process

1. Diagnosis and therapy consultation
2. Doctor customises initial orthosis settings and applies it together with the parents
3. Checkup after a few days to answer any questions
4. Clinical checkups and ultrasound exams every six weeks or so (to make adjustments to accommodate growth and check the healing process)

After the diagnosis, your pediatrician or orthopaedist will explain the treatment and how the Tübingen hip flexion and abduction orthosis works. He or she will then individually adjust the orthosis for your baby.

## Regular checkups

Your doctor will use regular ultrasound exams (every six weeks or so) to monitor the healing process. These exams are used to measure the angle between the head and socket of the joint. The doctor will also check the position of the femoral head and the extent to which the socket is still deformed. Based on these exams, the doctor can determine when and how often the orthosis needs to be readjusted.

## Conclusion of treatment

Once the hip measurements have reached the normal range, the process of “weaning” your baby off the orthosis begins. In other words, your doctor gradually reduces the amount of time your baby wears the orthosis. At first, it is removed during the day and worn only at night. Your doctor will decide when you can stop using the orthosis entirely. As a rule of thumb, it will be needed for around double the child’s age at the start of treatment.

## End of treatment and follow-up care

During a final checkup, your doctor will carefully examine your baby’s joints again, usually by taking an X-ray of the pelvis. We recommend that you have your child’s hips examined once more shortly before they begin school or before the end of puberty.



“Dr Lorenz recommended that we roll Tilda onto her side now and then so she wouldn’t just be lying on her back all the time. A nursing pillow is the best way to do this. I prop her up so she’s supported on her side like a little bug and can lie in a comfortable position.”

Steffi, 34, Tilda's mother

# Perfecting the familiarisation process

## **Getting used to the orthosis requires consistency!**

More than one quarter of a million babies around the world have worn the Tübingen hip flexion and abduction orthosis since the late 1980s. Many of these children have now reached adulthood. Along with numerous studies, they are proof that the orthosis achieves excellent treatment outcomes. Your baby's hips will develop normally if you use the orthosis consistently. In other words, the more consistent you are, the easier things will be for your baby. If you occasionally loosen or remove the orthosis out of a misplaced sense of empathy, you put stress on your child by repeatedly interrupting the progress they have made in getting used to the orthosis. Doing this extends the familiarisation process unnecessarily and also poses the risk of serious injuries.

## **Or maybe something isn't quite right?**

It's completely normal for babies to resist their new companion at first. They may cry more frequently in the first few days and appear fussy. As parents, you naturally have instincts as well. If you feel that the orthosis doesn't fit as well as it should or is too tight for your child, please contact your doctor.



### **The scientific background**

The well-known pediatric orthopaedic surgeon Bob Salter proved that children's hip joints mature optimally under the conditions existing in the womb, i.e. in nature. He coined the term "human position", which is equivalent to "natural position".\*

\* Salter R. B. (1968): Etiology, pathogenesis and possible prevention of congenital dislocation of the hip. *Canad Med Ass J* 98: 933–945.

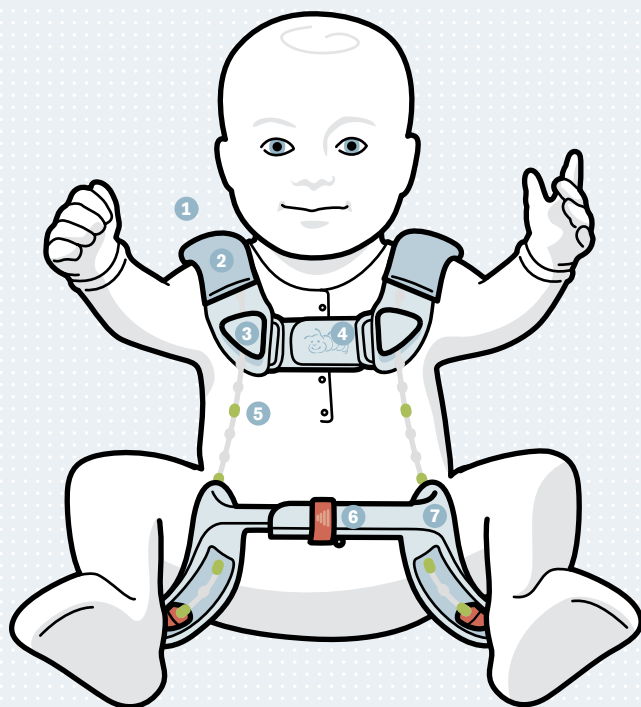




“Parents, it’s worth being strict, especially for your child’s sake. Because if you don’t apply the orthosis as your doctor has prescribed, this may result in one or both of the femoral heads becoming dislocated from the sockets. Immature hip joints that are not sufficiently treated can cause premature wearing of the cartilage and subsequently osteoarthritis when your child is a young adult. This often requires surgery later on.”

Dr Heiko Lorenz  
Göttingen University Hospital  
Senior Consultant for Pediatric Orthopaedics

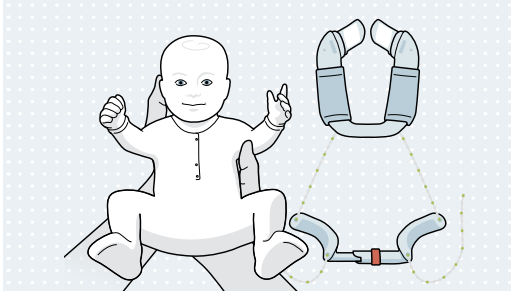
# The orthosis design



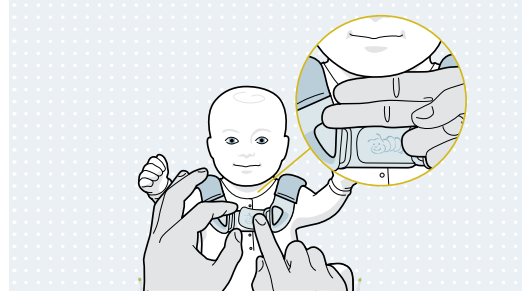
- 1 Anatomical shoulder harness**
  - 2 Four terry cloth pads** are also included as extras.
  - 3 Easy-to-use closures**
  - 4 Hook-and-loop closure** can be completely removed for cleaning. An extra closure is included.
  - 5 Coloured beaded chain** makes it easy to apply the orthosis the same way each time (reproducible settings).
  - 6 Spreader bar**
  - 7 The orthosis is constructed completely of plastic,** making it easy to clean.
- i Red is for the doctor only!**  
Settings on the red elements of the orthosis are changed only by your doctor. You as parents will only need to use the three white closures on the shoulder harness.

**i Further information**  
on applying the Tübingen hip flexion and abduction orthosis can be found in the guide for parents included with the product.

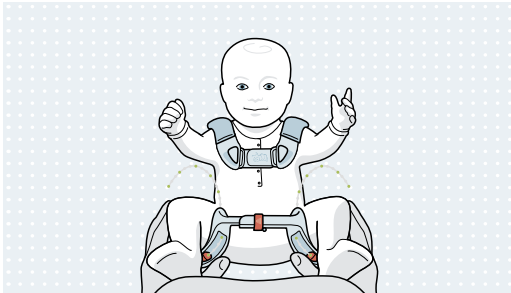
## Here's how to put on the orthosis correctly!



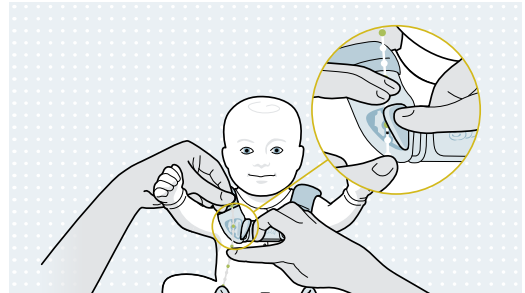
**1** Caterpillar in the front, supports at the bottom! Applying the orthosis is similar to putting on overalls. Place your baby in the open orthosis, making sure that the round closure element with the shoulder harnesses is at the top and the leg supports are at the bottom.



**2** Place the arms into the shoulder harness and close the orthosis, first over the upper chest using the strap with the caterpillar. The strap is ideally positioned around two finger widths from the base of the neck.



**3** Then place the legs into the semi-circle supports, gently supporting your baby's feet against your abdomen while doing so.



**4** Fasten the orthosis by grasping the two beaded cords and engaging them in the fastening clips on the right and left of the caterpillar strap. To do so, push the bead marked by your doctor or O&P professional into the respective notch and close both clips so you hear them click into place.

### Orthosis is correctly applied if

- The legs are positioned loosely in the supports and are turned outward at the medically recommended angle (approx. 30–45°)
- The legs are at a right angle to the abdomen (approx. 90°)
- You can fit approximately two fingers between the closure strap and the base of your baby's neck

### Orthosis is not correctly applied if

- The legs are not turned outward at the medically recommended angle
- The legs are not at a right angle to the abdomen
- The closure strap is close to your baby's Adam's apple

# Frequently asked questions ...

## ... regarding your daily routine with the orthosis

### Can my baby wear the orthosis in water?

Yes. The plastic is even resistant to salt water. So splashing in the sea on holiday won't be a problem. The terry cloth covers and hook-and-loop closures are also designed for contact with water, but should be rinsed after contact with salt water.

### Can we use a baby carrier with the orthosis?

Yes. Like the Tübingen hip flexion and abduction orthosis, baby carriers are based on a baby's natural position. For this reason, your baby can continue to wear the orthosis in a baby carrier.

### Can I transport my child in a car seat with the orthosis?

Yes, this is no problem with modern child seats. Just be sure that the belt is below the spreader bar.

### Can the orthosis be worn directly on the skin?

The orthosis will generally be more comfortable when worn with clothing. For light clothing worn on warm days, for example, please use the fabric covers available from your medical supply company for the leg supports. You should have your baby wear at least a onesie or a shirt.

### Can I hold my baby with the orthosis?

Of course you can! There is nothing special to be aware of when cuddling or in any other situation.



#### Staying nice and clean

For spills, spit up, and other little messes, you can simply wipe the plastic parts clean with a damp cloth. You can remove the fabric elements and wash them in the washing machine at 40 °C with standard mild detergent (no fabric softener). Please air dry the parts; do not tumble-dry. A pair of terry cloth covers and a replacement hook-and-loop closure are included in the package.



## ... regarding the treatment

### **Are ultrasound exams harmful for my baby?**

Ultrasound exams do not involve the use of radiation. They are entirely painless and are a standard examination method today.

### **Will it take long for my baby to get used to the orthosis?**

Most babies get used to the new situation very quickly (one or two days). Some babies do protest and need more time. Should your baby fight the orthosis for a long time, talk to your doctor and have the orthosis checked.

### **Does my baby have to wear the orthosis all day and all night?**

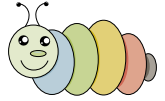
Normally, the hip flexion and abduction orthosis should be worn day and night – that is, for about 23 hours a day (except when changing and bathing).

### **Will the orthosis limit my baby's freedom of movement?**

No. Your baby's general motor development, for example when they learn to turn their body, is not delayed compared to other children.



# Notes



A series of horizontal dotted lines for writing notes.

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